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Documents of the World Administrative Radio Conference (WARC-79) (Geneva, 1979)

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- This PDF includes Document No. 401-500
- The complete set of conference documents includes Document No. 1-984, Document DT No. 1-237

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 401-E 29 October 1979 Original : Spanish

COMMITTEE 5

Argentina, Costa Rica, Cuba, El Salvador, Guatemala, Guyana, Jamaica, Mexico, Nicaragua, Uruguay and Venezuela

PROPOSALS FOR THE WORK OF THE CONFERENCE

GHz

	11.7 - 12.7
	Allocation to Services
	Region 2
ARG/401/1 MOD	11.7 - 12.7
CUB	FIXED
SLY GTM GUY IMC	FIXED-SATELLITE (Earth-to-space)
MEX NCG	MOBILE except aeronautical mobile
VEN	BROADCASTING
	BROADCASTING-SATELLITE
	3786/405BB MOD 3787/405BC

NOC . 3786/405BB

ARG/401/2 CTR CUB SLY GTM GUY JMC MEX NCG URG VEN	MOD	3787/405BC (rest unchanged).	The use of t	he band	11.7 -	12.2 <u>12.7</u>	GHz in	Region 2	
ARG/401/3 CTR CUB SLY GTM GUY JMC MEX NCG URG VEN	ADD	3786A whatever plan may re Conference, 1983.	In Region 2, sult from the	the all Regions	ocation al Admin	of this istrative	band rem Broadca	RCHIVE U.I.T. GENEVE	ect to cellite

3786A 3786B

For reasons of economy, this document is printed in a limited number. Participants are therefore kindly asked to bring their copies to the conference since only a few additional copies can be made available.

Document No. 401-E Page 2

ADD

ARG/401/4 CTR CUB SLY GTM GUY JMC MEX NCG URG

VEN

1/21/3

3786B In the band 12.2 - 12.7 GHz in Region 2, space radiocommunication services shall only be introduced after the Regional Administrative Broadcasting-Satellite Conference, 1983 has taken place.

<u>Reasons</u>: 1) To give the Regional Administrative Broadcasting-Satellite Conference, 1983, greater flexibility in deciding how services should be shared in this band (ADD 3786A).

2) The proposed allocation will enable RABSC-83 to choose any of the planning methods put forward up to the time of the Conference.

3) It will allow the countries in the Region more time to analyse, in the light of their requirements, the best way of using this band in future.

4) This proposal covers the other kinds of proposals made on the subject.

5) The planning principles to be applied in Region 2 have to be borne in mind. The plan adopted has to be flexible enough to allow room for technical development, new propagation data, different methods of system design, etc.

CONFERENCE ADMINISTRATIVE MONDIALE DES RADIOCOMMUNICATIONS

Addendum N^O 1 au Document N^O 402-F/E/S 19 novembre 1979 A Original : français anglais espagnol

(Genève, 1979)

COMMISSION 5

DEUXIEME RAPPORT DU GROUPE DE TRAVAIL 5BA A LA COMMISSION 5

Dans la bande de fréquences comprises entre 405 et 415 kHz, dans la Région l, il convient d'ajouter le renvoi MOD 3471/178, dont le texte figure dans l'Annexe l au Document N° 645.

SECOND REPORT OF WORKING GROUP 5BA TO COMMITTEE 5

In the frequency band 405 - 415 kHz, footnote MOD 3471/178, worded as in Annex 1 to Document N° 645, should be inserted for Region 1.

SEGUNDO INFORME DEL GRUPO DE TRABAJO 5BA A LA COMISION 5

En la banda de frecuencias de 405 - 415 kHz, para la Región 1, debe agregarse la nota MOD 3471/178, con el texto que figura en el anexo 1 del Documento N.º 645.

> L. COOK Président du Groupe de travail 5BA



INTERNATIONAL TELECOMMUNICATION UNION

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 402-E 29 October 1979 Original : Spanish

COMMITTEE 5

SECOND REPORT OF WORKING GROUP 5BA TO COMMITTEE 5

1. Frequency band 405 - 415 kHz

1.1 Working Group 5BA, having examined all the proposals relating to the above frequency band unanimously decided to recommend to Committee 5 the adoption of the revised Table and the modification of Footnote RR 3475/182 which appear in <u>Annex 1</u>. It also decided to recommend the deletion of footnotes RR 3476/183 and 3477/184.

2. Reduction of the 500 kHz guardband

2.1 Having considered all the proposals on this subject, the Working Group unanimously decided to recommend that Committee 5 should decide in principle to reduce the 500 kHz guardband to 495 - 505 kHz.

2.2 However, it agreed to recommend that the decision on the date of entry into force of the new guardband should be taken by the next competent World Administrative Conference. A draft Resolution adopted to this effect appears in <u>Annex 2</u>.

2.3 Allocations in the bands 490 - 495 kHz and 505 - 510 kHz will be discussed in a subsequent report.

L. COOK Chairman of Working Group 5BA

Annexes : 2



ANNEX 1

kHz 405 - 415

Region 1	Region 2	Region 3
405 - 415	405 - 415	
RADIONAVIGATION	RADIONAVIGATION	
	Aeronautical mobile	
3475/182	3475/182	

MOD 3475/182

The frequency 410 kHz is designated for radio direction-finding in the maritime radionavigation service and the other radionavigation services to which the band 405 - 415 kHz is allocated shall not cause harmful interference to radio direction-finding in the band 406.5 - 413.5 kHz.

SUP 3476/183

SUP 3477/184

ANNEX 2

RESOLUTION

Relating to the date of entry into force of the 10 kHz guardband for the frequency 500 kHz in the mobile service (distress and calling)

The World Administrative Radio Conference, Geneva, 1979,

<u>considering</u>

a) that the radio frequency spectrum should be used in the most efficient possible way,
b) that the present Conference has adopted a 10 kHz guardband for the frequency 500 kHz,
which is the international distress and calling frequency in radiotelegraphy in the mobile service;

recognizing

a) that an adequate amortization period should be allowed for the radio equipment currently in service;

ъ)

that technical progress has led to the production of more stable and reliable equipment;

resolves that the next competent World Administrative Radio Conference shall decide on the date of entry into force of this new arrangement;

<u>invites</u> the Intergovernmental Maritime Consultative Organization (IMCO) to examine this subject as part of its study of the maritime distress and safety system and to submit to the above-mentioned Conference a Recommendation relating to the date of entry into force of the new guardband;

requests the Secretary-General to forward the present Resolution to IMCO.

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 403-E 30 October 1979 Original : English

COMMITTEE 5

SECOND REPORT OF WORKING GROUP 5BB TO COMMITTEE 5

1. Frequency bands 6 200 - 6 525 kHz, 8 195 - 8 815 kHz, 12 330 - 13 200 kHz, 16 460 - 17 360 kHz, 22 000 - 22 720 kHz (maritime mobile exclusive bands)

1.1 All proposals relating to these bands were considered and the Working Group <u>unanimously</u> agreed to recommend to Committee 5 that no change be made in these bands and to footnote 3495/201A (as far as frequency 8 364 kHz is concerned) (see Annex 1).

1.2 It was also agreed to retain footnote 3507/211 unchanged, subject to the advice to be sought from Committee 4 concerning the power limit (see paragraph 4 of Document No. 355), to update footnote 3508/211A and to delete footnote 3510/213 (see Annex 1).

1.3 The question of footnotes providing for the possible use of some of the higher bands. allocated to the maritime mobile service by the fixed service will be reconsidered after completion of the allocations in the HF bands.

2. Frequency bands between 4 750 - 4 995 kHz

2.1 All proposals concerning these bands were considered and the Working Group <u>unanimously</u> agreed to recommend the revised Table which appears in Annex 2.

2.2 It was also agreed that the provisions of footnote 3496/202 would apply to the broadcasting service in these bands. It was also decided that the provisions of Article N27 to which reference is made in this footnote would be included in Article N7.

3. Frequency bands 4 700 - 4 750 kHz, 5 680 - 5 730 kHz, 6 685 - 6 765 kHz, 8 965 - 9 040 kHz, 11 175 - 11 275 kHz, 13 200 - 13 260 kHz, 15 010 - 15 100 kHz, 17 970 - 18 030 kHz (aeronautical mobile (OR) service exclusive bands)

3.1 All proposals concerning these bands were considered and the Working Group provisionally agreed to recommend to Committee 5 that no change be made in these bands subject to further consideration of proposals submitted by the delegations of the Netherlands and of Sweden for some of these bands after consideration of other parts of the HF spectrum (see Annex 3).

3.2 It was also agreed to retain footnotes 3495/201A and 3500/205A unchanged (as far as they concern frequency 5 680 kHz).

P. BARNES Chairman of Working Group 5BB



ANNEX 1

/ maritime mobile service exclusive bands $_7$

			^{kHz} 6 200 – 6 525	
		Region 1	Region 2	Region 3
		6 200 - 6 525	MARITIME MOBILE	/
			3507/211 3508/211A	
NOC	3507/211	On co maritime mobile service, t exceptionally by fixed sta country in which they are [50 watts]. At the time of the International Frequ conditions.	ondition that harmful interf the frequencies between 6 20 utions, communicating only w located, with a / mean / po e of notification of these f mency Registration Board wil	erence is not caused to the 00 and 6 525 kHz may be used ithin the boundary of the wer not exceeding requencies, the attention 1 be drawn to the above
MOD	3508/211A	For t of Region 3 south of latit	he use of carrier frequency ude 25 ⁰ N, see No. 6648/135	6 215.5 kHz in the zone lF.
			kHz	
		8 195 - 8 815	8 195 - 8 815 MARTTIME MORTLE	
			3):05/201	
NOC	3495/201A	The f 8 364 kHz, / 121.5 MHz, 15 accordance with the proced services, for search and r	Frequencies / 2 182 kHz, 3 0 56.8 MHz and 243 MHz / may a dures in force for terrestri rescue operations concerning	23 kHz_7, 5 680 kHz, lso be used, in al radiocommunication manned space vehicles.
-		The s 14 993 kHz and 19 993 kHz, confined in a band of <u>+</u> 3	ame applies to the frequence but in each of these cases kHz about the frequency.	ies 10 003 kHz. emissions must be
SUP	3510/213		kHz 12 330 - 13 200	
		12 330 - 13 200	MARITIME MOBILE	
SUP	3510/213		kHz 16 460 - 17 360	
		16 460 - 17 360	MARITIME MOBILE	
SUP	3510/213		kHz 22 000 - 22 720	
_	and the second se	22 000 - 22 720	MARITIME MOBILE	
	SUHD 3			

[Note]: The band 4 063 - 4 438 kHz will be dealt with in a separate report. The band 25 070/5/25 110 kHz was dealt with in Document No. 228 (Rev.2)].

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Document No. 403-E Page 3

ANNEX 2

kHz 4 750 - 4 995

Region 1	Region 2	Region 3
4 750 - 4 850	4 750 - 4 850	4 750 - 4 850
FIXED	FIXED	FIXED
AERONAUTICAL MOBILE (OR)	MOBILE except	BROADCASTING 3496/202
LAND MOBILE	BROADCASTING 3406/202	Land mobile
BROADCASTING 3496/202	DIORDORDIING 34907202	
4 850 - 4 995	FIXED	
	LAND MOBILE	
	BROADCASTING 3496/202	

NOC

3 Å.

3496/202

For the conditions of use of this band by the broadcasting service see Nos. 3425/135, 3426/136 and 6215/423 to 6221/428.

ANNEX 3

$\underline{/}$ aeronautical mobile (or) service exclusive bands $\underline{/}$

	kHz 4 700 ~ 4 750	
Region 1	Region 2	Region 3
4 700 - 4 750	AERONAUTICAL MOBILE (OR)	
	kHz 5 680 - 5 730	
5 680 - 5 730	AERONAUTICAL MOBILE (OR)	
	3495/201A 3500/205A	
with the procedures search and rescue of and 19 993 kHz, but band of ± 3 kHz about	in force for terrestrial radiocom merations concerning manned space The same applies to the frequence in each of these cases emissions t the frequency.	munication services, for vehicles. ries 10 003 kHz, 14 993 kHz must be confined in a
5 680 kHz may also b 6646/1353B respectiv in coordinated searc	The carrier (reference) frequence e used, in accordance with Nos. 6 ely, by stations of the maritime h and rescue operations. $6 \ 685 \ - 6 \ 765$	ies / 3 023 kHz/ and 6640/1326C and mobile service engaged
6 685 - 6 765	AERONAUTICAL MOBILE (OR)	
	kHz 8 965 - 9 040	

\$ | |

8 965 - 9 040	AERONAUTICAL MOBILE (OR)	
	kHz 11 175 - 11 275	
11 175 - 11 275	AERONAUTICAL MOBILE (OR)	
	kHz 13 200 - 13 260	
13 200 - 13 260	AERONAUTICAL MOBILE (OR)	
· · · · · · · · · · · · · · · · · · ·	kHz 15_010 - 15_100	
15 010 - 15 100	AERONAUTICAL MOBILE (OR)	
	kHz 17 970 - 18 030	
17 970 - 18 030	AERONAUTICAL MOBILE (OR)	

NOC 3495/20

NOC 3500/20

INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 404-E 29 October 1979 Original : English

COMMITTEE 4

SIXTH REPORT FROM WORKING GROUP 4C TO COMMITTEE 4

Subject : MOD Appendix 3

1. Working Group 4C, having considered all proposals concerning Appendix 3, submits Appendix 3 as revised for consideration in Committee 4 (see Annex).

2. The tolerances in the new middle column of the Table are identical to those at present in the right-hand column. The same applies to the corresponding notes, notwithstanding editorial amendments without changing the substance (e.g. updating, new appropriate class of emission).

3. Since certain decisions on frequency band limits or frequency bands have not yet been taken in Committee 5, frequencies, where relevant, have been enclosed in square brackets.

4. The numbering of notes referring to the Table is based on the following :

- Notes referring to the new middle column <u>only</u> have been designated A to J in the order in which they first appear;
- Notes referring to both the middle and right-hand columns or to the righthand column only have been designated a to z, also in the order in which they first appear.

5. This report and its Annex have been approved unanimously.

E. GEORGE Chairman of Working Group 4C

<u>Annex</u> : l

U.I.T. GENEVE

Document No. 404-E Page 2

A N N E X

APPENDIX 3

Mar Mar 2 Aer 2

MOD

Table of Transmitter Frequency Tolerances

(See Article N4)

MOD	1. Freque expressed in parts in 10 ⁶ ,	ncy tolerance is defined in Art unless otherwise indicated.	icle N1 and 1s
MOD	2. The po the peak envelope power for all other transmitters, unl radio transmitter" is defin	wer shown for the various categ single-sideband transmitters a ess otherwise indicated. The t ed in Article N1.	ories of stations is nd the mean power for erm "power of a
ADD	3. For te categories of stations m shown in the Table.	chnical and operational reasons ay need more stringent tole:	, certain rances than those
MOD	Frequency Bands (lower limit exclusive, upper limit inclusive) and Categories of Stations	Tolerances applicable until 1st January, 1990 to transmitters in use and to those to be installed before 2nd January, 1985	Tolerances applicable to new transmitters installed after 1st January, 1985 and to all transmitters after 1st January, 1990
	Band: 9 to / 535_7 kHz		
	 Fixed Stations: 9 to 50 kHz 50 to 2⁻⁵³⁵7 kHz 	1 000 200	100 50
	2. Land Stations:		•
	a) Coast Stations:		100 a)
	— power 200 W or less	500 k)	
	- power above 200 W	200 A)	
	b) Aeronautical Stations	100	100

MOD

· · · · · · · · · · · · · · · · · · ·		
3. Mobile Stations :		
a) Ship Stations	1 000 8)	200 b)
b) Ship's Emergency Trans-	5.000	500 c)
millers	5 000	500
d) Aircraft Stations	500	100
	100	100
4. Radiodetermination Stations	100	100
5. Broadcasting Stations	10 Hz	10 Hz
D [535] +0 [] FUS 7 KH+		
Band : [33] CO [1 003] KIL	10 Hz d)	10 Hz d)
broawcasting Stations		10 112 07
L _		
Band: [1605] to 4 000 kHz		
1. Fixed Stations :		
- power 200 W or less	100	1 00 e) f)
— power above 200 w	50	50 e)f)
2. Land Stations		
- power 200 W or less	100 A) C) g)	100 a) e) g)
- power above 200 W	50 A) C) g)	50 a) e) g)
3. Mobile Stations		
a) Ship Stations	200 B) D)	40 Hz h)
b) Survival Craft Stations	300	100
c) Emergency Position-	300	100
Indicating Radiobeacons	300	100
d) Aircraft Stations	100 [,] g <i>j</i>	IUU g)
• Land Mobile Stations	200	50 <u>i</u>)
4. Radiodetermination Stations :		
power 200 W or less	100	20 j)
	~	10 J
5. Broadcasting Stations	20	10 Hz k)

. Fixed Stations :		>
—power 500 W or less	50	
power above 500 W	. 15	
a) Single sideband and		
independent sideband		
emissions		50 U
- power DUU w or less		. 30 nz . 20 ⊌-r
- power above buu w	·:	20 m2
b) Class F1B emissions		10 Hz
c) Other classes of emission		
- power 500 W or less		20
- power above 500 W		10
. Land Stations:		
a) Coast Stations:		20 Hz a) 1)
- power 500 W or less	50 A) C)	
- power above 500 W		
and less than or equal		
to 5 kW	3U A) U) 15 A) C)	
- power above 5 kW	13 A) UJ	
b) Aeronautical Stations:	(a. a)	100 a)
-power 500 W or less	100 97 50 a)	100 g/ 50 c)
	50 gy	20 0
	100	20 07
-power above 500 W	50	
3. Mobile Stations:		
a) Ship Stations:		
1) Class AlA emissions	50 E) F)	10
2) Emissions other than Class AIA	50 B) D)	50 Hz b) m)
b) Survival Craft Stations	200	50
c) Aircraft Stations	100 g)	100 g)
d) Land Mobile Stations	200	40 n)
4. Broadcasting Stations	15	10 Hz k) o)
5. Space Stations		20
	• •	

	a second a s	T
Band : 29 7 to 100 MHz		
1: Fixed Stations :		
power 200 W or less	50	
-power above 200 W	30	
- power 50 W or less - power above 50 W		30 20
2. Land Stations		20
power 15 W or less power above 15 W	50 20	
3. Mobile Stations :		20 p)
—power S.W or less	100	
-power above 5 W	50	
4. Radiodetermination Stations	200	
5.* Broadcasting Stations (other than television) :		2000 Hz q)
power 50 W or less power above 50 W	50 20	
6. Broadcasting Stations (television sound and vision):		500 Hz r)s)
power 50 W or less power above 50 W	100 1 000 Hz	
7. Space Stations		20
8. Earth Stations		20
ம்: nd : 100 to 470 MHz		<u></u>
1. Fixed Stations :)	
-power 50 W or less -power above 50 W	50 20	20 t) 10
2. Land Stations: +		
a) Coast Stations	2CG)	10
b) Aeronautical Stations	50	20 u)
c) Base Stations :		
-power 5 W or less -power above 5 W	50 20	
- in the band $\begin{bmatrix} 1 \\ 2 \end{bmatrix}$ - in the band $\begin{bmatrix} 2 \\ 3 \end{bmatrix}$ - in the band $\begin{bmatrix} 3 \\ 3 \end{bmatrix}$		15 v) 7 v) 5 v)

Editorial notes : 1) specific band around / 160 MHz 7 2) specific band around / 300 MHz / to be inserted later 3) specific band around / 450 MHz 7

3. Mobile Stations:		
a) Ship Stations and Survival Craft Stations:		
.— in the band [156-174] MHz	20 G)	10
- outside the band 156-174 MHz	50 H)w)	50 a)
b) Aircraft Stations	50	30 u)
c) Land Mobile Stations:	50	
	20	
• in the band $\begin{bmatrix} 1 \\ -1 \end{bmatrix}$		15 v)
- in the band (2)		7 V)X) 5 V)V)
		S () ()
4. Radiodetermination Stations	- 50 H)y)	50 y)
5. Broadcasting Stations		
(other than television)	20	2 000 Hz q)
6. Broadcasting Stations (television sound and vision):		500 Hz r)
-power 100 W or less	100	
-power above 100 W	1 000 Hz	
7. Space Stations		20
8. Earth Stations		20
3and : 470 to 2 450 MHz		
1. Fixed Stations :	300 1)	100
-power above 100 W	100 J)	50
2. Land Stations	300	20 z)
3. Mobile Stations	- 300	20 z)
4. Radiodetermination Stations	- 500 v)	500 v)
S Broadcasting Stations +		
(other than television)	100	100
6. Broadcasting Stations		
(lelevision, sound and vision)		500 Hz m)
-power 100 W or less	100	
—power above 100 W -	1 0 00 Hz	
7. Space Stations		20
8. Earth Stations		20

1) specific band around /_160 MHz_/
2) specific band around /_300 MHz_/
3) specific band around /_450 MHz_/

.

and : 2 450 to 10 500 MHz		
1. Fixed Stations :		
power 100 W or less	300 I) 100 J)	200 50
2. Land Stations	300	100
3. Mobile Stations	300	100
4. Radiodetermination Stations	2 000 y)	1250 y)
5. Space Stations		50
6. Earth Stations		50
and : 10-5 to 40 GHz		
1. Fixed Stations	500	300
2. Radiodetermination Stations	7 500 y)	5000 y)
3. Broadcasting Stations		100
4. Space Stations		100
5. Earth Stations		100

Page 8

Transmitter MOD Notes referring to Table of/Frequency Tolerances Existing notes a) to r) SUP ADD A) For coast station transmitters used for direct-printing telegraphy and for data transmission the tolerance is 15 Hz. This tolerance is applicable to equipment installed after 1 January 1976 (= NOC ex. 1)and to all equipment after 1 January 1985. For equipment installed before 2 January 1976 the tolerance is 40 Hz. ADD B) For ship station transmitters used for direct printing telegraphy or for data transmissions. the tolerance is 40 Hz. This tolerance is applicable to equipment installed after 1 January 1976 (= NOC ex. k)and to all equipment after 1 January 1985. For equipment installed before 2 January 1976 the tolerance is 100 Hz (with a maximum deviation of 40 Hz for short periods of the order of 15 minutes). C)For coast station single sideband radiotelephone transmitters the tolerance is 20 Hz. (= NOC ex. h)D) For ship station single sideband radiotelephone transmitters the tolerance is: 1) in the band 1 605-4000 kHz: (= MOD ex. i) 100 Hz for transmitters in use or to be installed before 7 January 1982; 50 Hz for transmitters installed after 1 January 1982, but before 1 January 1985; until 1 January 1990 or those • 2) in the band 4 000 - 23 000 kHz: 2 100 Hz for transmitters in use 6 to-bo-installed before 7 January 1978; 50 Hz for transmitters installed after 1 January 1978. (See also Appendix 17A). In

ADD (= MOD ex. p) AlA

Applicable-from + June 1977. However, in the A Morse working frequency bands a E) frequency tolerance of 200 parts in 10⁴ may be applicable to existing transmitters after + June -1977; provided that the emissions are contained within the band in question.

(ADD (= MOD ex. q)

ADD (= (MOD) ex. n) far as possible.

G) For coast and ship station transmitters in the band 156-174 MHz put into service after 1 January 1973 a tolerance of 10 parts in 10⁶ shall apply. This tolerance is applicable to all transmitters, including survival craft stations, after 1 January 1983.

F) In the \bigstar Morse calling frequency bands frequency tolerances of 40 parts in 10^{*} in the

bands between 4 and 23 MHz and of 30 parts in 10⁶ in the 25 MHz band are recommended as

ADD (= NOC ex. d)

H) This tolerance is not applicable to survival craft stations operating on the frequency 243 MHz.

ADD (= NOC ex. f)

) I) For transmitters using time division multiplex the tolerance of 300 may be increased to 500.

ADD (= NOC ex. g) J) This tolerance applies only to such emissions for which the necessary bandwidth does not exceed 3 000 kHz; for larger bandwidth emissions a tolerance of 300 applies.

ADD a) For coast station transmitters used for direct-printing telegraphy (= SPM 1) or for data transmission, the tolerance is 15 Hz.

ADD (= SPM k)

b) For ship station transmitters used for direct-printing telegraphy or for data transmission, the tolerance is 40 Hz.

ADD (= SPM one)

c)If the emergency transmitter is used as the reserve transmitter for the main transmitter, the tolerance for ship station transmitters applies.

	countries
ADD (= MOD ex. b)	d) In the area covered by the North American Regional Broadcasting Agreement (NARBA) the tolerance of 20 Hz may continue to be applied.
ADD	 e) For single sideband radiotelephone transmitters the tolerance in the band / 1 605 / to 4 000 kHz and 4 - 29.7 MHz for peak envelope powers of 200 W or less and 500 W or less, respectively, is 50 Hz. in the band / 1 605 / to 4 000 kHz and 4 to 29.7 MHz for peak envelope powers above 200 W and 500 W, respectively, is 20 Hz.
ADD (= SPM 3)	f) For radiotelegraphy transmitters with frequency shift keying the tolerance is 10 Hz.
ADD (= (MOD) ex. r)	 g) For single-sideband transmitters operating in the frequency bands 1 6054 000 kHz and 4-29.7 MHz which are allocated exclusively to the aeronautical mobile (R) service, the tolerance on the carrier (reference) frequency is: for all aeronautical stations for all aircraft stations operating on international services for aircraft stations operating exclusively on national services So Hz* Nore In order to achieve maximum intelligibility it-is suggested that administrations encourage the reduction of this tolerance to 20 Hz.
ADD (= (MOD) SPM ¹ 4)	h) For ALA emissions the tolerance is 50 parts in 10^6 .
ADD (= SPM 5)	i) For transmitters used for single sideband radiotelephony or for frequency shift keying radiotelegraphy the tolerance is 40 Hz.
ADD (=(MCD)SPM 6)	j) For radiobeacon transmitters in the band $/$ 1605 $_{-}$ - 1600 kHz the tolerance is 50 parts in 10 ⁶ .
ADD (= MOD SPM 17)	A3E carrier k) For/ transmitters with an-output power of 10 kW or less the tolerance is 20 parts in 10 ⁶ and 15 parts in 10 ⁶ in the band / 1 605 / - 4 000 kHz and 4 - 29.7 MHz respectively.
ADD (= (MOD) SPM 20)	1) For AlA emissions the tolerance is 10 parts in 10^{6} .

•

ADD (= (MOD) SPM 7) m) For ship station transmitters in the band / * / kHz, on board small craft, with a carrier power not exceeding 5 watts operating in/near coastal waters and utilizing (or (emissions the frequency tolerance is 40 parts in 10°. A3E F3E

- * Editorial note : specific band around 27 120 kHz to be inserted later.
- ADD (= (MOD) SPM 8)

n) The tolerance is 50 Hz for single sideband radiotelephone transmitters. except for those transmitters operating in the band
 [*]kHz, and not exceeding a peak envelope power of 15 watts, for which the basic tolerance of 40 parts in 10⁶ applies.

- * Editorial note : specific band around 27 120 kHz to be inserted later.
- ADD (= SPM 15)

 o) It is suggested that Administrations avoid carrier frequency differences of a few Hertz, which cause degradations similar to periodic fading. This can be avoided if the frequency tolerance were 0.1 Hz, a tolerance which would also be suitable for single sideband emissions.

ADD p) For non-vehicular mounted portable equipment with a transmitter mean (= (MOD) SPM 9) power not exceeding 5 watts the tolerance is 40 parts in 10⁶.

a mean power of

ADD (= (MOD) SPM 18) For transmitters of 50 watts or less operating at frequencies below 108 MHz a tolerance of 3 000 Hz applies.

ADD (= MOD SPM 16)	r) In the case of television stations of : (vision peak envelope power) '
	- 50 watts for less in the band 29.7 to 100 MHz
	- 100 watts for less in the band 100 to [960] MHz
	and which receive their input from other television stations or which serve small isolated communities, it may not, for operati

which serve small isolated communities, it may not, for operational reasons, be possible to maintain this tolerance. For such stations, the tolerance is 2000 Hz.

Page 12		<u>0. 404–E</u>
		(vision peak envelope power)
		For stations of 1 watt/or less this tolerance may be relaxed further to :
		- 5 kHz in the band 100 to 470 MHz
		- 10 kHz in the band 470 to $[960]$ MHz.
ADD (= (MOD) SPM 19)	s	For transmitters for system $M(NTSC)$ the tolerance is 1000 Hz. However, for low power transmitters using this system note r) applies.
ADD (= (MOD) SPM 10)	t)	For multi-hop radio-relay systems employing direct frequency conversion the tolerance is 30 parts in 10 ⁶ .
ADD (= (MOD) SPM 11)	u)	For a channel spacing of 50 kHz the tolerance is 50 parts in 10^6 .
ADD (= MOD SPM 12)	v)	These tolerances apply to channel spacings equal to or greater than 20 kHz.
ADD (= NOC ex. o)	w)	For transmitters used by on board communication stations a tolerance of 5 parts in 10^{-6} shall apply
ADD	x)	For non-vehicular mounted portable equipment with a transmitter mean power not exceeding 5 watts the tolerance is 15 parts in 10^6 .
ADD (= NOC ex. e)	у)	Where specific frequencies are not assigned to radar stations, the bandwidth occupied by the emissions of such stations shall be maintained wholly within the band allocated to the service and the indicated tolerance does not apply
ADD	z)	In applying this tolerance Administrations should be guided by the latest relevant CCIR Recommendations.

S.

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 405-E 29 October 1979 Original : English

COMMITTEE 4

SEVENTH REPORT OF WORKING GROUP 4C TO COMMITTEE 4

Subject : MOD Appendix 17A

1. In revising Appendix 3 some modifications have been made concerning the frequency tolerances for single sideband ship station transmitters. The <u>Annex</u> contains the consequential amendments to Appendix 17A.

2.

This report and its Annex has been approved unanimously.

E. GEORGE Chairman of Working Group 4C

Annex : 1



.T.I.U 3V3N31

ANNEX

1.1

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MOD	APPENDIX 17A
	Mar Mar2
(MOD)	Technical Characteristics of Single Sideband Transmitters used in the Maritime Mobile Service for Radiotelephony in the Bands between /1 605_7 and 4 000 kHz and between 4 000 and /23 000_7 kHz
NOC	1.
NOC	2.
NOC	3.
MOD	4. The carrier frequencies shall be maintained within the following tolerances :
	a) coast stations : <u>+</u> 20 Hz
	b) ship stations :
	Bands between / 1 605 7 and 4 000 kHz :
	- tolerance applicable to transmitters in use or to be installed before $\underline{2}$ January 1982 : \pm 100 Hz; the short-term limits (of the order of 15 minutes) shall be \pm 40 Hz;
	- tolerance applicable to transmitters installed after 1 January 1982 but before 2 January 1985 : + 50 Hz;
	- tolerance applicable to transmitters installed after 1 January 1985 and to all transmitters after 1 January 1990 : ± 40 Hz;
	Bands between 4 000 and $\underline{/}$ 23 000 $\overline{/}$ kHz :
	 tolerance applicable to transmitters in use or to-be installed before <u>2</u> January 1978 : <u>+</u> 100 Hz; the short-term limits (of the order of 15 minutes) shall be <u>+</u> 40 Hz;
	- tolerance applicable to transmitters installed after I January 1978 and to all transmitters after 1 January 1990 : + 50 Hz.
NOC	5.
NOC	б.
<i></i>	

INTERNATIONAL TELECOMMUNICATION UNION

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 406-E 29 October 1979 Original : English

COMMITTEE 4

EIGHTH REPORT FROM WORKING GROUP 4C TO COMMITTEE 4

Subject : MOD Article N3

1. Working Group 4C, having considered all proposals concerning Article N3, submits Article N3 as revised for consideration in Committee 4 (see Annex).

2. It was decided that the details on the additional characteristics (fourth and fifth symbol) shall not be included in Article N3 but form part of the revised Appendix 5.

3. The question was raised which symbols monitoring stations should use when characteristics cannot be unambiguously identified (e.g. phase modulation as opposed to frequency modulation). There was general agreement that this matter was irrelevant to Article N3, but that a note to Committee 6 should be drafted drawing their attention to this matter when revising Appendices 6, 7 and 8.

4. The question of updating the present entries in the Master International Frequency Register in the light of the revision of Article N3 will be the subject of another note from Committee 4 to Committee 6.

5. This report has been approved unanimously.

E. GEORGE Chairman of Working Group 4C

Annex : 1



Document No. 406-E

Page 2

ANNEX

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MOD		ARTICLE N3
NOC		Designation of Emissions
SUP	3209 to 3216	inclusive together with associated section headings.
ADD	3209	§ 1. (1) Emissions shall be designated according to their necessary bandwidth and their classification.
		(2) Examples of emissions designated in accordance with this Article are given in Appendix 5, Part $/$ B $/$. Further examples may appear in the latest Recommendations of the CCIR. These examples may also be published in the Preface to the International Frequency List.
ADD		Section I. Necessary Bandwidth
ADD	3210	§ 2. The necessary bandwidth, as defined in No. 3140 and determined in accordance with Appendix 5, Part [B]7, shall be expressed by three numerals and one letter. The letter occupies the position of the decimal point and represents the unit of bandwidth. The first character shall be neither zero nor K, M or G.
		Necessary bandwidths 1 :
		between .001 and 999 Hz shall be expressed in Hz (letter H),
		between 1.00 and 999 kHz shall be expressed in kHz (letter K),
		between 1.00 and 999 MHz shall be expressed in MHz (letter M),
		between 1.00 and 999 GHz shall be expressed in GHz (letter G),
ADD	3210.1	L Examples :

0.002	2 Hz	=	H002	6	kHz = 6	коо 1.	25 MHz =	= 1M25
0.1	Hz	Ξ	H100	12.5	kHz = 1	2K5 2	MHz =	= 2MOO
25.3	Hz	=	25H3	180.4	kHz = 1	80K 10	MHz =	= 1.0MO
400	Hz	=	400н	180.5	kHz = 1	81K 202	MHz =	= 202M
2.4	kHz	=	2K40	180.7	kHz = 1	.81K 5.	65 GHz =	= 5G65



		•
ADD		Section II. Classification
ADD	3211	§ 3. The class of emission is a set of characteristics conforming to No. 3212.
ADD	3212	9 4. Emissions shall be classified and symbolized according to their basic characteristics as given in No. 3213 and, any optional additional characteristics as provided for in Appendix 5, Part [A].
ADD	3213	§ 5. The basic characteristics (see Nos. 3214, 3215, 3216) are:
		(1) First symbol - type of modulation of the main carrier;
2 2 2		(2) Second symbol - nature of signal(s) modulating the main carrier;
5	· ·	(3) Third symbol - type of information to be transmitted.
•	· · · · · ·	Modulation used only for short periods and for incidental purposes (such as, in many cases, for identification or calling) may be ignored provided that the necessary bandwidth as indicated is not thereby increased.

ADD	3214	§ 6.	(1)	Pirst	sy⊡bol - Typ	e of Do	dulation of the main carrier	
				(1.1)) Emission of	an unm	odulated carrier	N
				(1.2)	Emission in (including	which cases w	the main carrier is amplitude-modulated here sub-carriers are angle-modulated).	
					(1.2.1)	Double	-sideband	A
					(1.2.2)	Single	-sideband, full carrier	H
			•		(1.2.3)	Single level o	-sideband, reduced or variable carrier	R
					(1.2.4)	Single	-sideband, suppressed carrier	J
			-		(1.2.5)	Indepe	ndent sideband	B
			÷ 1:	• ,	(1.2.6)	Vestig	lal sideband	с
				(1.3)	Emission in	which t	he main carrier is angle-modulated.	
			•	×	(4.3.1)	Frequer	ncy modulation	F
	•		••• •		(1.3.2)	Phase m	nodulation	C
	• .			(1.4)	Emission in angle-modul sequence	which t ated eit	he main carrier is amplitude- and her simultaneously or in a pre-established	D
				(1.5)	Emission of	pulses	1 .	
					(1.5.1)	Unmodu]	ated sequence of pulses	P
					(1.5.2)	A seque	nce of pulses	
					(1.5	.2.1)	modulated in amplitude	K
					(† .5	.2.2)	modulated in width/duration	L
					(1.5	.2.3)	modulated in position/phase	M
		÷		· • .	(1.5	.2.4)	in which the carrier is angle-modulated during the period of the pulse	Ģ
		•••••••••••••••••••••••••••••••••••••••	• •	•	(1.5	.2.5)	which is a combination of the foregoing or is produced by other means	V

C 1

ADD 3214.1

¹ Emissions, where the main carrier is directly modulated by a signal which has been coded into quantized form (e.g. pulse code modulation), should be designated under (1.2) or (1.3).

N

A

В

	(1.6)	.6) Cases not covered above, in which an emission consists of the main carrier modulated, either simultaneously or in a pre-established sequence, in a combination of two or more of the following modes: amplitude, angle, pulse						
	(1.7)	Cases not otherwise covered	x					
(2.) Second main c	symbol - Wature of signal(s) modulating the arrier						
	(2.1)	No modulating signal	0 -					
	(2.2)	A single channel containing quantized or digital information without the use of a modulating sub-carrier $^{\rm 2}$	1					
	(2.3)	A single channel containing quantized or digital information with the use of a modulating sub-carrier $^{\rm 2}$	2					
	(2.4)	A single channel containing analogue information	3					
	(2.5)	Two or more channels containing quantized or digital	7					
	(2.6)	Two or more channels containing analogue information	8					
	(2.7)	Composite system with one or more channels containing quantized or digital information, together with one or more channels containing analogue information	9					
	(2.8)	Cases not otherwise covered	x					

ADD 3215.1 ²This excludes time division multiplex.

ADD 3216 (3.) Third symbol - Type of information to be transmitted 3

- (3.1) No information transmitted
- (3.2) Telegraphy for aural reception
- (3.3) Telegraphy for automatic reception

ADD 3216.1

ADD 3215

³In this context the word "information" does not include information of a constant, unvarying nature such as provided by standard frequency emissions, continuous wave and pulse radars, etc. . -

(3.4)	Facsimile	С
(3.5)	Data transmission, telemetry, telecommand	D
(3.6)	Telephony (including sound broadcasting)	E
(3.7)	Television (video)	F
(3 °.8)	Combination of the above	W
(3.9)	Cases not otherwise covered	X

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INTERNATIONAL TELECOMMUNICATION UNION

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

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COMMITTEE 4

NOTE BY THE CHAIRMAN OF WORKING GROUP 4C

Working Group 4C has agreed on the following draft note, which it requests Committee 4 to transmit to the Chairman of Committee 6 :

"DRAFT NOTE TO THE CHAIRMAN OF COMMITTEE 6

Committee 4 has approved a revision of Article N3 "Designation of Emissions" (Document No. / /). In this connection the question was raised which symbols monitoring stations should use when certain characteristics cannot be unambiguously identified, e.g. phase modulation as opposed to frequency modulation (see RR 3214, sub-section (1.3)) or number of channels in a digital signal (see RR 3215, sub-sections (2.2), (2.3), (2.5)). Committee 6 might wish to consider this question when revising Appendices 6. 7 and 8. For the first example given above, Committee 4 suggests that the symbol F be used."

E. GEORGE Chairman of Working Group 4C



INTERNATIONAL TELECOMMUNICATION UNION

WORLD ADMINISTRATIVE RADIO CONFERENCE

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Document No. 408-E 30 October 1979 Original: English French

WORKING GROUP 6A

SECOND REPORT OF DRAFTING GROUP 6A1

1. Drafting Group 6Al has had numerous meetings during which the revised text of Article N11/9A has been drafted.

2. The texts appearing in the <u>Annex concerning</u> the revised version of <u>Article N11/9A</u> (Co-ordination of Frequency Assignments to Stations in a Space Radiocommunication Service except Stations in the Broadcasting-Satellite Service and to Appropriate Terrestrial Stations) have been agreed in Drafting Group 6Al and are presented to Working Group 6A.

3. Square brackets have been left when a decision is required by Working Group 6A or where a decision is awaited from another Committee.

4. However, with regard to Nos. 4117 and 4163, the square brackets indicate that although Drafting Group 6Al has agreed on the text, the principle related to it, namely "wide-band co-ordination", needs a decision by Working Group 6A.

J.K. BJORNSJO Chairman of Drafting Group 6Al

Annex : 1



ANNEX

ARTICLE NII

Co-ordination of Frequency Assignments to Stations in a Space Radiocommunication Service except Stations in the Broadcasting-Satellite Service and to Appropriate Terrestrial Stations

> Section I. Procedures for the Advance Publication of Information on Planned Satellite-Systems (Networks)

NOC

- 27 -

4099

MOD

Document No.

Page 2

408-E

Publication of Information

ADD ¹ These procedures may be applicable to stations on satellite launching vehicles.

4100 639AA Spa2 § 1. (1) An administration (or one acting on behalf of a group of named administrations) which intends to establish a satellite system shall, prior to the co-ordination procedure in accordance with No. 4114/639AJ where applicable, send to the International Frequency Registration Board not earlier than five years before the date of bringing into service each satellite network of the planned system, the information listed in Appendix 1B.

and preferably not later than two years

(<u>Note</u>: Examination of an additional sentence (proposal F/57A/638) deferred until examination of 4625/639CY)

MOD

4101 639AB Spa2

(2) Any amendments to the information sent concerning a planned satellite system in accordance with No. 4100/639AA shall also be sent to the Board as soon as they become available.

or arise out of negotiations between two or more Administrations following the application of the provisions referred to in No. 4107/639AF.

MOD
MOD 4102 639AC Spa2

(3) The Board shall publish the information sent under Nos. 4100/639AA and 4101/639AB in a special section of its weekly circular and shall also, when the weekly circular contains such information, so advise all administrations by circular telegram.

The circular telegram shall include the frequency bands to be utilized and, in the case of a geostationary satellite, the orbital location of the space station.

ADD 4102A

(4) If the information is found to be incomplete, the Board shall publish it under No. 4102/639AC and immediately seek any clarification and lacking information from the Administration concerned. In such cases, the period of four months specified in No. 4104/639AD shall count from the date of publication under No. 4102/639AC of the complete information.

NOC

4103

Comments on Published Information

MOD

4104 639AD

Spa2

If, after studying the information published under No. 4102/639AC any adminis 62 tration is of the opinion that interference, which may be unacceptable may be caused to its existing or planned space radiocommunication services, it shall within minute days after the date of the weekly circular publishing the information listed in Appendix IB, send its comments to the administration concerned. A copy of these comments shall also be sent to the Board. If no such comments are received from an administration within the period mentioned above, it may be assumed that that administration has no basic objections to the planned satellite network(s) of that system on which details have been published.

(four months

complete

Annex to Document No. 408-E Page 5

NOC 4105

Resolution of Difficulties

MOD

NOC

4106 639AE Spa2

4107 639AF

Spa2

(1)
 §3 (b) An administration receiving comments sent in accordance with No. 4104/639AD shall endeavour to resolve any difficulties that may arise

and provide additional information which may be available.

(2)

(6) In case of difficulties arising when any planned satellite network of a system is intended to use the geostationary satellite orbit:

- a) the administration responsible for the planned system shall first explore all possible means of meeting its requirements, taking into account the characteristics of the geostationary satellite networks of other systems, and without considering the possibility of adjustment to systems of other administrations. If no such means can be found, the administration concerned is then free to apply to other administrations concerned to solve these difficulties:
- b) an administration receiving a request under a) above shall, in consultation with the requesting administration, explore all possible means of meeting the requirements of the requesting administration, for example, by relocating one or more of its own geostationary space stations involved, or by changing the emissions, frequency usage (including changes in frequency bands) or other technical or operational characteristics:
- c) if after following the procedure outlined in a) and b) above there are unresolved difficulties, the administrations concerned shall together make every possible effort to resolve these difficulties by means of mutually acceptable adjustments, for example, to geostationary space station locations and to other characteristics of the systems involved in order to provide for the normal operation of both the planned and existing systems.

NOC 4108 639AG Spa2 seek the assistance of the Board.

NOC 4109

Results of Advance Publication

MOD 4110 639AI Spa2 Spa2 four months four months Substantial State of the provision of the provision of the provision of the provision of the progress made in resolving any difficulties. Additional information on the progress made in resolving any remaining difficulties shall be sent to the Board at intervals not exceeding /six months/ prior to the commencement of co-ordination or the sending of the notices to the Board. The Board shall publish this information in a special section of its weekly circular and shall also, when the weekly circular contains such information, so inform all administrations by circular telegram.

NOC-4111

Commencement of Co-ordination or Notification Procedures

MOD 4112 639AH Spa2

five months

^{\$5} (9) In complying with the provisions of Nos. 4106/639AE to 4108/639AG, an administration responsible for a planned satellite system shall, if necessary, defer its commencement of the co-ordination procedure, or where this is not applicable, the sending of its notices to the Board, until <u>one-hundred and fifty days</u> after the date of the weekly circular containing the information listed in Appendix 1B on the relevant satellite network. However, in respect of those administrations with whom difficulties have been resolved or who have responded favourably, the co-ordination procedure, where applicable, may be commenced prior to the expiry of the one-hundred and fifty days mentioned above.

NOC

Section II. Co-ordination of Frequency Assignments to a Space Station on a Geostationary Satellite or an Earth Station Communicating with such a Space Station in Relation to Stations of Other Geostationary Satellite Networks

NOC 4113

Requirement for Co-ordination

MOD 4114 639AJ Spa2 §6 (1) \$.2. (1) Before an Administration (or, in the case of a space station, one acting on behalf of a group of named Administrations) notifies to the Board or brings into use any frequency assignment to a space station on a geostationary satellite or to an earth station that is to communicate with a space station on a geostationary satellite, it shall, except in the cases described in No. 4115/639AK, effect coordination of the assignment / 1/, with any other Administration whose assignment for a space station on a geostationary satellite or for an earth station that communicates with a space station on a geostationary satellite.

might be affected.

ADD 4114A

(2) Frequency assignments to which the provisions of No. 4114/639AJ are applicable are those :

- in the same frequency band / l / as the planned assignment, and
- in conformity with No. 4587/639BM, and
- recorded in the Master Register, or coordinated under the provisions of this section, or
- to be taken into account for coordination with effect from the date of receipt by the Board in accordance with No. 4118/639AL, of the relevant information as annotated in Appendix 1A, or

notified to the Board without any coordination in those cases where No. 4115/639AK applies.

(3)

(a)

4115 639AK MOD Spa2

(2) No co-ordination under No. 4114/639AJ is required:

or a modification to a frequency assignment, when the use of a new frequency assignment will cause, to any service of another administration, an increase in the noise temperature of any space station receiver or earth station receiver, or an increase in the equivalent satellite link noise temperature, as appropriate, not exceeding the predeter mined increase of noise temperature calculated in accordance with the method given in Appendix 29; or

(Note : Examination deferred until decision by Committee 4 on definite limits in Appendix 29.)

ADD 4114A.1

(Note : Examination deferred until definition of the "same band" is adopted by Committee 4.) /

Page 9

MOD

b) when the / increase in the noise temperature / / level of interference / resulting from a modification to a frequency assignment, which has previously been coordinated, will not exceed the value agreed during coordination;

ADD

c) when an Administration proposes to notify or bring into use a new Earth station within the service area of an existing satellite network, provided that the characteristics of the Earth station will not cause interference of a level greater than that caused by an Earth station having the characteristics published together with the information concerning the space station in accordance with No. 4118D;

ADD

d) when, for a new frequency assignment to a receiving station, the notifying Administration states that it accepts the / level of / interference resulting from the frequency assignments listed in No. 4114A;

ADD

e) between Earth stations using frequency assignments in the same direction (either Earth-to-space or space-to-Earth).

NOC

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4116

Co-ordination Data

(1)

MOD 4117/639AJ

§7 *H*F For the purpose of effecting coordination, the Administration requesting coordination shall send to any other and Administration concerned, under No. 4114/639AJ, all the information listed in Appendix 1A required for the coordination.J

/ The request for coordination of a space station or an associated Earth station may specify all or some of the frequency assignments foreseen for use by that space station, but thereafter each assignment shall be dealt with individually. 7

MOD 4118 639AL Spa2 An (administration / initiating the co-ordination procedure referred to in No. 0110/639AD (shall at the same time send to the Board a copy of the request for co-ordination, with the information listed in Appendix 1A end the name(s) of the administration(s) with which co-ordination is sought The Board shall publish this information in special section of its weekly circular, together with a reference to the weekly circular in which details of the satellite system were published in accordance with Section I of this Article. When the weekly circular contains such information, the Board shall so inform all administrations by circular telegram.

requesting

(required for coordination, including

all

(2)The

An Administration believing that the provisions of No. 4115/639AK apply to its planned assignment may send to the Board the relevant information listed in Appendix 1A /, either under this provision or in accordance with No. 4575/639BA. In the latter case, the Board shall immediately inform the Administrations by circular telegram. $\overline{/}$.

(<u>Note</u> : This additional sentence may be reviewed after examination of No. 4575/639BA) ADD 4118A §8 Upon receipt of the information referred to in No. 4118/639AL, the Board shall :

a) immediately examine this information with respect to its conformity with No. 4587/639BM and, as soon as possible, send a telegram to all Administrations indicating the identity of the satellite network, its findings with respect to No. 4587/639BM and the date of receipt of the information; this date shall be considered as the date from which the assignment will be taken into account for coordination;

ADD 4118C

ADD

4118B

 b) examine the information received with a view to identifying Administrations whose services might be affected, in accordance with No. 4114/639AJ and inform the Administrations concerned by telegram;

ADD

4118D

c) publish in a special section of its weekly circular the information received under No. 4118/639AL and the result of the examination under Nos. 4118B and 4118C, together with a reference to the weekly circular in which details of the satellite network were published in accordance with Section I of this Article; when the weekly circular contains such information, the Board shall so inform all Administrations by circular telegram.

NOC 4119

Requests for Inclusion in Co-ordination Procedure

Spa2

4120 639AM MOD

(5) An administration believing that it should have been included in the co-ordination 89 procedure under No. 4114/639AJ shall have the right to request that it be brought into the co-ordination procedure.

Such a request shall be sent to the Administration initiating the coordination procedure, with a copy to the Board, as soon as possible. An Administration not having sent a request under this provision within a period of one-hundred and twenty days after the date of the weekly circular publishing the information under No. 4118/639AL shall be deemed to have no objection to the use of the frequency assignment as published.

four months

4121 NOC

Acknowledgement of Receipt of Co-ordination. Data

4122 639AO MOD Spa2

\$10 **for** An administration with which co-ordination is sought under No. 4114/639AJ shall acknowledge receipt of the co-ordination data immediately by telegram. If no acknowledgement is received within/thirty days after the date of the weekly circular publishing the information under No. #118/639AL, the administration seeking co-ordination shall dispatch a telegram requesting acknowledgement, to which the receiving administration shall reply within a further period of thirty days. Upon receipt of the co ordination data, an administration shall, having regard to the proposed date of bringing into use of the assignment for which co-ordination was requested, promptly examine the matter with regard to interference 1 which would be caused to the service rendered by its stations in respect of which co-ordination is sought under No. 639AJ; and shall, within ninety days from the date of the relevant weekly circular, notify the administration requesting co-ordination of its agreement. If the administration with which co-ordination is sought does not agree, it shall, within the same period, send to the administration seeking co-ordination the technical details upon which its disagreemont is based, and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem. A copy of these comments shall also be sent to the Board.

fifteen

NOC 4123

Examination of Co-ordination Data and Agreement between Administrations

MOD 4124 639AO Spa2

(1)

§11 An-edministration with which an ordination is cought under No. 639AJ shall acknowledge resoipt of the co-ordination data immediately by telegram. If no acknowledge ment-is received within thirty days after the date of the weekly circular publishing the information_undor_No.639AL, the_administration_acting_co-ordination-shall-dispatch-a tologram-roquosting-eoknowlodgoment, to-which-tho-coordining-edministration-shall-rophy within a further period of thirty days. Upon receipt of the co-ordination data, an administration shally having regard to the proposed date of bringing into use of the assignment for which co-ordination was requested, promptly examine the matter with regard to interference¹ which would be caused to the service rendered by its stations in respect of which co-ordination is sought under No. 4114/639AJ and shalk within anex days from the date of the relevant weekly circular, notify the administration requesting co-ordination of its agreement. If the administration with which co-ordination is sought does not agree, it shall, within the same period, send to the administration seeking co-ordination the technical details upon which its disagreement is based, and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem. A copy of these comments shall also be sent to the Board.

/ or caused by these stations 7. In so doing, it shall have regard to the proposed date of bringing into use of the assignment for which coordination was requested. It four months

(then

MOD 4124.1 639A0.1

Spa2

¹ The <u>calculation methods and the interference</u> criteria to be employed in evaluating interference / levels / shall be based upon relevant CCIR Recommendations <u>accepted</u> in application <u>of Resolution No. Spa2 - 6, / unless otherwise agreed between the</u> <u>Administrations concerned /. er.in In</u> the absence of such Recommendations, <u>those methods and criteria</u> shall be agreed between the Administrations concerned. <u>Whenever the methods and criteria</u> <u>have been agreed between Administrations, it shall be done without</u> <u>prejudice to other Administrations</u>. (2)

NOC 4125 639AT Spa2

(8) Either the administration seeking co-ordination or an administration with which co-ordination is sought, or the Board, may request additional information which they may require to assess the level of interference to the services concerned.

ADD 4125A

Results of coordination

ADD 4125B

§ 12 Any Administration which has initiated a coordination procedure under the provisions of Nos. 4114/639AJ to 4118/639AL shall communicate to the Board, at the expiry of the period of four months following the date of the relevant weekly circular mentioned in No. 4118/639AL, the names of the Administrations with which an agreement has been reached and any changes in the characteristics of its frequency assignment. It shall also inform the Board of the progress made in resolving the problem with the other Administrations or of any difficulties. Such a communication shall be made to the Board every six months after the abovementioned period. The Board shall publish this information in a special section of its weekly circular and, when the weekly circular contains information on changes in the characteristics published, it shall so inform all Administrations by circular telegram.

NOC

4126

Requests to I.F.R.B. for Assistance in Effecting Co-ordination

13

4127 639AS Spa2

§ -3- (1) An administration seeking co-ordination may request the Board to endeavour to effect co-ordination in those cases where:

/ forty five 7

- a) an administration with which co-ordination is sought under No. 4114/639AJ fails to acknowledge receipt, under No. 4122/639AO, within birty days after the date of the weekly circular publishing the information relating to the request for co-ordination:
- b) an administration with which coordination is sought under No. 639AN fails to acknowledge receipt, under No. 639AP, within thirty days of dispatch of the co-ordination data:
 - / three months_/

 b) an administration has acknowledged/receipt under No. 4122/639AO, but fails to give a decision within ninety days from the date of the relevant weekly circular;

an administration has acknowledged receipt under No. 639AP, but fails to give a decision within sixty days from dispatch of the co-ordination data;

c) there is disagreement between the administration seeking co-ordination and an administration with which co-ordination is sought as to the acceptable/level of/interference;



d) co-ordination between administrations is not possible for any other reason.

In so doing, it shall furnish the Board with the necessary information to enable it to endeavour to effect such co-ordination.

NOC	4128		Action to be Taken by the I.F.R.B.
NOC	4129	639AU Spa2	(1) $\$14 \ (2)$ Where the Board receives a request under No. 4127/639AS a) $\mu + \pi$, it shall forthwith send a telegram to the administration concerned requesting immediate acknow ledgement.
NOC	4130	639AV Spa2	(2) (3) Where the Board receives an acknowledgement following its action under No. 4129/639AU, or where the Board receives a request under No. 4127.639AS (b) (b), it shall forthwith send a telegram to the administration concerned requesting an early decision in the matter.
NOC	4131	639AW Spa2	(3) (b) Where the Board receives a request under No. 4127/639AS (91 d), it shall endeavour to effect co-ordination in accordance with the provisions of Nov. 4114/639AJ and 639AN, as appropriate. The Board shall also where appropriates act in accordance with No. 4118/639AL. Where the Board receives no acknowledgement to its request for co-ordination within the periods specified in No. 4122/639AO or 639AP, as appropriate. it shall act in accordance with No. 4129/639AU.
NOC	4132	6.39 AY Spa2	 (4) (5) Where necessary, as part of the procedure under No. 4127/639AS, the Board shall assess the/level of/interference. In any case, the Board shall inform the administrations concerned of the results obtained.
NOC	4133	639AT Spa2	(5) (6) Either the administration seeking co-ordination or an administration with which it may co-ordination is sought. or The Board may request additional information which it may require to assess the level of interference to the services concerned.

MOD

(NOC)	4134 639AX Spa2	 (6) (7) Where an amministration fails to reply within thirty days of dispatch of the Board's telegram requesting an acknowledgement sent under No. 4129/639AU, or fails to give a decision in the matter within/thirty days of dispatch of the Board's telegram of request under No. 4130/639AV it shall be deemed that the administration with which co-ordination was sought has undertaken:
		a) that no complaint will be made in respect of any harmful interference which may be caused to the services rendered by its space or terrestrial radiocom- munication stations by the use of the assignment for which co-ordination was requested:
		b) that its space or terrestrial radiocommunication stations will not cause harmful interference to the use of the assignment for which co-ordination was requested.
(NOC)	4135	Notification of Frequency Assignments in the Event of Continuing Disagreement
MOD	4136/639AZ	§ 15 In the event of continuing disagreement between one Administration seeking to effect coordination and one with which coordination has been sought, the Administration seeking coordination shall, except in the cases where the assistance of the Board has been requested, defer the submission of its notice concerning the proposed assignment by five six months from the date of <u>publication of</u> the request for coordination <u>under No. 4118D</u> , taking into consideration the provisions of No. 4580/639BF.
		Section III. Co-ordination of Frequency Assignments to an Earth Station in Relation to Terrestrial Stations

NOC 4137

Requ

Requirement for Co-ordination

, except in the cases described in No. 4139/639AR,

MOD

4138 639AN S 5. (1) Before an administration notifies to the Board or brings into use any frequency assignment to an earth station, whether for transmitting or receiving, in a particular band allocated with equal rights to space and terrestrial 'radiocommunication services in the frequency spectrum above 1 GHz, it shall/effect co-ordination of the assignment with first other administration whose territory lies wholly or partly within the co-ordination area of the planned earth station. For this purpose it shall send to any other such administration a copy of a diagram drawn to an appropriate scale indicating the location of the earth station and showing the co-ordination areas of the carth station for the cases of transmission and reception by the earth station and the data on which they are based, including all pertinent details of the proposed frequency assignment, as listed in Appendix 1A, and an indication of the approximate date on which it is planned to begin operations.

or some of the frequency assignments of the associated space station, but thereafter each assignment shall be dealt with individually. /

¹ Appendix 28 contains criteria relating only to co-ordination between earth stations and stations in the NOC 4138.1 639AN.1 fixed or mobile service. Until the C.C.I.R., in accordance with Recommendation No. Spa2 9 provides criteria Spa2 relating to other terrestrial radiocommunication services, the criteria to be employed in effecting co-ordination between earth stations and terrestrial radiocommunication stations, other than those of the fixed or mobile service. shall be agreed between the administrations concerned.

/ the relevant section of

MOD 4138.2 639AN.2

Spa2

transportable or/

² Calculated, in relation to the fixed or mobile service, in accordance with the procedures described in 4 Appendix 28, $\underline{/}$ as modified in application of Resolution No. Spa2 - $6\underline{./}$

MOD	4139 639AR (2) Spa2 proposes:	No	co-ordination under No. 4138/639AN is required when an administration
		a)	to bring into use an earth station, the co-ordination area of which does not include any of the territory of any other country;
		<i>b</i>)	to change the characteristics of an existing assignment in such a way as not to increase the level of interference to or from the terrestrial radiocommunication stations of other administrations;
	/ transportable Earth station or 7	ic)	to operate a mobile earth station. However, if the co-ordination area associated with the operation of such a mobile earth station, in a frequency
	(-there are the lo	٦	band referred to in No. 4138/639AN, includes any of the territory of another country, it shall be subject to prior agreement between the administrations concerned in order to avoid harmful interference to existing terrestrial radiocommunication stations of that country. This agreement shall apply to
	Earth station(s) or,		the characteristics of the mobile earth station(s), or to the characteristics of a typical mobile earth station, and shall apply to a specified service area. Unless otherwise stipulated in the agreement, it shall apply to any mobile earth

stations in the specified service area provided that the probability of harmful interference caused by them shall not be greater than that caused by the a typical carth station // for which the technical characteristics appear in the notice and have been or are being submitted in accordance with No. 4578/639BD./

(Note : Deferred until decision of Committee 5 on definition of transportable Earth station need for procedure for such stations)

ADD 4139.1

/ The coordination area is calculated in relation to the fixed or mobile service in accordance with the procedure described in Section 6 bis of Appendix 28./

Annex t	o Docu	<u>ment No</u>	. 408-E				
Page 18							
					2		·
NOC	4140	· .	Co-ordination Data	① the	of effecting coo Administ ra tion r coord ina tion	equesting	>
MOD	4141	639AN	(3) Before an ad	ministration /notif	ies to the Board or brin	gs into use any free	Hours
Goncern No. 413 informa concern	ed und 8/6394 tion ing	Spaz	Assignment to an earth allocated with equal rig frequency spectrum abo other administration wh the planned earth statio [copy of a diagram draw and showing the co-ordi reception by the earth s cetails of the proposed f the approximate date on	Bits to space and space a	the terrestrial radiocomm the effect co-ordination of whethy or partly within solar shall send to encycle the scale indicating the lo the earth station for the ta on which they are ba ent. as district in Appendic to begin operations. I this information of the request for be sent to the H obile Earth static	with the date coordination services the coordination ar the coordination ar the coordination ar the coordination and cases of transmission sed, including all pe x IA, and an indical with the date coordination Board.	of

/_the relevant section of / Appendix 28 / , as modified in application of Resolution No. Spa2 - 6._7

²'Calculated in relation to the fixed or mobile service, in accordance with the procedures described in Appendix 28 / oz in Appendix 28A

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1 1 4141.**2**/639AN.2

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Acknowledgement of Receipt of Co-ordination-Data

years, whicheven is the longer; and to

4143 639AP Spa2

4142

(4) An administration with which co-ordination is sought under No. 4138/639AN shall acknowledge receipt of the co-ordination data immediately by telegram. If no acknowledgement is received within fifthen-days of dispatch of the co-ordination data, the administration seeking co-ordination shall dispatch a telegram requesting acknowledgement, to which the receiving administration shall reply within a further period of fifteen days. Doon receipt of the co-ordination data an administration shall, having regard to the

propased date of bringing into use of the assignment for which co-ordination was requested.

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a) interference² which would be caused to the service rendered by its terrestrial radio communication stations operating in accordance with the Convention and thes Regulations, or to be so operated prior to the planned date of bringing the earth station assignment into service, or within the next three

b) interference² which would be caused to reception at the earth station by the service rendered by its perestrial radiocommunication stations operating in accordance with the Convention and these Regulations, or to be so operated prior to the planned date of pringing the earth station assignment into service, or within the next three years, whichever is the longer.

The administration with which co-ordination is sought shall then, within sixty days from dispatch of the co-ordination data, notify the administration requesting co-ordination of its agreement. If the administration with which co-ordination is sought does not agree it shall, within the same period, send to the administration seeking co-ordination a copy of a diagram drawn to an appropriate scale showing the location of its terrestrial radiocommunication stations which are or will be within the co-ordination area of the earth transmitting or receiving station, as appropriate, together with all other relevant basic characteristics, and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem.

NOC

4144

Examination of Co-ordination Data and Agreement between Administrations

NOC

NOC

MOD

4145 639AP Spa2 (5) An administration with which co-ordination is sought under No. 639AN shall acknowledge receipt of the co-ordination data immediately by telegram. If no acknowledge ment is received within fifteen days of dispatch of the co-ordination data, the administration seeking co-ordination shall diseatch a telegram requesting acknowledgement, to which the receiving administration shall reply within a further period of lifteen days. Upon receipt of the co-ordination data an administration shall, having regard to the proposed date of bringing into use of the assignment for which co-ordination was requested, promptly examine the matter with regard both to:

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- a) interference² which would be caused to the service rendered by its terrestrial radiocommunication stations operating in accordance with the Convention and these Regulations, or to be so operated prior to the planned date of bringing the earth station assignment into service, or within the next three years, whichever is the longer; and to
- b) interference^Z which would be caused to reception at the earth station by the service rendered by its terrestrial radiocommunication stations operating in accordance with the Convention and these Regulations, or to be so operated prior to the planned date of bringing the earth station assignment into service, or within the next three years, whichever is the longer.

The periods foreseen in sub-paragraphs a) and b) above may be extended by agreement between the Administrations concerned in order to take planned terrestrial networks into account

MOD	4145.1 639AP.1 Spa2 Recom	Calculation methods and the interference The criteria to be employed in evaluating interference [levels] shall be based upon relevant C.C.I.R. mendations the absence of such Recommendations, shall be agreed between the administrations
		those methods and criteria accepted in application of Resolution No. Spa2 - 6, / unless otherwise agreed between the Administrations concerned 7. In
	Whenever the me Administrations Administrations	thods and criteria have been agreed between , it shall be done without prejudice to other

ADD 4145A

The Administration with which coordination is sought shall, within one hundred and twenty days from despatch of the coordination data :

- a) notify the Administration requesting coordination of its agreement with a copy to the Board, indicating, where appropriate, the part of the allocated frequency band continuing the coordinated frequency assignments; or
- b) send to that Administration a request for inclusion in coordination of the terrestrial radiocommunication stations mentioned in Nos. 4145 a) and 4145 b); or
- c) notify that Administration of its disagreement.

In the cases mentioned in sub-paragraphs b) and c) of this provision, the Administration with which coordination is sought shall send to the Administration requesting coordination a copy of a diagram drawn to an appropriate scale indicating the location of these terrestrial radiocommunication stations which are or will be within the coordination area of the Earth transmitting or receiving station, as appropriate, together with all other relevant basic characteristics and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem.

MOD 4146/639AQ Spa2

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	in	application	ΟŤ	NO.	414 <i>)</i> A	6/1
Irequired	111	apprication				
		the second se				

The Board shall consider as notifications in accordance with Section 1 of Article N12/9, only that information relating to existing terrestrial radiocommunication stations or to those to be brought into use within the next three years.

three months.

ADD 4146A

When an agreement on coordination is reached, as a consequence of No. 4145A, the Administration responsible for the terrestrial stations may send to the Board the information concerning those terrestrial stations covered by the agreement which are intended to be notified in accordance with Section I of Article N12/9. The Board shall consider as notifications in accordance with that Section only that information relating to existing terrestrial radiocommunication stations or to those to be brought into use within the next three years.

NOC

4147 639AT Spa2

4148

Spa2

(7) Either the administration seeking co-ordination or an administration with which co-ordination is sought, for the Board, may request additional information which they may require to assess the level of interference to the services concerned.

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Requests to [I.F.R.B. for Assistance in Effecting Co-ordination

4149 639AS MOD

§ 6. (1) An administration seeking co-ordination may request the Board to endeavour to effect co-ordination in those cases where:

> an administration with which co-ordination is sought under No. 639Ad fails to acknowledge receipt, under No 639AO, within sixty days after the date of the weekly circular publishing the information relating to the request for co-ordination; a) an administration with which co-ordination is sought under No. 4138/639AN fails to acknowledge receipt, under No. 4143/639AP, within thirty days of dispatch of the co-ordination data; forty-five

c) ar	administratio	m has acknown	edged receipt un	der No. 639AQ	, but fails to
gi	ve a decision	within ninety	days from the	date of the relation	vant weekly
	fcular;	\searrow	<u> </u>		

b) bi

b) an administration has acknowledged receipt under No. 4143/639AP, but fails to give a decision within <u>sinty days</u> from dispatch of the coordination data four months under No. 4145/639AP

c) there is disagreement between the administration seeking co-ordination and an administration with which co-ordination is sought as to the acceptable level of interference;



d) co-ordination between administrations is not possible for any other reason.

In so doing, it shall furnish the Board with the necessary information to enable it to endeavour to effect such co-ordination.

NOC 4150

Action to be Taken by the I.F.R.B.

NOC 4151 639AU Spa2 (2) Where the Board receives a request under No. 4149/639AS a, it shall forthwith send a telegram to the administration concerned requesting immediate acknowledgement.

NOC 4152 639AV Spa2 (3) Where the Board receives an acknowledgement following its, action under No. 4151/639AU, or where the Board receives a request under No. 4149/639AS (r) or d) it shall forthwith send a telegram to the administration concerned requesting an early decision in the matter.

NOC 4153 639AW (4) Where the Board receives a request under No. 4149/639AS d, endeavour to effect co-ordination in accordance with the provisions of Nos. 639AJ Spa2 and 4138/639AN, as appropriate. The Board shall also, where appropriate, act in accordance with No. 639AL. Where the Board receives no acknowledgement to its request for co-ordination within the periods specified in No. 639AO or 4143/639AP as appropriate, it shall act in accordance with No. 4151/639AU.

NOC 4154 639AY Spa2

(5)Where necessary, as part of the procedure under No. 4149/639AS, the Board shall assess the level of interference. In any case, the Board shall inform the administrations concerned of the results obtained.

NOC 4155 639AT Spa2

(6) Either the administration seeking co-ordination or an administration with which co-ordination is sought, or The Board may request additional information which they may require to assess the level of interference to the services concerned.

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NOC

4156 639AX

Spa2

(7) Where an administration fails to reply within thirty days of dispatch of the Board's telegram requesting an acknowledgement sent under No. 4151/639AU, or fails to give a decision in the matter within thirty days of dispatch of the Board's telegram of request under No. 4152/639AV it shall be deemed that the administration with which co-ordination was sought has undertaken:

- that no complaint will be made in respect of any harmful interference which a) may be caused to the services rendered by its space or terrestrial radiocom. munication stations by the use of the assignment for which co-ordination was requested;
- b) that its space or terrestrial radiocommunication stations will not cause harmful interference to the use of the assignment for which co-ordination was requested.

NOC 4157 Notification of Frequency Assignments in the Event of Continuing Disagreement

MOD 4158/639AZ

In the event of continuing disagreement between one Administration seeking to effect coordination and one with which coordination has been sought, the Administration seeking coordination shall, except in the cases where the assistance of the Board has been requested, delay defer the submission of its notice concerning the proposed assignment by five six months from the date of the request for coordination, taking into consideration the provisions of No. 4580/639BF.

Section IV. Co-ordination of Frequency Assignments to a Terrestrial Station for Transmission in Relation to an Earth Station

NOC

4159

Requirement for Co-ordination

MOD 4160/492A

Before an Administration notifies to the Board, or brings into use any frequency assignment to a terrestrial station¹ within the coordination area of an Earth station, in a band above 1 GHz allocated with equal rights to terrestrial radiocommunication services and space radiocommunication services (space-to-Earth), excepting the broadcasting-satellite service, it shall, except in cases described in No. 4161/492C, effect coordination of the proposed assignment with the Administration responsible for the Earth station with respect to the frequency assignments which are :

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- in conformity with No. 4587/639BM and coordinated under No. 4138/639AN,
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- to be taken into account for coordination with effect from the date of communication of the information referred to in No. 4138/639AN, or
- recorded in the Master Register with a favourable Finding with respect to No. 4589/639B0, or
- recorded in the Master Register with an unfavourable Finding with respect to No. 4589/639BO and a favourable Finding with respect to No. 4592/639BR, or
- recorded in the Master Register with an unfavourable Finding with respect to No. 4589/639BO and No. 4592/639BR but the notifying Administration has stated that it has accepted the level of interference resulting from the existing terrestrial stations located within the coordination area of the Earth station on the date of its recording.

41

NOC

4160.1 492A.1 Spa2 ¹ Appendix 28 contains criteria relating only to co-ordination between earth stations and stations in the fixed or the mobile service. Until the C.C.I.R., in accordance with Recommendation No. Spa2 - 9 provides criteria for other terrestrial radiocommunication services, the criteria to be used in effecting co-ordination between earth stations and terrestrial stations other than those of the fixed or the mobile service, shall be agreed between the administrations concerned.

4161 492C (2) No co-ordination under No. 4160/492A is required when an administration Spa2' proposes:

a) to bring into use a terrestrial station which is located, in relation to an earth station, outside the co-ordination area; or

b) to change the characteristics of an existing assignment in such a way as not to (increase the level of interference to the earth stations of other administrations.

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/ c) to bring into use a terrestrial station within the coordination area of an Earth station, provided that the proposed terrestrial assignment is outside any part of a frequency band coordinated under No. 4138/639AN for reception by that Earth station. /

NOC	4162	· Co-ordination Data
		/ The request for coordination may specify all or some of the frequency assignments foreseen for use within the next three years by stations of a terrestrial network, wholly or partly within the coordination area of the Earth station. This period may be extended by agreement between the Administrations concerned. Thereafter each assignment shall be dealt with individually. 7
NOD	· · · · · · · · · · · · · · · · · · ·	
עטיז	4163 492A Spa2	assignment to a terrestrial station ¹ for transmitting in a band allocated with equal rights to terrestrial radiocommunication services and space radiocommunication services (space-to- Earth in the frequency spectrum above 1 GHz, it shall mitiate co-ordination of the proposed assignment with the administration responsible for the receiving earth station concerned if the assignment is for use within the co-ordination procedure referred to in No. 639AN has been initiated. For the purpose of effecting co-ordination, in-shall send to any other such administration by the fastest possible means, a copy of a diagram drawn to an appropriate scale indicating the location of the terrestrial station and all other pertinent details of the proposed frequency assignment, and the approximate date on which it is planned to bring the station into use.) concerned under No. 4160/492A,

MOD

NOC

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4164

Acknowledgement of Receipt of Co-ordination Data

4165 492B

Spa2

(4) An administration with which co-ordination is sought under No. 4160/492A shall acknowledge receipt of the co-ordination data immediately by telegram. If no acknowledgement is received within fifteen days of dispatch, the administration sceking co-ordination may dispatch a telegram requesting acknowledgement of receipt of the co-ordination data, to which the receiving administration shall reply Upon receipt of the co-ordination data an administration shall promptly examine the matter with regard to interfecence ¹ which would be caused to the services rendered by its earth stations operating in accordance with the Convention and these Regulations, or to be sp operated within the next three years, with the provise that in this latter case co-ordination specified in No. 639AN has been effected or that the co-ordination procedure has afready been initiated: and shall, within an overall period of sixy days from dispatch of the co-ordination data, either notify the administration requesting co-ordination of its agreement to the proposals or, if this is not possible, indicate the reasons therefor and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem.

within a further period of fifteen days.

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NOC 4166 Examination of Co-ordination Data and Agreement between Administrations

Annex to Document No. 408-E

Page 28

MOD 4167/492B

- a) in conformity with No. 4587/639BM, and following conditions :
- b) (a) the coordination specified in No. 4138/639AN has been effected, or coordination procedure has been initiated, or
- c) \not{p}) the Earth station has been recorded in the Master Register with a favourable Finding with respect to No. 4589/639BO, or
- d) ∉) the Earth station has been recorded in the Master Register with an unfavourable Finding with respect to No. 4589/639BO and ¥ No. 4592/639BR, or

a favourable finding with e respect to

e) \$\$\vec{a}\$) the Earth station has been recorded in the Master Register with an unfavourable Finding with respect to No. 4589/639B0 and No. 4592/639BR, but the notifying Administration has stated that it has accepted the [level of] interference resulting from the existing terrestrial stations located within the coordination area of the Earth station on the date of its recording.

The Administration with which coordination is sought shall, within an overall period of /<u>ninety</u> / days from despatch of the coordination data, either notify the Administration requesting coordination of its agreement to the proposals or, if this is not possible, indicate the reasons therefor and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem.

In doing so, the Administration may take into account any frequency assignment communicated to it for use more than three years in advance.



ADD 4167.2 ² This period may be extended with the agreement of the Administration which requested the coordination.7

 $(\underline{Note} : To cover proposal USA/48/485 not discussed in Working Group 6A)$

MOD

4168 492E Spa2

(6) Either the administration seeking co-ordination or an administration with which co-ordination is sought, or the Board, may request additional information which they may require to assess the level of interference to the services concerned.

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Requests to I.F.R.B. for Assistance in Effecting Co-ordination

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4170 492D MOD

§ 9. (1) An administration seeking co-ordination may request the Board to endeavour to effect co-ordination, in those cases where:

- a) an administration with which co-ordination is sought under No. 4160/492A fails to acknowledge receipt under No. 4165/492B within thirty days of dispatch of the co-ordination data;
- b) an administration which has acknowledged receipt under No. 4165/492B but fails to give a decision within ninety days of dispatch of the co-ordination data; four months
- there is disagreement between the administration seeking co-ordination and .c) an administration with which co-ordination is sought as to the acceptable level of interference; or
- ecial assistance is required 7-
- d) 20 co-ordination between administrations is not possible for any other reason.

In so doing, it shall furnish the Board with the necessary information to enable it to endeavour to effect such co-ordination.

(Note: matter to be taken up with HVO)

NOC	4171	Action to be Taken by the I.F.R.B.
NOC	4172 492F Spa2	(2) Where the Board receives a request under No. $4170/492D a$, it shall forthwith send a telegram to the administration concerned requesting immediate acknowledgement.
NOC	4173 492FA Spa2	(3) Where the Board receives an acknowledgement following its action under No. 4172/492F, or where the Board receives a request under No. 4170/492D b), it shall forthwith send a telegram to the administration concerned requesting an early decision in the matter.
NOC	4174 492FB Spa2	(4) Where the Board receives a request under No. 4170/492D d), it shall endeavour to effect co-ordination in accordance with the provisions of No. 4160/492A. Where the Board receives no acknowledgement of its request for co-ordination within the period specified in No. 4165/492B, it shall act in accordance with No. 4172/492F.
NOC	4175 492G Spa2	(5) Where necessary, as part of the procedure under No. 4170/492D, the Board shall assess the level of interference. In any case, the Board shall inform the administrations concerned of the results obtained.
NOC	4176 492E Spa2	(6) Either the administration secting co-ordination or an administration with which co-ordination is sought, or The Board may request additional information which it may require to assess the level of interference to the services concerned.
NOC	4177 492FC Spa2	(7) Where an administration fails to reply within thirty days of dispatch of the Board's telegram sent under No. 4172/492F requesting an acknowledgement, or fails to give a decision in the matter within sixty days of dispatch of the Board's telegram of request sent under No. 4173/492FA, it shall be deemed that the administration with which co-ordination was sought has undertaken that no complaint will be made in respect of any harmful interference which may be caused by the terrestrial station being co-ordinated to the service rendered by its earth station.

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Annex to Document No. 408-E

Page 32

NOC 4178

Notification of Frequency Assignments in the Event of Continuing Disagreement

MOD 4179/492GA

In the event of continuing disagreement between one Administration seeking to effect coordination and one with which coordination has been sought, the Administration seeking coordination shall, except in the cases where the assistance of the Board has been requested, <u>defer delay</u> the submission of its notice concerning the proposed assignment by <u>six</u> five months from the date of the request for coordination, taking into consideration the provisions of No. 4580/639BF.

§ 30. (1) If it is requested by any administration, particularly by an administration of a country in need of special assistance, and if the circumstances appear to warrant, the Board, using such means at its disposal as are appropriate in the circumstances, shall render the following assistance:

- a) computation of the increases in noise temperatures in accordance with No. 4115/639AK;
- b) preparation of diagrams showing the co-ordination areas as in No. 4141/639AN;
- c) any other assistance of a technical nature for completion of the procedures in this Article.

(<u>Note</u> : Present text of No. 4646/639DT to be included in a series of provisions to cover the assistance to the Administrations.)

CONFERENCE ADMINISTRATIVE MONDIALE DES RADIOCOMMUNICATIONS

Corrigendum N^O 1 au Document N^O 409-F/E/S 30 octobre 1979 Original : français anglais espagnol

(Genève, 1979)

GROUPE DE TRAVAIL 5C WORKING GROUP 5C GRUPO DE TRABAJO 5C

SIXIEME RAPPORT DU GROUPE DE TRAVAIL 5C A LA COMMISSION 5 SIXTH REPORT OF WORKING GROUP 5C TO COMMITTEE 5 SEXTO INFORME DEL GRUPO DE TRABAJO 5C A LA COMISIÓN 5

Page 3 du Document N° 409, dans la case 100 - 108 MHz, ajouter le numéro 3566A.

On page 3 of Document No. 409, in the box 100 - 108 MHz, add number 3566A.

En la página 3 del Documento N.º 409, en el cuadro 100 - 108 MHz, agregar el número 3566A.



INTERNATIONAL TELECOMMUNICATION UNION

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 409E 29 October 1979 Original: English

WORKING GROUP 50

SIXTH REPORT OF WORKING GROUP 5C TO COMMITTEE 5

Subject: Frequency bands 87 - 138 MHz

1. Working Group 5C considered its fifth draft Report, contained in Document No. DT/85. The delegate of the U.S.S.R. proposed to suppress footnote 3541A on the grounds that the footnote, which involved 25 countries, would create difficulties in the application of the Radio Regulations. Moreover, he noted that the main reason for this footnote to be excluded was that the proposed allocation for the land mobile service in the band 47 - 68 MHz allocated in the Radio Regulations to the radio broadcasting service would cause harmful interference and would limit the operation of the radio broadcasting service. The delegate of Switzerland agreed with the principles outlined with regard to footnotes. However he could not agree to the deletion of any provision that was of benefit to the land mobile service. In his view, such a provision is now necessary to take account of certain developments.

In view of the extensive discussion that had already taken place both in the Working Group and in an ad hoc group set up to deal with this matter, the Working Group decided to defer decision on this Draft Report to a later meeting of Working Group 5C.

2. Working Group 5C considered all proposals to the bands 87.5 - 108 MHz. It was agreed by a majority to recommend the <u>revised Table</u> appearing in <u>Annex 1</u> to this Report to Committee 5 for adoption.

The consideration of proposals in Region 1 concerning:

- the conditions governing the introduction of the BC service into the band 100 - 108 MHz (planning conference for Region 1);
- the protection of existing mobile operations in this band (with or without a time limit);
- the necessary procedures for transition from the existing situation to a future, expected, one;
- the necessary protection of services operating in adjacent bands below 87.5 and above 108 MHz,

were entrusted to an ad hoc group under the chairmanship of Mr. Schwarz from Switzerland and, in his absence, Mr. Goddard from the United Kingdom.



Document No. 409-E Page 2

3. Some delegations, while agreeing to reallocate the band 100 - 104 MHz to the broadcasting service, wished to see the mobile, except aeronautical mobile (R), service maintained in the band 104 - 108 MHz on a primary/permitted or secondary basis, with or without the broadcasting service on a primary basis.

4. The delegations of the Federal Republic of Germany, Belgium, Spain, Norway and the Netherlands reserved their position on the maintained and modified footnotes 264 and 265. France and Ireland reserved their position on footnote 265 only and Italy reserved its position on footnote 264 only.

5. All proposals relating to the band 108 - 138 MHz were considered and it was agreed by a majority to recommend the revised Table appearing in <u>Annex 2</u> to this Report to <u>Committee 5</u> for adoption.

6. There were divided opinions whether to delete or maintain footnote 3573/273A.

7. Several delegations reserved their position on the permitted status of the aeronautical mobile (OR) service in footnote 3574/274.

8. If the introduction of the fixed and mobile services on a secondary basis into the Table is not made, then several delegations would insist on maintaining footnote 3578/275A. Other delegations could not accept the down-grading to secondary status of the fixed and mobile services in the band 136 - 137 MHz. The delegation of Malaysia reserved its position on this matter and may revert to it in Committee 5.



Annexes : 2

ANNEX 1

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SUP

SUP

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ADD

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MOD

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MOD

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MOD

MHz 87 - 108

	· · · ·				
	Region 1	Region 2	Region 3		
			87 - 100		
	87.5 - 100	- 	BROADCASTING		
	BROADCASTING	88 - 100	Fixed		
		BROADCASTING	Mobile		
	3563/264 / <u>356</u> 4/265_7		3566/267 3565A 3565B		
	100 - 108	BROADCASTING			
		3566/267 / [¯] 3564/265 <u>_7</u> 3 3571A <u>/</u> ¯3569A_7 <u>/</u> ¯3570A_7	571/272 / 3570B_7		
• • • •					
3554/255					
3555/256					
3557/258					
3565A	Different category of ser 87 - 88 MHz to the fixed a (see No. 3432/141).	vice : in Australia, the all and mobile services is on a	location of the band primary basis		
3565в	Different category of service : in India and Singapore, the allocation of the band 87 - 100 MHz to the fixed and mobile services is on a primary basis (see No. 3432/141).				
3566/267	Alternative allocation: in New Zealand, the bands 87 - 88 MHz and 100 - 108 MHz are allocated to the land mobile service on a primary basis.				
3566A	Different category of service : in New Zealand, the allocation of the band 100 - 108 MHz to the broadcasting service is on a secondary basis (see No. 3431/140).				
3563/264	Additional allocation : in France, the United Kingdom and Switzerland, the band 87.5 - 88 MHz is also allocated to the land mobile service on a primary basis.				
3567/					
3571/272	Additional allocation: Philippines and Singapor the fixed and mobile ser	in China, the Republic of Ko e, the band 100 - 108 MHz is vices on a permitted basis.	orea, the s also allocated to		
	<u>Note</u> : MOD 3553/254 for	band 68 - 74 MHz <u>only</u> (Docu	ment No. 341).		

For ADD 3569A, ADD 3570A and ADD 3570B : see paragraph 2 of the Report.

Annex 1 to Document No. 409E Page 4

ADD 3571A Alternative allocation : in Bulgaria, Hungary, Mongolia, Poland, the German Democratic Republic, Czechoslovakia and the USSR, the band 104 - 108 MHz is allocated to the mobile, except aeronautical mobile, service on a / primary / basis.

MOD 3564/265 Additional allocation : in the United Kingdom, the band 97.6 - 100 MHz is also allocated to the land mobile service on a permitted basis, and the band 100 - 102.1 MHz is also allocated to the land mobile service on a primary basis, both until 31 December 1989. The use of both sub-bands by the land mobile service is restricted to those assignments in operation on 1 January 1980.

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Document No. 409E Page 5

ANNEX 2

N	ÆH2	z
10.8	-	138

Region 1	Region 2	Region 3
108 - 117.975	AERONAUTICAL RADIONAVIGATION	
117.975 - 136	AERONAUTICAL MOBILE (R)	
	3495/201A 3572/273 3572	2A 3573/273A 3574/274
136 - 137	AERONAUTICAL MOBILE (R)	
	Fixed	
	Mobile except aeronautics	al mobile (R)
	3578A 3573/273A	
137 - 138	SPACE OPERATION (Space-to-Earth)	
· · · · · · · · · · · · · · · · · · ·	METEOROLOGICAL-SATELLITE	(Space-to-Earth)
	SPACE RESEARCH (Space-to-	Earth)
	Fixed	
	Mobile except aeronautica	l mobile (R)
	3580/279A 3583/281C 358	84/281E

NOC 3495/201A

The frequencies 2 182 kHz, 3 023 kHz, 5 680 kHz, 8 364 kHz, 121.5 MHz, 156.8 MHz and 243 MHz may also be used, in accordance with the procedures in force for terrestrial radiocommunication services, for search and rescue operations concerning manned space vehicles.

The same applies to the frequencies 10 003 kHz, 14 993 kHz and 19 993 kHz, but in each of these cases emissions must be confined in a band of \pm 3 kHz about the frequency.

NOC 3572/273

In this band, the frequency 121.5 MHz is the aeronautical emergency frequency and where required the frequency 123.1 MHz is the aeronautical frequency auxiliary to 121.5 MHz; mobile stations of the maritime mobile service may communicate on these frequencies for safety purposes with stations of the aeronautical mobile service. Annex 2 to Document No. 409E Page 6

MOD	3573/273A	In the band 117.975 - 137 MHz space radiocommunication techniques may be used for the aeronautical mobile (R) service, subject to agreement obtained under the procedure, set forth in Article [].
ADD	3572A	The bands 121.45 - 121.55, and 242.95 - 243.05 MHz are also allocated to the mobile- satellite service for the reception on board satellites of emissions from emergency position indicating radio- beacons transmitting at 121.5 and 243 MHz.
MOD	3574/274	Additional allocation : in Angola, Bulgaria, Hungary, Iran, Iraq, Japan, Mongolia, Mozambique, Papua New Guinea, Poland, the German Democratic Republic, Roumania, Czechoslovakia and the USSR, the band 132 - 136 MHz is also allocated to the aeronautical mobile (OR) service on a permitted basis.
SUP	3575/274A	
SUP	3576/274в	
SUP	3577/275	
001		
SUP	3578/275A	
	· · · · · · · · · · · · · · · · · · ·	allocated to the space operation service (space-to-earth), meteorological satellite service (space-to-earth) and the space research service (space-to-earth) on a primary basis. The introduction of stations of the aeronautical mobile (R) service can only occur after that date and shall be effected in accordance with internationally agreed plans for that service. After 1 January 1990 the band 136 - 137 MHz will also be allocated to the above-mentioned space radiocommunication services on a secondary basis.
SUP	3579/278	
MOD	3580/279 A	Additional allocation: in Australia, the band 137 - 144 MHz is also allocated to the broadcasting service, on a primary basis, until that service can be accommodated within Regional broadcasting allocations.
SUP	3581/281A	
SUP	3582/281AA	
MOD	3583/281C	Additional allocation : in Saudi Arabia, Austria, Bahrain, Bulgaria, Egypt, the United Arab Emirates, Finland, Hungary, Jordan, Kuwait, Lebanon, Mongolia, Poland, Qatar, the German Democratic Republic, Roumania, Syria, Czechoslovakia, the USSR, the Yemen Arab Republic and Yugoslavia, the band 137 - 138 MHz is also allocated to the aeronautical mobile (OR) service on a primary basis.
MOD	3584/281E	Different category of service : in Afganistan, Brunei, China, India, Indonesia, Iran, Iraq, Kuwait, Malaysia, Oman, Pakistan, Qatar, Singapore, and the Yemen Arab Republic, the allocation of the band 137 - 138 MHz to the fixed and mobile services is on a primary basis (see No. 3432/141).

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CONFERENCE ADMINISTRATIVE MONDIALE DES RADIOCOMMUNICATIONS

Corrigendum N^O 1 au Document Nº 410-F/E/S 30 octobre 1979 A Original : français anglais espagnol

(Genève, 1979)

COMMISSION 5 COMMITTEE 5 COMISIÓN 5

SEPTIEME RAPPORT DU GROUPE DE TRAVAIL 5C A LA COMMISSION 5 SEVENTH REPORT OF WORKING GROUP 5C TO COMMITTEE 5 SÉPTIMO INFORME DEL GRUPO DE TRABAJO 5C A LA COMISIÓN 5

Page 2, dans la case 138 - 143,5 MHz, lire 3589/284 au lieu de 3599/284.

On page 2, in the box 138 - 143.6 MHz, read 3589/284 in place of 3599/284.

En la página 2, en el cuadro 138 - 143,6 MHz, léase 3589/284 en lugar de 3599/284.



(Geneva, 1979)

Document No. 410-E 29 October 1979 Original : English

COMMITTEE 5

SEVENTH REPORT OF WORKING GROUP 5C TO COMMITTEE 5

Subject : Frequency bands 138 - 150.05 MHz

1. All proposals to these bands were considered and it was <u>agreed by a majority</u> to recommend the <u>revised Table</u> appearing in the <u>Annex</u> to this document to <u>Committee 5</u> for adoption.

2. The delegations of the United States, the USSR, France, the United Kingdom and Australia reserved their right to revert to the modified footnote 285B because in their view the extensive use of this band by terrestrial services could constitute a hazard to safety of life (see Recommendation No. Spa 8).

> K. OLMS Chairman of Working Group 5C

Annex : 1



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MHz 138 - 144

Region 1	Region 2	Region 3	
138 - 143,6	138 - 143.6	138 - 143.6	
AERONAUTICAL MOBILE	FIXED	FIXED	
(OR)	MOBILE	MOBILE	
	/RADIOLOCATION /	Space research	
	Space research (Space-to-Earth)	(Space-to-Earth)	
3577/275 3585a 3586/282a 3587/283		3580/279A 3599/284	
143.6 - 143.65	143.6 - 143.65	143.6 - 143.65	
AERONAUTICAL MOBILE	FIXED	FIXED	
	MOBILE	MOBILE	
SPACE RESEARCH (Space-to-Earth)	SPACE RESEARCH (Space-to-Earth)	SPACE RESEARCH (Space-to-Earth)	
	/RADIOLOCATION/		
3577/275 3585A 3587/283		3580/279A 3589/284	
143.65 - 144	143.65 - 144	143.65 - 144	
AERONAUTICAL MOBILE	FIXED	FIXED	
(UK)	MOBILE	MOBILE	
	/RADIOLOCATION/	Space research (Space-to-Earth)	
	Space research (Space-to-Earth)		
3577/275 3585a 3586/282a 3587/283		3580/279A 3589/284	

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Annex to Document 410-E Page 3

MOD	3577/275	Alternative allocation : in Angola, Botswana, Burundi, Cameroun, the Congo, Ethiopia, Gabon, Gambia, Ghana, Iraq, Kenya, Lesotho, Malawi, Mozambique, Namibia, Nigeria, Rwanda, Sierra Leone, South Africa, Swaziland, Togo, Zaire, Zambia and Zimbabwe, the band 138 - 144 MHz is allocated to the fixed and mobile services on a primary basis.
SUP	3579/278	
MOD	3580/279 a	Additional allocation : in Australia, the band 137 - 144 MHz is also allocated to the broadcasting service on a primary basis until that service can be accommodated within the Regional broadcasting allocations.
SUP	3585/281G	· · · · · · · · · · · · · · · · · · ·
ADD	3585A	Additional allocation : in the Federal Republic of Germany, Saudi Arabia, Austria, Denmark, Finland, Greece, Iraq, Ireland, Jordan, Kuwait, Malta, Norway, the Netherlands, Qatar, the United Kingdom, Sweden, Switzerland, Tunisia, Turkey and Yugoslavia, the band 138 - 144 MHz is also allocated to the maritime mobile and land mobile services on a primary basis.
MOD	3586/282a	Additional allocation : in the Federal Republic of Germany, Austria, Belgium, France, Israel, Italy, Liechtenstein, Luxembourg, the United Kingdom, Sweden, Switzerland and Czechoslavakia, the bands 138 - 143.6 MHz and 143.65 - 144 MHz are also allocated to the space research service (Space-to-Earth) on a secondary basis.
MOD	3587/283	Additional allocation : in Denmark, Finland, Jordan, Malta, Qatar, Tunisia, the Yemen Arab Republic and Yugoslavia, the band 138 - 144 MHz is also allocated to the fixed service on a primary basis.
SUP	3588/283A	
MOD	3589/284	Additional allocation : in China, the band $138 - 144$ MHz is also allocated to the radiolocation service on a primary basis.

Region 1	Region 2	Region 3	
144 - 146	AMATEUR		
	AMATEUR-SATELLITE		
	3584a 3589a		
146 - 149.9	146 - 148	146 - 148	
FIXED	AMATEUR	AMATEUR	
MOBILE except		FIXED	
aeronautical mobile (R)		MOBÍLE	
	3598A	3598A	
	148 - 149.9		
	FIXED		
	MOBILE		
3591/285A	3591/285A	• •	
149.9 - 150.05	RADIONAVIGATION-SATELLITÉ		
	3592/285в 3593/2850		

MHz 144 - 150.05

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ADD	3584A	Additional allocation : in China, the band 144 - 146 MHz is also allocated to the aeronautical mobile (OR) service on a secondary basis.
ADD	3589A	Additional allocation : in Indonesia and Singapore, the band 144 - 146 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis and on the condition not to cause harmful interference to the amateur-satellite service.
SUP	3590/285	
MOD	3591/285 A	Subject to agreement obtained under the procedure set forth in Article / /, the band 148 - 149.9 MHz may be used by space operation service (Earth-to-space). The bandwidth of an individual transmission shall not exceed <u>+</u> 25 kHz.
ADD	3598 A	Alternative allocation : in Afghanistan, Bangladesh, Cuba, Guyana and India, the band $146 - 148$ MHz is allocated to the fixed and mobile services on a primary basis.

Annex to Document No. 410-E Page 5

MOD 3592/285B

Additional allocation : in Algeria, Argentina, Bangladesh,

Emissions of the radionavigation-satellite service in the

Bulgaria, Colombia, the Congo, Costa Rica, Egypt, El Salvador, Ecuador, Gabon, Greece, Guatemala, Guinea, Honduras, Iran, Iraq, Jordan, Kenya, Kuwait, Morocco, Pakistan, the Netherlands, Poland, Qatar, the Democratic People's Republic of Korea, Roumania, Syria, Czechoslovakia, Thailand, Tunisia, Turkey and Yugoslavia, the band 149.9 - 150.05 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis (see Recommendation No. Spa 8). Administrations are urged to protect radionavigation-satellite signals being received in coastal areas from harmful interference by other services operating in those areas.

bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz may also be used by receiving

earth stations of the space research service.

NOC 3593/285C

SUP 3597/289 SUP 3598/290

(Geneva, 1979)

Document No. 411(Rev.1)-E 2 November 1979 Original : French

PLENARY MEETING

SECOND REPORT BY COMMITTEE 6

Committee 6 <u>adopted</u> the revised texts on the following subjects (see Document No. 412) which have been forwarded to the Editorial Committee for submission to the plenary meeting :

- Article N13A
- Article N18/15
- Article N19
- Article N20/15
- Recommendation No. 5

Committee 6 also agreed on the action to be taken with regard to certain Resolutions and Recommendations.

These texts were adopted unanimously.

M. JOACHIM Chairman of Committee 6



(Geneva, 1979)

Document No. 411-E 1 November 1979 Original : French

PLENARY MEETING

SECOND REPORT BY COMMITTEE 6

Committee 6 <u>adopted</u> the revised texts on the following subjects (see Document No. 306) which have been forwarded to the Editorial Committee for submission to the plenary meeting :

- Article N13A
- Article N18/15
- Article N19
- Article N20/15
- Recommendation No. 5

Committee 6 also agreed on the action to be taken with regard to certain Resolutions and Recommendations.

These texts were adopted unanimously.

M. JOACHIM Chairman of Committee 6



INTERNATIONAL TELECOMMUNICATION UNION

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 412-E 1 November 1979 Original : French

COMMITTEE 9

SECOND SERIES OF TEXTS SUBMITTED BY COMMITTEE 6

TO THE EDITORIAL COMMITTEE

The texts referred to in Document No. 411 and contained in the Annexes below are submitted to the Editorial Committee :

Annex 1 : Article N13A

Annex 2 : Article N18/15

Annex 3 : Article N19

Annex 4 : Article N20/15

Annex 5 : Recommendation No. 5

Annex 6 : Resolution / COM 6-2_7

Annex 7 : Decision on existing Resolutions and Recommendations

Dr. M. JOACHIM Chairman of Committee 6

Annexes : 7



Document No. 412-E Page 3

ANNEX 1

ARTICLE N13A

Supplementary procedure to be applied in cases where a footnote to the Table of Frequency Allocations requires an agreement with an Administration

- ADD COl § 1 (1) Before an administration notifies to the Board a frequency assignment in accordance with any footnote to the Table of Frequency Allocations which makes reference to this Article, it shall obtain the agreement of any other administration whose services may be affected. In the case of a footnote concerning a space radiocommunication service, this procedure may be initiated before or at the same time as the application of the provisions of Article N11.
- ADD 002 (2) The administration seeking such an agreement shall, sufficiently early before the planned date of putting the assignment into service, send to the Board:

a) For terrestrial radiocommunication services, the basic characteristics of the planned assignment listed in the appropriate Section of Appendix 1;

b) For space radiocommunication services, the characteristics of the planned assignment listed in Appendix 1B or Appendix 1A when the latter is available.¹⁾

ADD 003 (3) The Administration seeking agreement may when sending its information to the Board, also identify those other Administrations that are believed to have services which may be affected.

ADD 002.1 1) The information in Appendices 1A or 1B submitted to the Board under Article N11 may also be used for the purpose of this procedure.

ADD

- ADD 004 § 2 (1) The Board shall publish the information sent under Nos. 002 and 003 in a special section of its weekly circular¹⁾ and shall also, when the weekly circular contains such information, advise administrations by circular telegram.
- ADD 005 (2) The Board shall endeavour to identify administrations whose services may be affected, and shall include the names of those administrations it is able to identify in the special section of its weekly circular and in the circular telegram mentioned under No. 004.
- ADD 005 § 3 (1) Any administration, upon receipt of this information and believing that the planned assignment may affect its services operating in accordance with the Table of Frequency Allocations or planned to be so operated, shall, within one hundred and twenty days of the date of the relevant weekly circular, so inform the administration requesting agreement and the Board.
- ADD 007 (2) Any administration not having commented within the period specified in No. 006 shall be regarded as unaffected.
- ADD 008 (3) Any administration responding under No. 006 to a request for agreementshall, if possible at the same time, give at least the relevant basic characteristics of its services which may be affected and shall make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem. A copy of this information shall simultaneously be sent to the Board.

ADD 004.1 1) In the case of a space radiocommunication service, the administration submitting the information listed in Appendices 1A or 1B in accordance with the provisions of Article N11 may also ask the Board to apply this information in pursuance of the present procedure and the Board will indicate in the appropriate special section of its weekly circular that agreement under the present Article is also sought.

- ADD 009 § 4 The administration requesting agreement under No. 002 and the administration responding under No. 006 shall together¹⁾ make every possible effort to resolve the problem before the date of bringing into use of the planned assignment.
- ADD 010 §5 Either administration may request from the other additional information which may be required to resolve the problem. A copy of such a request and of any information given in response shall be sent to the Board.
- ADD Oll § 6 Either administration may request the assistance of the Board in an attempt to resolve the problem.
- ADD 012 § 7 Following resolution of the problem, the administration which sought agreement shall inform the Board to that effect.
- ADD 013 § 8 An administration having sought agreement under No. 002 and having received no response under No. 006 from any administration shall inform the Board thereof and shall then be regarded as having successfully completed the procedure of this Article.
- ADD 014 § 9 An administration having sought agreement under No. 002, having received one or more responses under No. 006 and having informed the Board under No.012 of the resolution of the problem, shall be regarded as having obtained agreement in accordance with the relevant footnote to the Table of Frequency Allocations.
- ADD 015 \$10 The Board, following receipt of advice under No. 013 or No.014 as to completion of this procedure, shall publish this information in the appropriate special section of the weekly circular.
- ADD 016 § 11 An administration seeking an agreement or an administration with which an agreement is sought or any other administration whose services might be affected may request the assistance of the Board in applying any of the steps of this procedure, particularly in :
 - a) identifying administrations whose services might be affected,
 - b) evaluating the levels of interference,
 - c) defining, with the agreement of the administrations concerned, the technical criteria to be used.
- ADD 009.1 1) In the absence of appropriate CCIR recommendations or I.F.R.B. 016.1 technical standards the technical criteria to be used in such a case shall be agreed between the administrations involved.

ANNEX 2

CHAP. NV - RR N18-1

ARTICLE N18

to the extent practicable International Monitoring in particular economical MOD 5058 678 § 1. To assist in the implementation of these Regulations, to help ensure efficient and coonomic use of the radio frequency spectrum and to help in the prompt elimination of harmful interference, Administrations agree to continue the development of monitoring facilities and, to the extent practicable, to co-operate in the continued development of the international monitoring system. MOD 5059/679 The international monitoring system comprises only those monitoring stations which have been so nominated by Administrations in the information sent to the Secretary General in accordance with These stations may be operated by an Administration; No. 5065/685. or, in accordance with an authorization granted by the appropriate Administration, by a public or private enterprise, by a common monitoring service established by two or more countries, or by an



international organization.

Page 7

MUD 5065/685

Administrations on international erganisations, having determined whether their monitoring stations meet adequate technical standards, shall notify to the Secretary General pertinent information of on the centralizing office and of on the stations they wish to have included in List VIII, clearly identifying these the stations which may participate in the international monitoring system as preserved (see in Article N24/20 and Appendix 9).

5066/686 5067/687 (NOC) 5068/688

MOD 5069 / 689

To-ensure-that-published-monitoring-data-are eurrent-and-world-wide-in-naturey Administrations having-jurisdiction-over-monitoring-stations listed-in-the-List-of-International-Monitoring Stations (see-Article-20) shall make every efforty qs-practicabley to arrange for monitoring observations to be made-by-such-stations-and (see Appendix 6) submitted to the Board as soon as possible after-the-date-of-observation.

5070/690 (NOC)

5071 691 § 13. The Board shall record the results supplied by the monitoring stations participating in the international monitoring system, and

5072 692 §-14. The Board-shall prepare periodically, for publication by the Secretary-General, summaries of the useful monitoring data received by it including a list of the stations contributing the data.

ADD 5071A When an Administration, in supplying monitoring observations from one of its monitoring stations taking part in the international monitoring system, states to the Board that a clearly identified emission is not in conformity with these Regulations, the Board shall draw the attention of the Administration concerned to those observations.

5073 to NO allocation

5097

Document No. 412-E Page 9

ANNEX 3

CHAP. NV - RR N19-1

ARTICLE N19/16

Reports of Infringements



NOD 5100/721 If an administration has information of an infringement of the Convention or Radio Regulations, committed by a station over which it has-sutherized may exercise authority, it shall ascertain the facts, fix the responsibility, and take the necessary action.

5101 to NOT allocated. 5125

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ANNEX'4

ARTICLE N20 /15

Procedure in a Case of Harmful Interference



(NOD) 5128/706 When a case of such <u>harmful</u> interference is reported by a receiving station, it shall give to the trans-, mitting station <u>whose service is being</u> interfered with all possible information which will assist in determining

he source and characteristics of the interference.

MOD 5129/707 4. Where practicable, and subject to agreement by Administrations concerned, such the a case of harmful interference may be dealt with directly by their specially designated monitoring stations or by direct coordination between their operating organisations.

ADD 5129A For the purpose of this Article, the term "Administration" may include the centralizing office designated by the Administration, in accordance with No. 5061.

(MOD) 5130/708 If a case of <u>humful</u> interference so juntifies, the administration having jurisdiction over the receiving station experiencing the interference shall <u>inform</u> notify the administration having jurisdiction over the transmitting station whose service is being interfered with, giving all possible information. 5131/709 If further observations and measurements are necessary to determine the source and characteristics of and to establish the responsibility for the <u>harmful</u> interference, the administration having jurisdiction over the transmitting station <u>whose service is being</u> interfered with may seek

the co-operation

Page 11

Annex 4 to Document No. 412-E

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of other administrations, particularly of the administration having jurisdiction over the receiving station experiencing the interference, or of other organizations.

(HOD) 5132/710

(MOD)

Hiving determined the source and characteristics of the <u>hormful</u> interference, the administration having jurisdiction over the transmitting station <u>whose</u> service is being interfered with shall inform X

administration having jurisdiction over the interfering station, giving all useful information in order that this administration may take such steps as may be necessary to eliminate the interference.

(MOD) 5133/711 When a safety service suffers <u>harmful</u> interference, or in other cases with the prior, approval of the udministration having jurisdiction over the transmitting station, whose service is being interfered with, y

administration having jurisdiction over the receiving station experiencing the interference may also approach directly the administration having jurisdiction over the interfering station.

ADD 5133A

An Administration receiving a communication to the effect that one of its stations is causing harmful interference to a safety service shall promptly investigate the matter and take any necessary remedial action.

hormful

(MOD) 5134/711A § 9: When the service rendered by an earth station suffers interference, the administration having jurisdiction over the receiving station experiencing the interference may also approach directly the administration having jurisdiction over the interfering station.

harmfu

ADD 5134A

On being informed that a station over which it has jurisdiction is believed to have been the cause of harmful interference, an Administration shall, as soon as possible, acknowledge receipt of that information by telegram. Such acknowledgement shall not constitute an acceptance of responsibility.

Annex 4 to Document No. 412-E

Page 12

NOD 5135 / 711B

When cases of harmful interference occur as a result of emissions from space stations, the administrations concerned shall, upon request from the administrations having jurisdiction over the station experiencing the interference, furnish current ephemeral data necessary to allow ealeulation determination of the positions of the space station when not otherwise known.

HOD 5136/712

In cases of <u>harmful</u> interference where rapid action is required, communications between administrations shall be transmitted by the quickest means available, and, subject to prior authorisation by the administrations, in such cases information may be exchanged offertly between stations of the international monitoring system.

specially designated

ADD 5136A

Recognizing that transmissions on the distress and safety frequencies (see Article N35) require absolute international protection and that the elimination of harmful interference to such transmissions is imperative, Administrations undertake to act immediately when their attention is drawn to any such harmful interference.

harmful

5137 713 **§** 12. Full particulars relating to interference shall, whenever possible, be given in the form indicated in Appendix 8.

harmful

(HOD) 5138/714 If the interference persists in spite of actions taken in accordance with the procedures outlined above, the administration having jurisdiction over the transmitting station whose service is being interfered with

Eay address to the administration having jurisdiction over the interfering station a report of irregularity or infraction in accordance with the provisions of Article N19/16.

MOD 5139/715 E 14. If there is a specialized international organization for a particular service, reports of irregularities and of infractions relating to harmful ->interference caused or suffered by the stations in this service may be addressed to such organization at the same time as to the Administration concerned.

Annex 4	to	Document	No.	412-E
Page 13		· · ·		

5140 716 NOC



NOT allocated.

5143 to 5192 a)

c)

ANNEX 5

RECOMMENDATION No. 5

MOD

to the CCIR and to Administrations relating to international monitoring in-the-bands-below-28-000-kHz

The World Administrative Radio Conference, Geneva, 1959. 1979,

considering

MOD

b) the provisions of the Radio Regulations, Geneva, 1959, <u>1979</u>, under which the International Frequency Registration Board shall review the entries in the Master International Frequency Register with a view to bringing them into conformity, to the maximum extent practicable, with the actual use being made of the radio spectrum;

NOC

NOC

MOD

invites the CCIR

recognizing

in collaboration with the Board, to study and make technical Recommendations concerning the additional facilities required to provide adequate coverage in-all-areas of the world for the-purposes of Articles-8,-9-and-13-of implementing the Radio Regulations, more especially Articles N9, N11, N12, N13, N13A and N18;

NOC

invites Administrations

with a view to

Document No. 412-E Page 15

ANNEX 6

RESOLUTION / COM 6-2_7

Relating to the development of national radio frequency management

The World Administrative Radio Conference, Geneva, 1979,

considering

a) that the Radio Regulations contain, inter alia, procedures for the coordination, notification and registration of frequencies which specify the rights and obligations of Member countries;

b) that the application of the above-mentioned procedures necessitates an appropriate radio frequency management unit in each Member country;

c) that the existence of such a unit helps to safeguard the rights, and discharge the obligations, of Member countries under the Radio Regulations;

d) that the application of the Radio Regulations through the agency of such units is in the interests of the international community as a whole;

noting

that such a unit requires an adequate number of suitably qualified

staff;

noting further

that many developing countries need to either create or strengthen such a unit, appropriate to their administrative structure, with responsibility for the application of the Radio Regulations at the national and international levels;

recommends

to Administrations of such countries to take appropriate action;

resolves

1. that meetings should be organized among the IFRB and the CCIR and personnel involved in frequency management matters from Administrations of developing and developed countries.

2. that such meetings should be aimed at designing standard structures suitable for Administrations of developing countries, including discussions concerning the establishment and operation of radio frequency management units;

3. that such meetings should also identify the particular needs of developing countries in establishing such units, and the means required to meet those needs;

recommends

that developing countries when planning the use of funds, particularly those received from international sources, should make provisions for participation in these meetings and for the introduction and development of such units;

invites the Administrative Council

to take the necessary measures for the organization of such meetings;

instructs the Secretary-General

a) to circulate the present Resolution among all Members of the Union, drawing their attention to its importance;

b) to circulate the results of such meetings, particularly to the developing countries;

c) to inform the developing countries of the types of assistance the ITU can provide in setting up the required structure;

draws the attention of the next Plenipotentiary Conference to

a) the particular problems identified in the present resolution:

b) the need for prompt and effective action to resolve them;

c) the need to take all practicable measures to ensure that resources are made available for this purpose.

Document No. 412-E Page 17

ANNEX 7

Resolutions

SUP	No. 1
SUP	No. 2
SUP	No. 4
NOC	No. Mar 4
SUP	No. Mar 11
SUP	No. Mar 15
NOC	No. Mar 20
NOC	No. Spa2 - 2
SUP	No. Mar2 - 2
SUP	No. Mar2 - 3
NOC	No. Mar2 - 4
SUP	No. Mar2 - 6
SUP	No. Mar2 - 9
SUP	No. Mar2 - 10
SUP	_{No.} Mar2 - 11
SUP	No. Mar2 - 12
NOC	No. Mar2 - 15

Recommendations

MOD	No.	5	(see	Annex	5)
NOC	No.	16			

(Geneva, 1979)

Document No. 413-E 30 October 1979 Original : English

COMMITTEES 7 AND 9

State of Israel

PROPOSALS FOR THE WORK OF THE CONFERENCE

ISR/413/22 ADD

RESOLUTION No. ...

Relating to the presentation of amendments to the Radio Regulations

The World Administrative Radio Conference, Geneva, 1979,

noting

a) Recommendation No. Mar2 - 20 relating to the presentation of amendments to the Radio Regulations;

b) that the accepted method of presentation (underlining of new texts, crossing out of suppressed texts, etc.) has proven to be very effective in clearly indicating the place and nature of modifications, thus eliminating the tedious and time-consuming labour of searching for the amended sections and comparing them with the original;

c) that the Secretary-General has issued guidelines for presentation of proposals for amendments to the Radio Regulations;

considering

a) that delegations - particularly smaller delegations from developing countries - are physically unable to attend all the numerous meetings of the various committees and groups of the Conference;

b). that delegations, on returning to their home countries, must be in a position to promptly report to their Administrations on all the changes which occurred in the Radio Regulations;

c) that the ITU community has repeatedly stressed the importance of extending every possible technical assistance to members in special need thereof, in order to enhance the smooth implementation of the Radio Regulations in all parts of the world;



resolves

1. that the uniform method of presenting modifications to the Radio Regulations - already used, in accordance with Recommendation No. Mar2 - 20 - shall be followed up through all the stages of conference documentation;

2. that in addition to the Final Acts of the Conference, a special edition of these Final Acts, shall be reproduced - in the same uniform presentation method - in accordance with the afore-mentioned guidelines of the Secretary-General.



(Geneva, 1979)

Document No. 414-E 30 October 1979 Original : English

WORKING GROUP 5E

REPORT TO WORKING GROUP 5E FROM SUB-WORKING GROUP 5EL FORMED TO CONSIDER PASSIVE SERVICE PROPOSALS ABOVE 275 GHz

At its meeting on Monday, 8 October 1979, Sub-Working Group 5El considered the <u>passive</u> <u>service proposals</u> at frequencies above 275 GHz. The meeting was attended by representatives of Argentina, Australia, Canada, Federal Republic of Germany, Greece, India, Japan, Netherlands, Union of Soviet Socialist Republics, United Kingdom and United States of America. The Sub-Working Group concluded that :

- 1. Current spectral requirements and levels of technology for frequencies above 275 GHz both suggest that no allocations should be made at present.
- 2. The current requirements of the passive services are listed in the Annex. They could be included in the allocations tables in the following manner :

	Region 1	Region 2	Region 3
MOD	275 - 400	(not allocated)	
		<u>3816L</u>	
MOD	above 400	(not allocated)	

ADD 3816L In the range 275 - 400 GHz a need has been identified for passive services in the following spectral bands :

Radio astronomy service : 278 - 280, 330 - 360 GHz. Space research (passive) and Earth exploration satellite (passive) : 275 - 277, 300 - 302.5, 324 - 326, 345 - 347, 363 - 365.5, 379 - 400 GHz.

Future research in this largely unexplored spectral region may yield additional bands of interest to the passive services.

J.B. WHITEOAK Chairman of Sub-Working Group 5El



Annex : 1

Document No. 414-E Page 2

ANNEX

PASSIVE BANDS FOR WHICH PROTECTION HAS BEEN PROPOSED

<u>275 - 277 GHz</u> :	Space Research (p), Earth Exploration-Satellite (p) (CCIR Recommendation 515 : measurement of nitrous oxide)	(USA/46/366 (J/62B/286 (PHL/92B/539
<u>278 - 280 GHz</u> :	Radio Astronomy (Document No. 165 (IUCAF) : spectral observations of diazenylium)	(USA/46/369 (G/53B/673 (J/62B/285 (GRC/86B/373 (PHL/92B/542
<u>300 - 302.5 GHz</u> :	Space Research (p), Earth Exploration-Satellite (p) (CCIR Recommendation 515 : measurement of nitrous oxide)	J/62B/288
<u>324 - 326 GHz</u> :	Space Research (p), Earth Exploration-Satellite (p) (CCIR Recommendation 515 : measurement of water vapour)	J/62B/290
<u>330 - 360 GH</u> _Z :	Radio Astronomy (protection of current continuum and spectral-line observations)	AUS/59/224
<u>345 - 347 GHz</u> :	Space Research (p), Earth Exploration-Satellite (p) (CCIR Recommendation 515 : measurement of carbon monoxide)	J/62B/292
$363 - 365.5 \text{ GH}_{Z}$:	Space Research (p), Earth Exploration-Satellite (p) (CCIR Recommendation 515 : measurement of ozone)	J/62B/294
<u>379 - 400 GHz</u> :	Space Research (p), Earth Exploration-Satellite (p) (CCIR Recommendation 515 / 379 - 381 GHz_7 : measurement of water vapour)	J/62B/296
General proposals :		

Above 300 GHz : Radio Astronomy, Space Research (p) (D/16/38'

(D/16/387 (GRC/86B/388



(Geneva, 1979)

Document No. 415-E 30 October 1979 Original : English

COMMITTEE 5

International Air Transport Association

OBSERVATIONS REGARDING PROPOSED ALLOCATIONS IN THE 136 - 137 MHz BAND

1. Introduction

This note concerns the proposal to allocate the aeronautical mobile (R) service on a primary basis in the band 136 - 137 MHz together with secondary allocations to the mobile (except aeronautical mobile (R)) and the fixed services. Administrations are invited to consider the implications of the proposal taking into account the observations expressed herein.

2. Discussion

Notwithstanding the regulatory distinctions between primary and secondary allocations the shared use of this band creates potential for mutual interference. Either or both of the secondary services may be subjected to significant interference from aircraft stations. Considering the line of sight distance from an aircraft station at a cruising altitude of 13,000 metres (40,000 ft), interference may be expected to occur within a radius of 800 km of an aeronautical station. Conversely, an aircraft station may be subjected to harmful interference from either or both of the secondary services with consequent flight safety implications.

Any harmful interference caused to the aeronautical mobile (R) service will oblige the secondary service(s) concerned to cease operations. As the aeronautical mobile (R) use of the band increases it can be expected that the secondary service(s) would be obliged to cease operations in many areas of the world.

IATA has concluded that sharing of the bands by these services is mutually incompatible. However in this connection it is noted that the SPM did not establish any sharing criteria between the aeronautical mobile (R) and other services, in the bands above 30 MHz. In these circumstances it may be useful to seek the advice of Committee 4 before finalizing the allocations in the band under discussion.

3. <u>Concluding observation</u>

In IATA's view there appears to be only two alternatives :

- 1) suppression, by 1990, of the secondary allocation to the fixed and mobile (except aeronautical mobile (R)) services, or
- 2) suppression of the proposed aeronautical mobile (R) primary allocation and allocation of the band on a primary basis to the fixed and mobile (except aeronautical mobile (R)) services.



(Geneva, 1979)

Corrigendum No. 1 to Document No. 416-E 1 November 1979 Original : English

WORKING GROUP 6A

REPORT FROM SUB-WORKING GROUP 6A2

ANNEX 2

MOD

RESOLUTION

Relating to Notification of Frequency Assignments

The World Administrative Radio Conference, Geneva, 1979

referring to

- the Preamble of the Convention,
- Article 31 of the Convention (Special Arrangements),
- Article N6/4 of the Radio Regulations (Special Agreements),
- Article N12/9 of the Radio Regulations (Notification and Recording in the Master International Frequency Register of Frequency Assignments to Terrestrial Radiocommunication Stations),
- Article NL3/9A of the Radio Regulations (Notification and Recording in the Master International Frequency Register of Frequency Assignments to Radio Astronomy and Space Radiocommunication Stations except stations in the Broadcasting-Satellite Service),
- Article N15/10 of the Radio Regulations (Procedure for the Bands Allocated Exclusively to the Broadcasting Service between 5950 and 26100 kHz).

/ considering

that a new resolution is required to supersede Resolution No. 5 of the Administrative Radio Conference, Geneva, 1959;_7

resolves

that, unless specifically stipulated otherwise by special arrangements communicated to the Union by the Administrations, any notification of a frequency assignment to a station shall be made by the administration of the country on whose territory the station is located.

(Geneva, 1979)

Document No. 416-E 30 October 1979 Original: English

WORKING GROUP 6A

REPORT FROM SUB-WORKING GROUP 6A2

Consideration of Resolutions and Recommendations

Sub-Working Group 6A2 has considered the Resolutions and Recommendations referred to it by Working Group 6A.

The Sub-Working Group consisted of representatives from the delegations of Argentina, Brazil, Canada, Cuba, Spain, United States, France, India, Indonesia, Japan, Jordan, Kenya, Luxembourg, Mexico, Morocco, Nigeria, Norway, New Zealand, German Democratic Republic, United Kingdom and the U.S.S.R., together with representatives from the I.F.R.B. and an observer from IATA.

The Sub-Working Group was able to deal directly with all but three of the Resolutions and Recommendations attributed to the Group. Resolutions Nos. Spa2 - 3, Spa2 - 6 and Sat-3 require further consideration following decisions either in Working Group 6A or other Committees of the Conference. It is recommended that these three Resolutions be dealt with directly by Working Group 6A when this becomes possible. With respect to Resolution No. Spa2 - 6, which will be considered initially in Committee 4, a draft note (Document No. DT/149) has been prepared asking that Committee to expedite its consideration of the matter.

Detailed comment on each Resolution and Recommendation is given in <u>Annex 1</u>. It will be noted that some footnote comments have been made relating to a number of these Resolutions and Recommendations. Where a text has been revised substantially, the proposed new text is in Annex 2.

> J.A. LEWIS Chairman of Sub-Working Group 6A2

Annexes · 2



ANNEX 1

RESOLUTION No. 5

The Sub-Working Group decided that a Resolution on this matter was required. A revised text, which brings the provisions of this Resolution up to date, is given in <u>Annex 2</u>.

The delegation of France reserved its position with regard to this Resolution.

RESOLUTION No. 151) 2)

The Sub-Working Group decided that this Resolution should be maintained. RESOLUTION No. Mar $5^{(1)}(2)(3)$

The Sub-Working Group decided that this Resolution should be maintained.

RESOLUTION No. Mar 19

The Sub-Working Group decided that this Resolution should be maintained.

RESOLUTION No. Spa2 - 1

The Sub-Working Group decided that this Resolution should be maintained.

RESOLUTION No. Spa2 - 3

The Sub-Working Group decided that a Resolution on this topic was required. However, it noted that this Resolution will require updating to bring it into line with modifications to Articles N11 and N13 being developed in Working Group 6A. It is recommended that a small ad hoc group, reporting directly to Working Group 6A, be established to consider Resolution No. Spa2 - 3 and to bring it into line with the appropriate changes in Articles N11 and N13.

RESOLUTION No. Spa2 - 6

The Sub-Working Group noted the modifications to Resolution No. Spa2 - 6 proposed in Addendum 3 to Document No. 47 of the United States (Proposal USA/47/1076). This has been attributed to Committee 4. It was decided that Committee 6 should ask Committee 4 to expedite its consideration of this proposal and to report its findings to Committee 6 to enable final consideration of this Resolution to occur in a timely fashion.

2) It was noted in the Sub-Working Group that final consideration of this Resolution should best occur at the next appropriate specialist Conference.

3) Note to Editorial Committee:

The Sub-Working Group noted proposals made to this Conference relating to the use of A3J emissions on the carrier frequency 2182 kHz (e.g. NZL/51/168 to 173). When a decision is made on this matter at WARC-79 it may be necessary to modify this Resolution accordingly.

 <u>Note to Editorial Committee</u>: This Resolution should be brought in line with the decisions taken in other Committees of this Conference, in particular with respect to decisions taken in Committee 5 with respect to frequency allocations.

RESOLUTION No. Mar2 - 7

The Sub-Working Group decided that this Resolution should be maintained. RESOLUTION No. Mar2 - 8

The Sub-Working Group decided that this Resolution should be maintained.

RESOLUTION No. Mar2 - 13

The Sub-Working Group decided that this Resolution should be abrogated.

RESOLUTION No. Mar2 - 14

The Sub-Working Group decided that this Resolution should be maintained.

RESOLUTION No. Sat - 1

The Sub-Working Group decided that this Resolution should be abrogated.

RESOLUTION No. Sat - 2

The Sub-Working Group decided that certain aspects of this Resolution should be maintained. A proposed text is given in Annex 2.

RESOLUTION No. Sat - 3

The Sub-Working Group noted that any decision on this Resolution must await the decision of WARC-79 on Resolution No. Sat - 4. No further action is possible until information in that regard is available.

RESOLUTION No. Sat - 5

The Sub-Working Group decided that this Resolution should be maintained.

RESOLUTION No. Sat - 6

The Sub-Working Group decided that this Resolution should be maintained.

RESOLUTION No. Sat - 9

The Sub-Working Group decided that this Resolution should be maintained.

RESOLUTION No. Aer2 - 21)

The Sub-Working Group decided that this Resolution should be maintained. RESOLUTION No. Aer2 - 3^{1}

The Sub-Working Group decided that this Resolution should be maintained.

1) Note to Editorial Committee:

This Resolution should be brought in line with the decisions taken in other Committees of this Conference, in particular with respect to decisions taken in Committee 5 with respect to frequency allocations.

RESOLUTION No. Aer2 - 41)

The Sub-Working Group decided that this Resolution should be maintained. RESOLUTION No. Aer2 - $5^{1)}$

The Sub-Working Group decided that this Resolution should be maintained. RECOMMENDATION No. 21^{1}

The Sub-Working Group decided that this Recommendation should be maintained. RECOMMENDATION No. Spa2 -]

The Sub-Working Group decided that this Recommendation should be maintained. <u>RECOMMENDATION No. Aer? - 3¹⁾</u>

The Sub-Working Group decided that this Recommendation should be maintained. RECOMMENDATION No. Aer2 - $4^{1)}$

The Sub-Working Group decided that this Recommendation should be maintained.

Note to Editorial Committee: This Resolution or Recommendation should be brought in line with the decisions taken in other Committees of this Conference, in particular with respect to decisions taken in Committee 5 with respect to frequency allocations.

ANNEX 2

RESOLUTION No. 5

Relating to Notification of Frequency Assignments

The World Administrative Radio Conference, Geneva, 1979

referring to

MOD

- the Preamble of the Convention,
- Article 31 of the Convention (Special Arrangements),
- Article N6/4 of the Radio Regulations (Special Agreements),
- Article N12/9 of the Radio Regulations (Notification and Recording in the Master International Frequency Register of Frequency Assignments to Terrestrial Radiocommunication Stations),
- Article N13/9A of the Radio Regulations (Notification and Recording in the Master International Frequency Register of Frequency Assignments to Radio Astronomy and Space Radiocommunication Stations except stations in the Broadcasting-Satellite Service),
- Article N15/10 of the Radio Regulations (Procedure for the Bands Allocated Exclusively to the Broadcasting Service between 5950 and 26100 kHz).

resolves

that, unless specifically stipulated otherwise by special arrangements communicated to the Union by the Administrations, any notification of a frequency assignment to a station shall be made by the administration of the country on whose territory the station is located.

Reason: This represents an updating of Resolution No. 5, which has been proposed for suppression; adds Articles N13/9A and N15/10 and makes editorial corrections conforming to the Convention (Article 31 vice 43), and Radio Regulations (Article N12 vice 9).

RESOLUTION No. / 6A - 1_7

Relating to the use of frequency assignments to terrestrial and space radiocommunication stations in the band 11.7 - 12.2 GHz in Region 3 and in the band 11.7 - 12.5 GHz in Region 1

The World Administrative Radio Conference, Geneva, 1979,

considering

- a) that the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977, adopted Resolution No. Sat-2;
- b) that No. 405BA of the Radio Regulations provides that in the band 11.7-12.2 GHz in Region 3 and in the band 11.7-12.5 GHz in Region 1, existing and future fixed, mobile and broadcasting services shall not cause harmful interference to broacasting-satellite stations operating in accordance with the decisions of that Conference;
- c) that the decisions of that Conference included a Plan for stations in the Broadcasting-Satellite Service;
- d) that the coordination procedures described in Resolution No. Spa2 - 3 are to be applied only until the entry into force of plans pursuant to Resolution No. Spa2 - 2;

resolves

- 1. that all administrations using or intending to use frequency assignments to terrestrial stations in the bands covered by the Plan shall decide as soon as possible, whether or not these assignments will affect frequency assignments in accordance with the Plan (if necessary, with the assistance of the IFRB);
- 2. that administrations may continue to use frequency assignments which are not in accordance with the Plan, provided that agreement is reached with the administration whose broadcasting-satellite stations are affected;
- 3. that the administrations seeking agreement shall inform the IFRB of the terms of the agreement reached;
- 4. that, upon receipt of such information, the IFRB shall insert a symbol in the Remarks column of the Master Register indicating the duration specified in the agreement. The duration specified shall also be published in a special section of its weekly circular;
that Resolution No. Sat-2 is abrogated and superseded by the present Resolution;

invites the IFRB

5.

to assist administrations in implementing the provisions of this Resolution.

Note to Editorial Committee :

The drafting of the present Resolution does not prejudge a decision by this Conference concerning the form in which existing Resolutions are maintained, wholly or in part.

Explanatory Note

This Resolution contains the sections of Resolution No. Sat-2 that remain relevant. In particular, "considerings" b) and d) of the present Resolution follow from "considerings" b) and c) of Resolution No. Sat-2, respectively; "resolves" 1, 2, 3 and 4 follow from "resolves" 1, 3, 4 and 5 of Resolution No. Sat-2, respectively.

(Geneva, 1979)

Document No. 417-E 30 October 1979 Original : English

COMMITTEE 5

EIGHTH REPORT OF WORKING GROUP 5C TO COMMITTEE 5

Subject: Frequency bands 150.05 - 174 MHz

1. Working Group 5C considered all proposals to the bands 150.05 - 174 MHz. It was agreed by a majority to recommend the revised Table appearing in the <u>Annex</u> to this Report to <u>Committee 5</u> for adoption.

2. Divergent views were expressed on the exclusion of aeronautical mobile (OR) service from the bands 153 - 156.7625 MHz in Region 1, and it was not possible to obtain a majority decision.

3. The United States of America reserved its position on the last paragraph of footnote 3595/287.

4. The USSR reserved its position on the proposed additional footnote 3594A.

5. Austria, the Federal Republic of Germany and Finland reserved their position on the proposed addition of footnote 3531C.

K. OLMS Chairman of Working Group 5C

Annex : 1



ANNEX

MHz 150.05 - 174

, ·

	Region 1	Region 2	Region 3
	150.05 - 153	150.05 - 156.7625	
	FIXED	FIXED	·
	MOBILE except aeronautical mobile	MOBILE	
	RADIOASTRONOMY		
· •	3531/233B 3531C		
• •	153 - 154		
·	FIXED		
	MOBILE except aeronautical mobile (R)		
	Meteorological aids		
	154 - 156.7625		. · · · · ·
	FIXED		
¢teres este	MOBILE except aeronautical mobile (R)		• •
	3595/287	3595/287 3531B 3591A	
	156.7625 - 156.8375	MARITIME MOBILE (Distress	and calling)
· .		3495/201A 3595/287	
	156.8375 - 174	156.8375 - 174	
	FIXED	FIXED ,	· · · · · · ·
	MOBILE except aeronautical mobile	MOBILE	
	3595/287 3596/288 3596A	3595/287 3594A 3596B 3596	6C
	and the second	and the second se	



. . .

SUP	3530/233A	(See Document No. 235.)
MOD	3531/233B	In making assignments to stations of other services to which the band $150.05 - 153$ MHz is allocated, Administrations are urged to take all practical steps to protect the radio astronomy service from harmful interference. Emissions from space and airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 3280/116 and 3281/116A and Article N/ \mathcal{I}).
ADD	3531B	Alternative allocation: in Australia, the band 150.05 - 153 MHz is allocated to the fixed and mobile except aeronautical mobile services on a primary basis.
ADD	3531C	Additional allocation: in Jordan, Sweden and Switzerland the band 150.05 - 153 MHz is also allocated to the aeronautical mobile (OR) service on a primary basis.
SUP	3590/285	
	· · ·	e
ADD	3591A	Additional allocation : in Australia and India, the band 150.05 - 153 MHz is also allocated to the radio astronomy service on a primary basis.
NOC	3495/201A	The frequencies 2 182 kHz, 3 023 kHz, 5 680 kHz, 8 364 kHz, 121.5 MHz, 156.8 MHz and 243 MHz may also be used, in accordance with the procedures in force for terrestrial radiocommunication services, for search and rescue operations concerning manned space vehicles.
		The same applies to the frequencies 10 003 kHz, 14 993 kHz and 19 993 kHz, but in each of these cases emissions must be confined in a band of \pm 3 kHz about the frequency.
SUP	3594/286 a	
MOD	3595/287	The frequency 156.8 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service. The conditions for the use of this frequency are contained in Article N35/35.
		In the bands 156 - 156.7625 MHz, 156.8375 - 157.45 MHz, 160.6 - 160.975 MHz and 161.475 - 162.05 MHz, each administration shall give priority to the maritime mobile service on only such frequencies as are assigned to stations of the maritime mobile service by that administration (see Article N57/35).
		Any use of frequencies in these bands by stations of other services to which they are allocated should be avoided in areas where such use might cause harmful interference to the maritime mobile VHF radiocommunication service.
		However, the frequencies in the bands in which the maritime mobile service is authorized, may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations and taking into account current frequency usage and existing agreements.

Annex to Document No. 417-E

Page 4

MOD 3596/288 Alternative allocation: in France and Monaco, the band 162 - 174 MHz is allocated to the broadcasting service on a primary basis until 1 January 1985

ADD 3596A Alternative allocation: in Morocco the band 162 - 174 MHz is allocated to the broadcasting service on a primary basis.

ADD 3594A Additional allocation: in China, the band 163 - 167 MHz is also allocated to the space operation service (space-to-Earth) on a primary basis subject to agreement obtained under the procedure set forth in Article $[\mathbb{N} \dots]$

ADD 3596 B Additional allocation: in Afghanistan and China the band 167 - 174 MHz is also allocated to the broadcasting service on a primary basis.

ADD 3596C Additional allocation: in Japan the band 170 - 174 MHz is also allocated to the broadcasting service on a primary basis.

SUP 3598/290

(Geneva, 1979)

Document No. 418-E 30 October 1979 Original : French

COMMITTEE 5

France

RADIOLOCATION SYSTEMS IN THE FREQUENCY

BAND 1 606 - 3 000 kHz

The radiolocation systems operating in the frequency bands around 2 000 kHz are currently used for the hydrography work necessary for the plotting of navigation charts along the coasts of maritime countries, for sounding and dredging operations in port approaches and navigation channels, and for oil prospecting and production.

These systems give rise to hyperbolic position lines by phase comparison of the waves emitted on the same frequency by fixed transmitters usually located on the coast.

Since the phase measurements can only be made between 0° and 360° , there is an ambiguity in the position determined. The elimination of this ambiguity, called "hyperbolic lane identification" calls for the use of a second frequency, which should stand in a definite ratio bracket with the first frequency.

The closer together the two frequencies, the more useful is lane identification for the navigator; but the fact that the phase noise due to propagation increases with the distances involved sets a limit in this regard.

For short-range uses (less than 100 km), the lower of the two frequencies should be between 88~% and 91~% of the higher frequency.

For medium-range uses (from 100 to 400 km), which are very common, the ratio between the two operating frequencies should be between 83 % and 86 %.

Hitherto, Working Party 5BA has adopted two frequency bands of 10 kHz each for radiolocation ;

1 625 - 1 635 kHz

and 1 800 - 1 810 kHz.

These bands give a ratio of about 90 %. They are thus acceptable for short-range use.

A second pair of frequencies ought therefore to be allocated for medium-range uses giving the necessary ratio bracket (between 83 % and 86 %).

With a view to spectrum economy, however, one of these frequency bands might be either of the two bands already adopted provisionally (1 625 - 1 635 kHz, or 1 800 - 1 810 kHz).

It would then be necessary to allocate a further 10 kHz band giving a ratio of between 83 % and 86 % with one or the other of the bands provisionally adopted, i.e. :

- either between 1 890 and 1 965 kHz,

- or between 2 100 and 2 170 kHz.

If that is impossible, the two bands provisionally adopted should be abandoned and other bands should be sought which comply with the ratios indicated above for the two categories of use.

(Geneva, 1979)

Document No. 419-E 31 October 1979 Original : English

COMMITTEE 7

SECOND REPORT OF THE CHAIRMAN OF WORKING GROUP 7B

TO COMMITTEE 7

1. The Working Group presents the texts of the definitions set out in the Annex for the approval of Committee 7. These were approved unanimously in the Working Group.

2.1 The delegate of France, supported by other French speaking delegations sought to amend the definition of "Telephony" (3013/7) in view of the incorrect language used therein. No change is required in English or Spanish. The only objections to this proposal were based on the fact that the text appears (with the same error) in the Convention.

2.2 It is accepted that this Conference cannot interfere with the Convention but since no change in meaning is intended, it may perhaps be allowable to make this editorial change in the definition in the Radio Regulations. The modification is set out below. Committee 7 is invited to approve this change.

MOD	3013/17	Téléphonie : Système-de-t-Télécommunication établi <u>e</u> en vue de la transmission de la parole ou, dans certains cas, d'autres sons.
(MOD)	3013/17	Telephony : A system of telecommunication set up for the transmission of speech or, in some cases, other sounds. $/(CONV.)/$
(MOD)	3013/17	Telefonia : Sistema de telecomunicación para la transmisión de la palabra o, en algunos casos, de otros sonidos. / (CONV.) 7

A.L. WITHAM Chairman of Working Group 7B

Annex : 1



Document No. 419-E Page 2

1

A N N E X

NOC	3007/10	Telegraphy : A system of telecommunication which is concerned in any process providing transmission and reproduction at a distance of documentary matter, such as written or printed matter or fixed images, or the reproduction at a distance of any kind of information in such a form. The foregoing definition appears in the Convention, but, for the purposes of these Regulations, telegraphy shall mean, unless otherwise specified, "A system of telecommunication for the transmission of written matter by the use of a signal code".
MOD	3008/11	Frequency-Shift Telegraphy : Telegraphy by frequency modulation in which the telegraph signal shifts the frequency of the carrier between predetermined values. There-is-phase-continuity-during-the-shift from-one-frequency-to-the-other:
SUP	3009/12	
(MOD)	3010/13	Telegram : Written matter intended to be transmitted by telegraphy for delivery to the addressee; this term also includes radiotelegram unless otherwise specified. In this definition the term Telegraphy has the meaning defined in the Convention. / (CONV.)/
MOD	3011/14	Radiotelegram : A telegram, originating in or intended for a mobile station or a mobile Earth station in the maritime mobile-satellite service, transmitted on all or part of its route over the radiocommunication channels of a mobile service or of the maritime mobile-satellite service.
NOC	3012/14A Mar 2	Radiotelex Call : A telex call, originating in or intended for a mobile station or a mobile Earth station transmitted on all or part of its route over the radiocommunication channels of the maritime mobile service or the maritime mobile-satellite service.
MOD	3014/18	Radiotelephone Call : A telephone call, originating in or intended for a mobile station or a mobile Earth station in the maritime mobile-satellite service transmitted on all or part of its route over the radiocommunication channels of a mobile service or of the maritime mobile-satellite service.
NOC	3015/19	Television : A system of telecommunication for the transmission of transient images of fixed or moving objects.
MOD	3016/20	Facsimile : A system-of-telecommunication form of <u>telegraphy</u> for the transmission of fixed images, with or without half-tones, with a view to their reproduction in a permanent form. In this definition the term Telegraphy has the meaning defined in the Convention.



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INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 420-E 30 October 1979 Original : English

WORKING GROUP 5BA

REPORT OF SUB-WORKING GROUP 5BA6 TO WORKING GROUP 5BA

As instructed by Working Group 5BA, the Sub-Working Group met on 30 October 1979 to prepare a draft Resolution relating to the future use of the band 2 170 - 2 194 kHz. Delegates from Brazil, Canada, the United States of America, Greece, Nigeria, New Zealand, the United Kingdom and an observer from the Inter-Governmental Maritime Consultative Organization participated in the meeting.

The Sub-Working Group recommends, for consideration by Working Group 5BA, that the following world-wide allocations for the band 2 170 - 2 194 kHz be put forward for approval by Committee 5.

2 170 - 2 173.5	MARITIME MOBILE
2 173.5 - 2 190.5	MOBILE (Distress and calling)
	201 201A
2 190.5 - 2 194	MARITIME MOBILE

kHz

The Sub-Working Group also recommends that footnote 3494/201 be amended accordingly, as follows :

MOD 3494/201 The frequency 2 182 kHz is the international distress and calling frequency for radiotelephony. The conditions for the use of the band 2-170---2-194-kHz 2 173.5 - 2 190.5 kHz are prescribed in Article N35/35 and N57.

Based on the foregoing proposed allocations, the Sub-Working Group prepared a draft Resolution annexed hereto, for consideration by Working Group 5BA.

> R.O. HEWITT Convenor of Sub-Working Group 5BA6

<u>Annex</u> : l



ANNEX

DRAFT RESOLUTION

Relating to the future use of the band 2 170 - 2 194 kHz

The World Administrative Radio Conference, Geneva, 1979,

considering

a) that the frequency 2 182 kHz is the international, distress frequency for radiotelephony;

b) that, except for transmissions authorized on the carrier frequency 2 182 kHz all transmissions on the frequencies between 2 173.5 kHz and 2 190.5 kHz are forbidden;

c) that, in Region 1, the adjacent bands 2 170 - 2 173.5 kHz and 2 190.5 - 2 194 kHz are used, respectively, by coast stations calling ship stations (including selective calling), and by ship stations calling coast stations, also in certain countries for ship-station telephony;

noting

a) that this Conference has reduced the guardband around the frequency 2 182 kHz to plus-minus 8.5 kHz and has allocated the bands 2 170 - 2 173.5 and 2 190.5 - 2 194 kHz exclusively to the maritime mobile service on a world-wide basis;

b) that a need now exists to replan the entire band 2 170 - 2 194 kHz and to review regulatory provisions, with particular reference to Articles N35 and N57;

resolves that the next competent World Administrative Radio Conference be invited

a) to examine the allocations within the band 2 170 - 2 194 kHz;

b) to review the relevant technical and operational parameters with a view to further reducing the guardband around the frequency 2 182 kHz;

c) to develop any necessary regulatory provisions;

d) to develop from these considerations plans for the implementation of any new arrangement, and

e) to determine the date of coming into force of such plans and provisions;

<u>requests</u> the Secretary-General to send a copy of this Resolution to the Secretary-General of the Intergovernmental Maritime Consultative Organization to study and to make recommendations;

<u>invites</u> Administrations to study this matter and to submit proposals for consideration by the next competent World Administrative Radio Conference.



(Geneva, 1979)

Document No. 421-E 30 October 1979 Original : French

COMMITTEE 6

Document No.

SUMMARY RECORD

OF THE

FIFTH MEETING OF COMMITTEE 6 (REGULATORY PROCEDURES)

Thursday, 25 October 1979, at 1400 hrs

Chairman : Mr. M. JOACHIM (Czechoslovakia)

Subjects discussed

1.	Adoption of the agenda	C6-5
2.	Summary Record of the fourth meeting of Committee 6	349
3.	Draft notes by the Chairman of Committee 4 and Document No. 324	272(Rev.1), 279, 280, 281, 336, 337
4.	Notes by the Chairman of Committee 4	321, 307, 335
5.	Note by the Chairman of Committee 5	312
6.	Note by the Vice-Chairman of Committee 7	267
7.	Resolutions and Recommendations referred to Committee 6	DT/88, 210(Add.1)
8.	Allocation of two documents to Committee 6	288, 345
9.	Other business	· · · · · · · · · · · · · · · · · · ·
	- Note from the International Transport Workers' Federation	175



Document No. 421-E Fage 2

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1. Adoption of the agenda (Document No. C6-5)

1.1 At the request of the <u>Chairman of Working Group 6A</u>, it was <u>decided</u> to include the note from the International Transport Workers' Federation (Document No. 175) under "Other business".

Thus amended, the agenda was adopted.

2. Summary Record of the fourth meeting of Committee 6 (Document No. 349)

Approved.

- 3. Draft notes by the Chairman of Committee 4 and Document No. 324 (Documents No. 272(Rev.1), 279, 280, 281, 336, 337)
- 3.1 Document No. 272(Rev.1)

The Committee noted that document without comment.

3.2 Document No. 279

3.3 The <u>Chairman of Working Group 6A</u> introduced the document briefly, calling attention to Annex A containing the IFRB interpretation of the expression "the same frequency band"; Annex B gave examples of that interpretation; the Working Group had however decided to request Committee 4 to consider the possibility of formulating a clear definition of the terms concerned.

The Committee <u>approved</u> Document No. 279 and agreed that it should be transmitted to the Chairman of Committee 4.

3.4 Document No. 280

The Committee <u>approved</u> Document No. 280 and agreed to transmit it to the Chairman of Committee 4.

3.5 Document No. 281

The Committee <u>approved</u> Document No. 281 and agreed to transmit it to the Chairman of Committee 4.

3.6 Documents Nos. 336 and 324

3.7 The <u>Chairman of Working Group 6A</u> explained that the expression "acceptable level of interference" (see Document No. 336) employed in the Radio Regulations and in the proposals on Article Nll had not been defined in the Regulations and that most of the members of Working Group A felt that Committee 4 should be requested to establish a definition.

3.8 The <u>delegates of Japan</u> and <u>Italy</u> expressed the view that the matter was related to the subject of Document No. 324 and that there was no need to define the expression "acceptable level of interference", since it was self-explanatory, applying to interference which each Administration found acceptable in each specific case.

3.9 The <u>delegate of Italy</u> added that the term "accepted interference" had already been defined by the CCIR. If Committee 6 decided to transmit Document No. 336 to Committee 4, however, it should, for the sake of consistency, at the same time request that Committee to define the term "accepted interference". 3.10 The delegate of Japan endorsed the previous speaker's opinion.

3.11 The <u>delegate of the USSR</u>, supported by the <u>delegate of Algeria</u>, said that Committee 6 first required the precise definition of the terms under discussion, i.e. "harmful interference", "permissible interference" and "acceptable level of interference" (or "accepted interference") before deciding whether they should be used in the Radio Regulations. He therefore proposed that Committee 4 should be invited to supply the relevant definitions and that Committee 6 should then decide which definition(s) should appear in the Radio Regulations.

3.12 The <u>delegates of the United Kingdom</u> and <u>Ireland</u> agreed that the terms under discussion should be defined, but not each in terms of the other.

3.13 The <u>delegate of Italy</u>, supported by the delegates of the <u>Federal Republic of Germany</u>, <u>Iraq</u>, the <u>United States</u>, <u>Australia</u> and <u>Japan</u>, said that Committee 6 should not instruct Committee 4 on how to establish the definitions. However, the three definitions should be connected.

3.14 Following a discussion in which the <u>delegates of Jordan</u>, <u>Nigeria</u>, and <u>India</u> also took part, the <u>Chairman</u> proposed that the following sentence should be added at the end of Document No. 336 :

"Committee 6 would prefer to have a definition of the term "acceptable level of interference" mentioned above, rather than a definition of the expression "accepted interference", which appears in Document No. 324",

and that Document No. 336 should be referred to Committee 4. Once Committee 4 had supplied definitions for the various terms, Committee 6 would decide which definition(s) should appear in the Radio Regulations.

The Chairman's proposal was approved.

3.15 Document No. 337

3.16 Following a rapid presentation of Document No. 337 by the <u>Chairman of Working Group 6A</u>, the Committee <u>approved</u> it for forwarding to the Chairman of Committee <u>4</u>.

4. <u>Notes from the Chairman of Committee 4</u> (Documents Nos. 321, 307 and 335)

4.1 Document No. 321

4.2 Following a brief introduction by the <u>Chairman of Working Group 6A</u> who considered that the matter raised in Document No. 321 should be settled by Committee 6, the <u>Vice-Chairman of the IFRB</u> said that it might be wise to keep the sentence which Committee 4 proposed to delete.

4.3 The Chairman proposed that the matter should first be studied by Group 6A.

It was so decided.

4.4 Document No. 307

The Committee took note of Document No. 307 and the definitions therein and resolved to wait for the definition provided by Committee 4 of the term "acceptable level of interference" before stating its views on the question as a whole.

4.5 Document No. 335

The Committee took note of Document No. 335.

Document No. 421-E Page 4

Note from the Chairman of Committee 5 (Document No. 312) 5.

5.1 The delegates of the United Kingdom and the United States expressed concern in connection with the "dates" and the "transfer procedures" mentioned in Document No. 312.

5.2 The Chairman proposed that Document No. 312 should be forwarded to Working Group 6A for study and that Committee 6 should then decide on the dates to be inserted.

It was so decided.

6. Note from the Vice-Chairman of Committee 7 (Document No. 267)

The Committee took note of Document No. 267.

7. Resolution and Recommendations allocated to Committee 6 (Documents Nos. DT/88 and 210(Add.1))

The Committee approved Documents Nos. DT/88 and 210(Add.1)..

8. Allocation of two documents to Committee 6 (Documents Nos. 288 and 345)

At the Chairman's suggestion, it was decided that the two documents would be examined by Working Group 6A.

Other business 9.

- Note by the International Transport Workers' Federation (Document No. 175)

The Chairman of Working Group 6A said that, after discussing the matter with the 9.1 representative of the Federation, they had agreed that Document No. 175 did not come within the purview of Committee 6.

It was therefore decided that Document No. 175 would not be put before the Committee.

The meeting rose at 1515 hours.

The Secretary :

R. PLUSS

The Chairman :

M. JOACHIM

(Geneva, 1979)

Document No. 422-E 31 October 1979 Original : French English

COMMITTEE 5

REPORT OF WORKING GROUP 5 AD HOC 4

1. The Working Group's terms of reference are contained in Document No. 309. However, to enable Proposal YUG/81/37 (proposal for an allotment plan) to be considered, the Working Group requested the Delegation of the S.F.R. of Yugoslavia to take part in its work. CCIR and IFRB representatives also participated in the Working Group's activities.

2. ad hoc Working Group 5/4 considered the proposals contained in Annex 1, concluding that a World Administrative Radio Conference for the HF Broadcasting Service should be held with a view to the planning of this service.

The Working Group reached the opinion :

2.1 that such planning need not be connected with an extension of the HF bands at present allocated to the broadcasting service. However, some delegations felt that planning would not yield satisfactory results unless the present bands were widened;

2.2 that planning should be effected for the HF bands allocated to the broadcasting service either exclusively or on a shared basis with the exception of the bands reserved for the broadcasting service in the Tropical Zone. One delegation expressed the view that it might be useful for the countries in the Tropical Zone to consider using, so far as possible, frequencies in the 5 MHz instead of the 6 MHz band for the broadcasting of national programmes;

2.3 that planning should be based on the use of double sideband emissions but that, with a view to achieving a better use of the spectrum in the long term, the HF Broadcasting Conference should contemplate the progressive introduction of single sideband emissions. For that purpose, it would have to reach a decision on the single sideband system to be adopted and not rule out the possibility of introducing SSB emissions (without constraining DSB planning). The Group felt that the various proposals submitted to WARC-79 on single sideband emissions should be referred to the HF Broadcasting Conference;

2.4 that before any planning was carried out, it was necessary to specify :

- the technical data to be employed, and if necessary sharing criteria with other services,
- the general principles governing the use of HF broadcasting bands,
- the planning principles

and that the Conference should therefore be held in two sessions.

With regard to the technical data, the Working Group found that, on the whole, the CCIR already had the necessary material available. However, further information would be extremely useful in various fields. Moreover, it appeared essential to provide methods of data use suited to planning by a conference (inter alia, use of propagation data). The Group considered that the CCIR should be requested to conduct further studies and has prepared a draft Recommendation to that effect. It concluded that, in view of this request, the first session of the Conference should take place as soon as possible after the next CCIR Plenary Assembly.



Document No. 422-E Page 2

With regard to the general principles governing the use of the HF broadcasting bands, the Group considered that the problem of limiting the power of transmitters and of the number of frequencies used for broadcasting any one programme to one and the same zone were more a matter for the first session of the HF Broadcasting Conference than for WARC-79; it therefore took the view that the relevant proposals submitted to WARC 1979 should be referred to the first session of the Conference.

Some delegations expressed the view that those principles and especially the question of the limitation in the number of frequencies used should also be discussed at WARC-79.

The Group was also of the opinion that the planning principles to be adopted should be decided at the first session of the Conference.

3. The Group estimated that the duration of the first session should be between 4 and 6 weeks and that the second session, which should take place not sooner than one year nor later than 18 months after the first session, would occupy about 8 weeks. However, the exact duration and the time needed for preparing the second session depends on the planning method adopted at the first session and the tasks assigned to the IFRB for the preparation of the second session.

4. The Group is submitting to Committee 5 :

- a draft Recommendation on the convening of a World Administrative Radio Conference for the HF Broadcasting Service (Annex 2);
- a draft Recommendation to the CCIR (Annex 3) concerning the technical studies required;
- a draft Recommendation to the CCIR (Annex 4) concerning the introduction of the single sideband technique.

It is proposing to Committee 5 that WARC-79 should refer the proposals listed in $_{\rm n}$ Annex 1 to the first session of the Broadcasting Conference.

5. Lastly, the Group considered that it would be most useful if ITU could organize seminars preparatory to the HF Broadcasting Conference.

MARIE HUET Chairman of Working Group 5 ad hoc 4

Annexes : 4



A N N E X l

Propositions pour une Conférence de radiodiffusion en ondes décamétriques Proposals for a Conference on H. F. Broadcasting

Proposiciones para una Conferencia sobre radiodifusión por ondas decamétricas

YUG/81/37 YUG/81/38 IND/93/287 IND/93/288 NIG/105/9 ALG/119/62 CHN/153/133 AFG/288/33 SYR/345(Rev.1)

Limitation du nombre de fréquences pour la diffusion d'un même programme vers une zone donnée

Limitation in the number of frequencies used for broadcasting the same programme to a given zone

Limitación en el número de frequencias para uso en radiodifusión para un programa en una zona

> S/15/352 HOL/25/123 USA/47/439 CAN/60A/158 URS/63A/40 NOR/72/257 UGA/75/4 GRC/86A/455 PHL/92A/53 GHA/103 CHN/153/133 SYR/345(Rev.1)

Annex 1 to Document No. 422-E Page 4

<u>Bande latérale unique</u> <u>Single-sideband</u> Banda lateral única

> S/15/350 S/15/351 THA/18/3 HOL/25/122 USA/47/437(Corr.2) USA/47/454A(Corr.2)CAN/60A/159 NOR/72/257 D/84/444 GRC/86A/456 PHL/92A/54 PHL/92A/55 NIG/105/10 KEN/106 CME/120/3 CTI/130

SYR/345(Rev.1)

Limitation de puissance

Power limitation

Limitación de potencia

USA/47/438 USA/47/440 USA/47/441(Corr.2) USA/47/442(Corr.2) CAN/60A/157 PHL/92A/52 PHL/92A/55 SYR/345(Rev.1)

Document No. 422-E Page 5

ANNEX 2

DRAFT RECOMMENDATION

Relating to the convening of a World Administrative Radio Conference for planning of HF broadcasting bands

The World Administrative Radio Conference, Geneva, 1979,

considering

a) that the existing situation in the bands allocated exclusively to the HF broadcasting service is not satisfactory;

b) that it is important to ensure that all countries are guaranteed free and equal rights to the use of these bands;

recommends

1. that the use of the exclusive / and shared / bands allocated to HF broadcasting (excluding those bands reserved for broadcasting in the tropical Zone) should be the subject of planning by a World Administrative Radio Conference;

2. that the planning be based on DSB emissions. Consideration should also be given to the manner in which an SSB system could be introduced progressively without impairing the DSB emissions:

3. that this Conference should be held in two sessions;

4. that the first session

4.1 is to establish the technical parameters to be used for planning the principles governing the use of the bands allocated to HF broadcasting and in particular :

4.1.1 the power appropriate to HF broadcasting in conjunction with the other relevant technical factors,

4.1.2 the maximum number of frequencies to be used for the broadcasting of the same programme to the same zone,

4.1.3 a specification of an SSB system suitable for future use for HF broadcasting;

4.2 should also decide the planning principles to be used and the method of planning to be adopted by the second session;

5. that at its second session, to be held not sooner than 12 months nor later than 18 months after the first session, the Conference :

5.1 should carry out the planning according to the principles and method established at the first session;

5.2 The second session should review and, where necessary, revise the relevant provisions of the Radio Regulations; relating to broadcasting in the HF bands;

urges Administrations, until the Conference is held, to use no greater transmitter power than that required for satisfactory reception and to ensure that the number of frequencies used is the minimum necessary;

draws the attention of the Administrative Council to the urgency of this Conference; and

<u>invites the Administrative Council</u> to take all necessary steps for the convening of the Conference, the first session of which shall be held as soon as possible after the next CCIR Plenary Assembly and with the least possible delay as defined in Article 58 (No. 303) of the Convention;

requests the IFRB to carry out the engineering studies and preparations envisaged in No. 4894/657 of the Radio Regulations;

<u>requests the CCIR</u> to accelerate the studies described in Recommendations $\underline{/}$ Annex 3_7 and $\underline{/}$ Annex 4_7.

ANNEX 3

DRAFT RECOMMENDATION TO CCIR

Relating to the preparation of the technical information necessary for the World Administrative Radio Conference on HF broadcasting

The World Administrative Radio Conference, Geneva, 1979,

considering that a considerable amount of technical information relating to HF broadcasting is already available in CCIR texts, nevertheless there are some subjects needing further studies and, in some cases, adaptation to make it suitable for use in planning;

noting in particular

a) that the CCIR has recommended a method of estimating field strength and transmission loss in band 7 (HF) based on the best information available, and is developing a new computerized method which incorporates the special elements considered necessary for improving the accuracy of these estimations at medium and long distances and in equatorial and high latitude regions;

b) that there is insufficient information relating to propagation predictions in many equatorial areas;

c) that the use of directional antennae is essential for efficient use of the spectrum in band 7 (HF) and that radiation in directions other than the desired direction may cause harmful interference;

recommends CCIR

1. to complete its work in respect of the improved computerized prediction method (Recommendation No. 533) paying special attention to medium and long distance transequatorial paths and to high latitude regions;

2. to adapt the present method of propagation predictions in order to make it more suitable for broadcasting and to recommend suitable values of solar indices for use in planning;

3. to make recommendations where these do not already exist concerning appropriate protection ratios to be adopted, including cases where the unwanted transmission are of a different type, and the appropriate values of channel spacing; and the minimum signal to noise ratio required for satisfactory reception;

4. to ensure that the CCIR Book of Antenna Diagrams includes all principal types of antennae in common use;

5. to prepare data on the practical performance of directional antennae in a form suitable for planning purposes;

<u>invites Administrations</u> to participate actively in these studies and to provide the CCIR with available data on the questions listed above and especially on field strength observations in band 7 (HF) for comparison with predicted values.

ANNEX 4

DRAFT RECOMMENDATION TO CCIR

Relating to the preparation of the technical information necessary for the World Administrative Radio Conference on HF broadcasting

Studies for the introduction of single sideband techniques in the HF broadcasting bands

The World Administrative Radio Conference, Geneva, 1979,

considering

a) that the use of SSB leads to a more efficient utilization of the spectrum;

b) that the introduction of this technique for broadcasting in the HF bands creates both technical and economic problems;

recommends that CCIR accelerate the appropriate studies regarding the introduction of the SSB technique for broadcasting in the HF bands and the specification of a suitable SSB system, paying particular attention to the economic problems associated with transmitters and receivers;

invites Administrations to provide the CCIR with information of this question.

INTERNATIONAL TELECOMMUNICATION UNION

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 423-E 30 October 1979 Original : English

COMMITTEE 4

NOTE FROM THE CHAIRMAN OF COMMITTEE 5 TO THE CHAIRMAN OF COMMITTEE 4

After having considered the proposals concerning footnote 3507/211, Working Group 5BB asked me to seek the advice of Committee 4 on the adequacy of the power limitation to 50 W (mean power) which is currently specified in this footnote concerning the stations of the fixed service operating in the band 6 200 - 6 525 kHz allocated to the maritime mobile service. It should be noted in this connection that a similar limitation is prescribed in RR 3504/209 which applies to the band 4 063 - 4 438 kHz.

Committee 4 is kindly requested to consider this question as a matter of urgency.

M. HARBI Chairman of Committee 5



(Geneva, 1979)

B.1

Corrigendum No. 1 to Document No. 424 5 November 1979

PLENARY MEETING

1st SERIES OF TEXTS SUBMITTED BY THE EDITORIAL COMMITTEE TO THE PLENARY MEETING

Page I	3.1-4		(Concerns the French text only.)
Page I	3.1-8		Replace the text of No. 3953 /473 by the following:
MOD	3953	473	 a) the processing of frequency assignment notices, including information about any associated orbital locations of geostationary satellites, received from administrations for recording in the Master International Frequency Register; Replace the text of No. 3953A by the following:
ADD	3953 A		<u>aa</u>) the processing of information received in application of the advance publication, coordination and other procedures of the Radio Regulations and the Final Acts of Administrative Radio Conferences; and the provision of assistance to administrations in these matters, at their request;

Page B.1-9

(Concerns the French text only.)



(Geneva, 1979)

Document No. 424 31 October 1979

PLENARY MEETING

1st SERIES OF TEXTS SUBMITTED BY THE EDITORIAL COMMITTEE TO THE PLENARY MEETING

The following texts are submitted to the Plenary Meeting for $\underline{\text{first}}$ reading:

Source	<u>Document No.</u>	<u>Title</u>	
C.4	301 + 302	Art. N4 - Technical Characteristi Stations	cs for
C.4	322 + 323	Art. N25 - Terrestrial Radiocommun Services sharing Freque with Space Radiocommuni Services above 1 GHz	ication ncy Bands cation
.c.4	351 + 352	Rec. A - Preparation of Explanat Information by the Inte Frequency Registration the Application of the for Designating Emissio Notification Procedures	ory rnational Board on New Method ns
C.6	305 + 306	Art. N9 - International Frequency Registration Board	•
		Resolution AA - Procedure for Resolving disagreement over the Technical Standards or Rules of Procedure of t International Frequency Registration Board	a he
			· .

P. BASSOLE Chairman of the Editorial Committee

Annex: 12 pages



BLUE PAGES

B.1

ARTICLE N4/12

MOD			Technical Characteristics of Stations	
NOC	3242	667	§ 1. (1) The choice and performance of equipment to be used in a station and any emissions therefrom shall satisfy the provisions of these Regulations.	
NOC	3243	668	(2) Also, as far as is compatible with practical considerations, the choice of transmitting, receiving and measuring equipment shall be based on the most recent advances in the technique as indicated, inter alia, in CCIR Recommendations.	
MOD	3244	669	§ 2. Transmitting and receiving equipment intended to be used in a given part of the frequency spectrum should be designed to take into account the technical characteristics of equipment likely to be employed in neighbouring and other parts of the spectrum, provided that all technically and economically justifiable measures have been taken to reduce the level of unwanted radiations/emissions and the susceptibility to interference of the receiving equipment.	נכ
MOD	3245	670	§ 3. To the maximum extent possible, equipment to be used in a station should apply signal processing methods which enable the most efficient use of the frequency spectrum in accordance with the relevant CCIR Recommendations. These methods include, inter alia, frequency sharing, certain bandwidth-expansion techniques, and in particular, in amplitude modulation systems, the use of the single-sideband technique.	
NOC	3246	671	§ 4. (1) Transmitting stations shall conform to the frequency tolerances specified in Appendix 3.	
MOD	3247	672	(2) Transmitting stations shall conform to the maximum permissible [spurious emission] power levels specified in Appendix 4.]]
ADD	3247A		(2A) Transmitting stations shall conform to the maximu permissible power levels for [out-of-band-emissions] [specified for certain services and classes of emission in the present Regulations, e.g. Appendices 17A and 27. In the absence of such specified maximum permissible power levels transmitting stations shall, to	ייי []

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[]

the maximum extent possible, satisfy the requirements relating to the limitation of the out-of-band spectrum/emissions specified in CCIR Recommendations.

MOD 3248 673 (3) Moreover, every effort should be made to keep frequency tolerances and levels of unwanted emissions at the lowest values which the state of the technique and the nature of the service permit.

MOD 3249 674 § 5. (1) The bandwidths of emissions also shall be such as to ensure the most efficient utilization of the spectrum; in general this requires that bandwidths be kept at the lowest values which the state of the technique and the nature of the service permit. Appendix 5 is provided as a guide for the determination of the necessary bandwidth.

ADD 3249A (2) Where bandwidth-expansion techniques are used, the minimum spectral power density consistent with efficient spectrum utilization shall be employed.

ADD 3249B § 5A. (1) Wherever necessary for efficient spectrum use, the receivers used by any service should comply as far as possible with the frequency tolerances of the transmitters of that service, due regard being paid to the Doppler effect where appropriate.

ADD 3249C (2) Receiving stations should use equipment with technical characteristics appropriate for the class of emission concerned; in particular, selectivity should be appropriate having regard to No. 3249/674 on the bandwidths of emissions.

3249D (3) The performance characteristics of receivers should be adequate to ensure that they do not suffer from interference due to transmitters situated at a reasonable distance and which operate in accordance with these Regulations.

MOD 3250 675 § 6. To ensure compliance with these Regulations, administrations shall arrange for frequent checks to be made of the emissions of stations under their jurisdiction. For this purpose, they shall use the means indicated in Article N18/13, if required. The technique of measurements and, as far as is practicable, the intervals of measurements to be employed shall be in accordance with the most recent CCIR Recommendations.

MOD **3251** 677 § 7. The use of damped wave emissions is forbidden Mar in all stations.

3252toNOT allocated.3276

ADD

ARTICLE N25

Terrestrial Radiocommunication Services sharing Frequency Bands with Space Radiocommunication Services above 1 GHz

NOC		Sec	tion I. Choice of Sites and Frequencies
(MOD)	6001	470A Spa2	§ 1. Sites and frequencies for terrestrial stations, operating in frequency bands shared with equal rights between terrestrial radiocommunication and space radiocommunication services, shall be selected having regard to the relevant CCIR Recommendations with respect to geographical separation from earth stations.
MOD	6002	470AA Spa2	§ 2. (1) As far as practicable, sites for transmitting ¹ stations, in the fixed or mobile service, employing maximum values of equivalent isotropically radiated power (e.i.r.p.) exceeding +35 dBW in the frequency bands between 1 and 10 GHz, should be selected so that the direction of maximum radiation of any antenna will be at least 2° away from the geostationary satellite orbit, taking into account the effect of atmospheric refraction. ²
NOC	6002.1	470AA.1 Spa2	l For their own protection receiving stations in the fixed or mobile services operating in bands shared with space radiocommunication services (space-to-Earth) should also avoid directing their antennae towards the geostationary satellite orbit if their sensitivity is sufficiently high that interference from space station transmissions may be significant.
NƏC	6002.2	470AA.2 Spa2	² Information on this subject is given in the most recent version of CCIR Report No. 393.

B.1-3

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470AB (2) As far as practicable, sites for MOD 6003 transmitting³ stations, in the fixed or mobile Spa2 service, employing maximum values of equivalent isotropically radiated power (e.i.r.p.) exceeding +45 dBW in the frequency bands between 10 and 15 GHz, should be selected so that the direction of maximum radiation of any antenna will be at least 1.5° away from the geostationary satellite orbit, taking into account the effect of atmospheric refraction. 4 NOC 6003.1 470AB.1 3 See No. 6002.1/470AA.1. Spa2 6003.2 470AB.2 4 See No. 6002.2/470AA.2. NOC Spa2 470AC 6004 (3) In the frequency bands above 15 GHz there MOD shall be no restriction 5 as to the direction of Spa2 maximum radiation for stations in the fixed or mobile service. ⁵ The provisions of No. **6004**/470AC shall apply ADD 6004.1 until such time as the CCIR has made a Recommendation as to the need for restrictions in frequency bands specified in No. 6011/470DB, at which time all systems introduced after the effective date of the Final Acts of the WARC-79 should as far as practicable meet any such restriction. Section II. Power Limits 470B 6005 § 3. (1) The maximum equivalent isotropically MOD Spa2 radiated power (e.i.r.p.) of a station in the fixed or mobile service shall not exceed +55 dBW. 6006 470BA

MOD6006470BA(2) Where compliance with No.6002/470AASpa2is impracticable the maximum equivalent
isotropically radiated power (e.i.r.p.) of a station in
the fixed or mobile service shall not exceed:

+47 dBW in any direction within 0.5° of the geostationary satellite orbit; or

[]

		+47 dBW to +55 dBW, on a linear decibel scale (8 dB per degree), in any direction between 0.5° and 1.5° of the geostationary satellite orbit, taking into account the effect of atmospheric refraction. 6
6006.1	470BA.1 Spa2	6 See No. 6002.2/470AA.2.
6007	470C Spa2	(3) The power delivered by a transmitter to the antenna of a station in the fixed or mobile service in frequency bands between 1 and 10 GHz, shall not exceed +13 dBW.
6008	470CA Spa2	(4) The power delivered by a transmitter to the antenna of a station in the fixed or mobile service in frequency bands above 10 GHz shall not exceed +10 dBW.
6009	470D Spa2	(5) The limits given in Nos. 6002/470AA, 6005/470B, 6006/470BA and 6007/470C apply in the following frequency bands allocated to the fixed-satellite service and the meteorological-satellite service for reception by space stations, where these bands are shared with equal rights with the fixed or mobile service:7
		2 655 - 2 690 MHz (for Regions 2 and 3) 5 800 - 5 850 MHz (for the countries mentioned in No. 3759 /390) 5 850 - 5 925 MHz (for Regions 1 and 3) 5 925 - 6 425 MHz 7 900 - 7 975 MHz 7 975 - 8 025 MHz (for the countries mentioned in No. 3766 /392H) 8 025 - 8 400 MHz
	6006.1 6007 6008 6009	6006.1470BA.1 Spa26007470C Spa26008470CA Spa26009470D Spa2

6009.1 ADD

 7 The equality of right to operate when a band of frequencies is allocated in different Regions to different services of the same category is established in No. 3282/117. Therefore any limits concerning inter-Regional interference which may appear in CCIR Recommendations should, as far as practicable, be observed by administrations.

MOD **6010** 470DA Spa2 (6) The limits given in Nos. **6003**/470AB, **6005**/470B and **6008**/470CA apply in the following frequency bands allocated to the fixed-satellite service for reception by space stations, where these bands are shared with equal rights with the fixed or mobile service:⁸

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[]

10.95 - 11.20 GHz (Region 1) 12.50 - 12.75 GHz (Regions 1 and 2) 14.175 - 14.300 GHz (for the countries mentioned in No. **3792**/407) 14.4 - 14.5 GHz

ADD 6010.1

8 See No. 6009.1.

MOD 6011

ADD

(7) The limits given in Nos. 6005/470B and 6008/470CA apply in the following frequency bands allocated to the fixed-satellite service for reception by space stations, where these bands are shared with equal rights with the fixed or mobile service:9

27.5 - 29.5 GHz 29.5 - 31.0 GHz (for the country mentioned in No. **3800**/409E)

6011.1 9 See No. 6009.1.

470DB

Spa2

6012 to NOT allocated. 6036

B.1-7

B.1-7

RECOMMENDATION A

Relating to the Preparation of Explanatory Information by the International Frequency Registration Board of the Application of the New Method for Designating Emissions in Notification Procedures

The World Administrative Radio Conference, Geneva, 1979,

considering

a) that this Conference has adopted a new method based on the work of the $\overline{\text{CCIR}}$ for the designation of emissions to be found in Article **N3** and Appendix MOD 5;

b) that such designations are fundamental to the notification procedures detailed in these Regulations;

noting

a) that some administrations may have difficulties in implementing the new method of designating emissions when it first comes into use; and

b) that these administrations need explanatory information well in advance of the entry into force of the Final Acts of this Conference;

requests the International Frequency Registration Board

1. to prepare explanatory information on the application of the new method of designation, including examples, as it applies to the notification procedures specified in these Regulations;

2. to make this information available to administrations before [a date approximately one year before the Final Acts of this Conference come into [] force].

CHAPTER NIV/III

NOC	C Co-ordination, Notification and Registration of Frequencies.				
			Internati	onal	Frequency Registration Board
					ARTICLE N9/8
MOD		• •	Internati	onal	Frequency Registration Board
ADD			Sectio	on I	. Functions of the Board
NOC	3951	471	§ 1. of the Int defined in	The erna the	constitution and the essential duties tional Frequency Registration Board are Convention.
NOC	3952	472	§ 2.	The inc	functions of the Board shall lude:
MOD	3953	473		<u>a)</u>	the processing of frequency assignment notices, including information about any associated orbital locations of geostationary satellites, received from administrations for recording in the Master International Frequency Register;
ADD	3953 A			<u>aa)</u>	the processing of information received in application of the advance publication, coordination and other procedures of the Radio Regulations and the Final Acts of Administrative Radio Conferences; and as required, the provision of assistance to administrations in these matters, at their request;
NOC	3954	474		<u>b)</u>	the processing and co-ordination of seasonal schedules of high frequency broadcasting with a view to accommodating requirements of all administrations for that service;
NOC	3955	475		<u>c)</u>	the compilation, for publication in suitable form and at appropriate intervals by the Secretary-General, of frequency lists reflecting the data recorded in the Master International Frequency Register, as well as other material relating to the assignment and use of frequencies;

NOC	3956	476	<u>d)</u>	the review of entries in the Master International Frequency Register with a view to amending or eliminating, as appropriate, those which do not reflect actual frequency usage, in agreement with the administrations which notified the assignments concerned;
NOC	3957	477 Spa2	<u>e)</u>	the study, on a long-term basis, of the usage of the radio spectrum, with a view to making recommendations for its more effective use;
NOC	3958	478	<u>f)</u>	the investigation, at the request of one or more of the interested administrations, of harmful interference and the formulation of recommendations with respect thereto;
NOC	3959	479	<u>g)</u>	the provision of assistance to administrations in the field of radio spectrum utilization, in particular to those administrations in need of special assistance, and the recommendation to administrations, where appropriate, of adjustments in their frequency assignments in order to obtain a better use of the radio spectrum;
NOC	3960	480	<u>h)</u>	the collection of such results of monitoring observations as administrations and organizations may be able to supply and the making of arrangements, through the Secretary-General, for their publication in suitable form;
ADD	3960A		<u>ha)</u>	the development of Technical Standards ¹ in accordance with 4471 /636 and 4648 /639DV and of Rules of Procedure ¹ for internal use by the Board in the exercise of its functions.
ADD	3960A.	1	l The Tec of the IFRB sha of the Union an administration disagreement wh to be followed	chnical Standards and the Rules of Procedure all be distributed to all Members nd shall be open to comment from any . In the event of there being a nich remains unresolved, the procedure is given in Resolution AA.
NOC	3961	481	<u>i)</u>	the formulation and reference to the CCIR of all general technical questions arising from the Board's examination of frequency assignments:

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MOD	3962	482	 j) the technical preparation for radio conferences in consultation, as appropriate, with the other permanent organs of the Union, and with due regard for the pertinent directives of the Administrative Council in accordance with the Convention; 		
NOC	3963	483	k) the participation in an advisory capacity, upon invitation by the organizations or countries concerned, in conferences and meetings where questions relating to the assignment and utilization of frequencies are discussed.		
ADD	3963A		<u>ka)</u> the provision of assistance to administrations, at their request, in the training of senior staff in the fields of spectrum management and utilization, particularly for those countries in special need;		
ADD	3963B		<u>kb)</u> the discharge of such other functions as are specified in the Radio Regulations and in the Final Acts of Administrative Radio Conferences.		
SUP	3964	484	§ 3.		
MOD	3965	485	§ 4. The Specialized Secretariat of the IFRB shall work under the immediate direction of the Board to enable it to discharge its prescribed duties and functions.		
	3966 to 3990	· ·	NOT allocated.		
SUP			ARTICLE N10/11		
ADD			Section II. Methods of work of the Board		
NOC	3991	659	§ 1. The Board shall meet as frequently as necessary to deal expeditiously with its work and, normally, at least once a week.		
MOD	3992	660	§ 2. (1) In accordance with the convention, the members of the Board shall elect from among their number a Chairman and a Vice-Chairman, each to hold office for a term of one year. Thereafter, the Vice-Chairman shall succeed annually to the Chairmanship and a new Vice-Chairman shall be elected.		
NOC	3993	661	(2) In the unavoidable absence of the Chairman and Vice-Chairman, the Board shall elect a temporary Chairman for the occasion from among its members.		

- B.1-11
- NOC **3994** 662 **§** 3. (1) Each member of the Board, including the Chairman, shall have one vote. Voting by proxy or by correspondence is not allowed.
- NOC **3995** 663 (2) The minutes shall indicate whether a decision was unanimous or by a majority.

3996 664 (3) A quorum of the Board shall be one-half of the number of members of the Board. If, however, the verdict of such a quorum on a question coming before it is not unanimous, the question shall be referred for decision at a later meeting at which at least two-thirds of the total number of members of the Board are present. If these calculations result in a fraction, the fraction shall be rounded up to a whole number.

- NOC **3997** 665 (4) The Board shall endeavour to reach its decisions by unanimous agreement. If the Board fails in that endeavour, it shall thereafter decide the problem on the basis of a two-thirds majority vote of the members present and voting for or against.
- ADD **3997A §** 3A. For its own guidance and for the efficient performance of its functions the Board may make such internal arrangements as it may consider necessary in accordance with the Convention and the Radio Regulations.
- NOC 3998 666 § 4. The documents of the Board, which shall comprise a complete record of its official actions and minutes of its meetings, shall be maintained by the Board in the working languages of the Union as defined in the Convention; for this purpose, as well as for the meetings of the Board, the necessary linguistic personnel, and such other facilities as may be required, shall be provided by the Secretary-General. A copy of all documents of the Board shall be available for public inspection at the offices of the Board.

3999		
to	NOT	allocated.
4098		

NOC
B.1-12

RESOLUTION AA

Relating to a Procedure for Resolving a Disagreement over the Technical Standards or Rules of Procedure of the International Frequency Registration Board

The World Administrative Radio Conference, Geneva, 1979,

considering

a) that, in accordance with No. **3960A.1**, the Technical Standards and Rules of Procedure of the IFRB shall be distributed to all Members of the Union and shall be open to comment from administrations;

b) that an administration may disagree with the substantive contents of these documents;

c) that, in the event of such a disagreement remaining unresolved, there should be a procedure for the resolution of that disagreement;

recognizing

a) that, with respect to the Technical Standards, the CCIR could provide the best source of professional advice;

b) that, with respect to the Rules of Procedure, a World Administrative Radio Conference could provide the best source of interpretation of the intent of the Radio Regulations;

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resolves

1. that, in the event of an unresolved disagreement over the substantive contents of the Technical Standards of the IFRB, the Board, in agreement with the administration concerned, shall refer the question to the CCIR for international study and the development of a Recommendation thereon by the next Plenary Assembly of the CCIR;

2. that, in the event of the CCIR not having formulated a Recommendation or in the event of an unresolved disagreement over the substantive contents of the Rules of Procedure of the IFRB, either matter may be referred to the Administrative Council for inclusion in the agenda of the next World Administrative Radio Conference;

3. that, pending resolution of the matter, the Board shall continue to use the particular Technical Standard or Rule of Procedure in dispute but that, following resolution of the matter by a CCIR Recommendation or by a decision of a World Administrative Radio Conference, the Board shall promptly take the consequential action including a review of all relevant findings.

(Geneva, 1979)

Document No. 425-E 31 October 1979 Original : English

COMMITTEE 6

NOTE FROM THE CHAIRMAN OF COMMITTEE 4 TO THE CHAIRMAN OF COMMITTEE 6

Committee 4 has approved a revision to Article N3 (Document No. 406). This revision includes a new method for indicating the Necessary Bandwidth as well as the Classification of Emissions. During the discussion on this item, the problem was raised of updating the present entries in the Master International Frequency Register to this new system.

Committee 6 may wish to consider the appropriate procedures for updating the Master Register.

N. MORISHIMA

Chairman of Committee 4



(Geneva, 1979)

Document No. 426-E 31 October 1979 Original : English

PLENARY MEETING

FOURTH REPORT OF COMMITTEE 4

Committee 4 has <u>adopted</u> part of the definitions on space, orbits and types of objects in space (Article N1), which have been transmitted to the Editorial Committee for subsequent submission to the Plenary Meeting. (See Document No. 427.)

These texts were adopted unanimously.

N. MORISHIMA Chairman of Committee 4



(Geneva, 1979)

Document No. 427-E 31 October 1979 Original : English

/ COMMITTEE 9

FOURTH SERIES OF TEXTS FROM COMMITTEE 4 TO THE EDITORIAL COMMITTEE

The text mentioned in Document No. 426, which is part of definitions on space, orbits and types of objects in space (Article N1), is hereby submitted to the Editorial Committee.

N. MORISHIMA Chairman of Committee 4

Annex : 1

*) For Committee 9 consideration after coordination between Committees 4, 5 and 7.



Document No. 427-E Page 2

ANNEX

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NOC	Art.	NI	Section V. Space, Orbits and Types of Objects in Space $_7$
NOC	3123	84 BA Spa2	<u>Deep Space</u> : Space at distances from the Earth approximately equal to, or greater than, the distance between the Earth and the Moon.
NOC	3124	84baa Spa2	Spacecraft : A man-made vehicle which is intended to go beyond the major portion of the Earth's atmosphere.
MOD	3125	848AB Spa2	<u>Satellite</u> : A body which revolves around another body of preponderant mass and which has a motion primarily and permanently determined by the force of attraction of that other body.
SUP	3125.	.] 84BAB Spa 2	.1
MOD	3126	84BAC Spa2	<u>Active Satellite</u> : A satellite carrying a station intended to transmit or re-transmit radiocommunication signals.
MOD	3127	84BAD Spa2	Reflecting Satellite : A satellite intended to reflect radiocommunication signals.
MOD	3128	8483 Spa2	Orbit : The path, relative to a specified frame of reference, described by the centre of mass of a satellite or other object in space subjected primarily to natural forces, mainly the force of gravity.
MOD	3129	8لىBC Spa2	Inclination of an Orbit (of an earth satellite) : The angle determined by the plane containing <u>sa</u> orbit and the plane of the Earth's equator.
MOD	31.30	84 BD Sp a 2	Period (of a satellite) : The period of a satellite is The time elapsing between two consecutive passages of a satellite through a characteristic point on its orbit.
NOC	31 31	84BF Spa2	Altitude of the Apogee (Perigee) : The altitude of the apogee (perigee) above a specified reference surface serving to represent the surface of the Earth.
NOC	3132	84BFA	Geosynchronous Satellite : An earth satellite whose period

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(Geneva, 1979)

Document No. 428-E 31 October 1979 Original : English

PLENARY MEETING

FIFTH REPORT OF COMMITTEE 4

Committee 4 has <u>adopted</u> part of the definitions on technical terms (Article N1) which have been transmitted to the Editorial Committee for subsequent submission to the Plenary Meeting. (See Document No. 429).

These texts were adopted unanimously.

N. MORISHIMA

Chairman of Committee 4



CONFERENCE ADMINISTRATIVE MONDIALE DES RADIOCOMMUNICATIONS (Genève, 1979)

Corrigendum No. 1 au Document No. 429-F/E/S 16 Novembre 1979

COMMISSION 9 COMMITTEE 9 COMISION 9

CINQUIEME SERIE DE TEXTES DE LA COMMISSION 4 A LA COMMISSION DE REDACTION FIFTH SERIES OF TEXTS FROM COMMITTEE 4 TO THE EDITORIAL COMMITTEE QUINTA SERIE DE TEXTOS TRANSMITIDOS POR LA COMISIÓN 4 A LA COMISIÓN DE REDACCIÓN

page 7,	MOD 3142	0 0	<u>biffer</u> [CONV.)_7
page 7,	MOD 3142	0 9	cancel (CONV.)_7
<u>página 7</u> ,	MOD 3142	•	suprimase [(CONV.)]

N. MORISHIMA Président de la Commission 4 Chairman of Committee 4 El Presidente de la Comisión 4



(Geneva, 1979)

Document No. 429-E 31 October 1979 Original : English

<u>/</u>COMMITTEE 9_7 *)

FIFTH SERIES OF TEXTS FROM COMMITTEE 4

TO THE EDITORIAL COMMITTEE

The text mentioned in Document No. 428 (part of the definitions on technical terms (Article N1)) is hereby submitted to the Editorial Committee.

The Editorial Committee is requested to consider, inter alia, editorial improvements on the following points :

- 1. 3133B "Transport" in French text
- 2. 3133F "Consists of" in English text

N. MORISHIMA Chairman of Committee 4

Annex : 1

*) for Committee 9 consideration after coordination between Committees 4, 5 and 7.



Document No. 429-F/E/S Page 2

ANNEXE - ANNEX - ANNEXO

Art. Nl. Section/Sección V

84BG Satellite géostationnaire : MOD 3133 Satellite géosynchrone dont l'orbite circulaire et directe est située dans le plan de l'équateur terrestre et qui, par conséquent, est fixe par rapport à la Terre; par extension, satellite qui reste approximativement fixe par rapport à la Terre. 84BG Geostationary Satellite : MOD3133 A geosynchronous satellite whose circular and direct orbit lies in the plane of the Earth's equator and which thus remains fixed relative to the Earth; by extension, a satellite which remains approximately fixed relative to the Earth. 84BG Satélite geoestacionario : MOD 3133 Satélite geosincrónico cuya órbita circular y directa se encuentra en el plano ecuatorial de la Tierra y que, por consiguiente, está fijo con respecto a la Tierra; por extensión, satélite que está aproximadamente fijo con respecto a la Tierra. Orbite des satellites géostationnaires : ADD 3133A L'orbite sur laquelle doit être placé un satellite pour qu'il soit géostationnaire. ADD 3133A Geostationary satellite orbit : The orbit in which a satellite must be placed to be a geostationary satellite. Orbita de los satélites geoestacionarios : ADD 3133A La órbita en la que debe situarse un satélite para que sea geoestacionario.

Annex to Document No. 429-F/E/S Page 3

Art. Nl, Section/Sección VI ADD 3133B Rayonnement (radioélectrique): Transport d'énergie sous forme d'ondes radioélectriques à partir d'une source quelconque, ou cette énergie elle-même. ADD 3133B Radiation: The outward flow of energy from any source in the form of radio waves. ADD 3133B Radiación: Flujo saliente de energía de una fuente cualquiera en forma de ondas radioeléctricas, o esta misma energía. Emission¹⁾. ADD 31330 Rayonnement produit, ou production de rayonnement, à partir d'une station radioélectrique d'émission. Emission¹⁾: ADD 3133C Radiation produced, or the production of radiation, by a radio transmitting station. Emision¹, ADD 3133C Radiación producida, o producción de radiación, por una estación transmisora radioeléctrica. 1) Par exemple, l'énergie rayonnée par l'oscillateur local 3133C.1 d'un récepteur radioélectrique ne constitue pas une émission mais un rayonnement. For example, the energy radiated by the local oscillator of a radio receiver would not be an emission but a radiation.

> Por ejemplo, la energia radiada por el oscilador local de un receptor radioeléctrico no es una emisión, sino una radiación.

Annex to Document No. 429-F/E/S

Page 4

ADD 3133D

ADD 3133D

Emission hors bande / Emission hors canal /:

Emission sur une ou des fréquences en dehors de la bande nécessaire mais en son voisinage immédiat, due au procéssus de la modulation, à l'exclusion des émissions non essentielles.

Out-of-band Emission :

Emission on a frequency or frequencies immediately outside the necessary bandwidth which results from the modulation process, but excluding spurious emissions.

ADD 3133D

Emisión fuera de banda / Emisión fuera de canal /:

Emisión en una o varios frecuencias inmediatamente fuera de la anchura de banda necesaria, resultante del proceso de modulación, excluyendo las emisiones no esenciales.

MOD 3141 92 (= ADD 3133E)

MOD 3141 92 (= ADD 3133E)

MOD 3141 92 (= ADD 3133E) Emission / non essentielle / :

Emission sur une (ou des) fréquence(s) située(s) hors de la bande nécessaire et dont le niveau peut être réduit sans affecter la transmission de l'information correspondante. Ces émissions comprennent les émissions harmoniques, les émissions parasites, les produits d'intermodulation et de conversion de fréquence, à l'exclusion des émissions hors bande.

Spurious Emission :

Emission on a frequency or frequencies which are outside the necessary bandwidth and the level of which may be reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic emissions, parasitic emissions, intermodulation products and frequency conversion products, but exclude out-of-band emissions.

Emisión no esencial :

Emisión en una o varias frecuencias situadas fuera de la anchura de banda necesaria, cuyo nivel puede reducirse sin influir en la transmisión de la información correspondiente. Las emisiones armónicas, las emisiones parásitas, los productos de intermodulación y los productos de la conversión de frecuencia están comprendidas en las emisiones no esenciales, pero están excluidas las emisiones fuera de banda.

Annex to Document No. 429-F/E/S Page 5

ADD 3133F

Emissions non désirées :

Ensemble des émissions / non essentielles 7 et des émissions hors bande.

ADD 3133F

Unwanted Emissions :

Consists of spurious emissions and out-of-band emissions.

ADD 3133F

Emisiones no deseadas :

Conjunto de las emisiones no esenciales y de las emisiones fuera de banda.

MOD 3139

90

Largeur de bande occupée : Largeur de la bande de fréquences telle que, au-dessous de sa fréquence limite inférieure et au-dessus de sa fréquence limite supérieure, soient rayonnées émises des puissances moyennes égales chacune à <u>un pourcentage donné $\beta/2$ </u> 0,5-7 de la puissance moyenne totale rayonnée-par <u>d</u>'une émission donnéer Bans-certains-cas,-par-exemple-pour-les-systèmes-multivoise-à-répar= tition-en-fréquence,-le-poureentage-de-0,5-%-peut-conduire-à-certaines difficultés-d'application-des-définitions-des-largeurs-de-bande-oecupée-et-nécessaire;-dans-ces-cas,-un-pourcentage-différent-peut-se-révéler utile. En l'absence de spécifications du CCIR pour la classe d'émission considérée, la valeur $\beta/2$ doit être prise égale à 0,5 %.

MOD 3139 90

Occupied Bandwidth: The width of a frequency bandwidth such that, below its the lower and above its the upper frequency limits, the mean powers radiated emitted are each equal to 0.5% a specified percentage $\beta/2$ of the total mean power radiated by of a given emission. In-some eases, for-example-sultichannel-frequency-division-systems, the percentage-of-0.5% may-lead-to-certain-difficulties-in-the-practioal-application-of-the-definitions-of-occupied-and-necessary-bandwidth-in such-cases-a-different-percentage-may-prove-useful. Unless otherwise specified by the CCIR for the appropriate class of emission, the value of $\beta/2$ should be taken as 0.5%.

MOD 3139

90 Anchura de banda ocupada: Anchura de la banda de frecuencias tal que, por debajo de su frecuencia límite inferior y por encima de su frecuencia límite superior, se radion emitan potencias medias iguales cada una a un porcentaje especificado, β/2,0,5% de la potencia media total radiada por de una emisión dada. En-eiertes-eases,-por-ejemple,-para-sistemas-de-sanales-múltiples eon-distribusión-en-frecuencia,-el-porcentaje-del-0,5%-puede-conducir-a-siertas dificultados-de-aplicación-de-las-dofiniciones-de-las-anchuras-de-banda-coupada y-necesaria--En-tales-eases-puede-ser-útil-señalar-un-porcentaje-distinto. En ausencia de especificaciones del CCIR para la clase de emisión considerada, se tomará un valor β/2 igual a 0,5%.

MOD

ADD

ADD

3140A

91. MOD 3140 Largeur de bande nécessaire : Pour une classe d'émission donnée, wateur-minimale-de-la largeur de la bande de fréquences juste -oceupée-suffisante à pour assurer la transmission de l'information à la vitesse et avec la qualité requises pour-le-système-employé, dans des conditions données. Les-rayonnements-utiles-au-bon-fonetionnement des-apparoils-do-réceptiony-comme-par-exemple-le-rayonnement-correspondant_à_la-porteuse-des_systèmes-à-porteuse-réduitey-doivent-être compris_dans-la-largeur-de-bande-nécessaire-

91 MOD 3140 Necessary Bandwidth : For a given class of emission, the minimum-value width of the frequency occupied bandwidth which is just sufficient to ensure the transmission of information at the rate and with the quality required for-the-system-employed; under specified conditions. Hmissions-useful for-the-good-functioning-of-the-receiving-equipment-as,-for-example,-the emission-corresponding-to-the-carrier-of-reduced-carrier-systems;-shall-be included-in-the-necessary-bandwidth.

91 Anchura de banda necesaria: Para una clase de emisión 3140 dada, el-valor-mínimo-de anchura de la banda de frecuencias estrictamente eeupada-por-una-emisión suficiente para asegurar la transmisión de la información a la velocidad de transmisión y con la calidad requeridas para-el-sistema empleade en condiciones especificadas. Las radiaciones útiles para el buen funcionamiento-de-les-aparates-receptoresy-comoy-por-ejemploy-la-radiación oorrespondionte-a-la-portadora-de-los-sistemas-de-portadora-reduciday-deben estar-incluidao-on-la-anchura-do-banda-nocearia-

> Brouillage : effet, sur la réception dans un système de radiocommunication, d'une énergie non désirée due à une émission, à un rayonnement ou à une induction (ou à une combinaison de ces émissions, rayonnements ou inductions), se manifestant par une dégradation de la qualité de transmission, une déformation ou une perte de l'information que l'on aurait pu extraire en l'absence de cette énergie non désirée.

ADD 3140**A** Interference : The effect of unwanted energy due to one or a combination of emissions, radiations, or inductions upon reception in a radiocommunication system, manifested by any performance degradation, misinterpretation, or loss of information which could be extracted in the absence of such unwanted energy.

314**0A** Interferencia: Efecto de una energía no deseada debida a una o varias emisiones, radiaciones, inducciones o sus combinaciones sobre la recepción en un sistema de radiocomunicaciones, que se manifiesta como degradación de la calidad, falseamiento o pérdida de la información que se obtendría en ausencia de la energía no deseada.

Annex to Document No. 429-F/E/S Page 7

MOD	3142	<u>Brouillage préjudiciable</u> : Brouillage qui compromet le fonctionnement d'un <u>/</u> service de radionavigation ou d'autres services de sécurité <u>/</u> ou qui dégrade sérieusement, interrompt de façon répétée ou empêche le fonctionnement d'un service de radiocommunication utilisé conformément au présent Règlement. <u>/</u> (CONV.)_/
MOD	3142	<u>Harmful interference</u> : Interference which endangers the functioning of a <u>/</u> radionavigation service or of other safety services_/ or seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service operating in accordance with these Regulations. <u>/</u> (CONV.)_/
MOD	3142	Interferencia perjudicial : Interferencia que compromete el funcionamiento de un / servicio de radionavegación o de otros servicios de seguridad /, o que degrada gravemente, interrumpe repetidamente o impide el funcionamiento de un servicio de radiocomunicación explotado de acuerdo con el presente Reglamento. / (CONV.)/
ADD	3142A	<u>Brouillage admissible</u> : Brouillage observé ou prévu, qui satisfait aux niveaux de brouillage et aux critères quantitatifs de partage fixés dans le présent Règlement ou dans les Avis du CCIR ou encore dans des accords particuliers dont la possibilité est prévue dans le présent Règlement.
ADD	3142A	<u>Permissible interference</u> : Observed or predicted interference which complies with quantitative interference and sharing criteria contained in these Regulations or in Recommendations of the CCIR or in special agreements as provided for in these Regulations.
ADD	3142A	<u>Interferencia admisible</u> : Interferencia observada o prevista que satisface los criterios cuantitativos de interferencia y de compartición que figuran en el presente Reglamento o en Recomendaciones del CCIR o en acuerdos especiales según lo previsto en el presente Reglamento.

INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

AFG/430/35

Document No. 430-E 31 October 1979 Original : English

COMMITTEE 5

Democratic Republic of Afghanistan

PROPOSALS FOR THE WORK OF THE CONFERENCE

Ν	ſΗz	Z
420	-	450

		Allocation to Services			
,	Region 1	Region 2	Region 3		
MOD	420 - 430 NOC	420 - 450 (NOC)	420 - 450		
	FIXED	RADIOLOCATION	RADIOLOCATION		
	MOBILE except aeronautical mobile	Amateur	FIXED		
:	Radiolocation		<u>MOBILE except</u> <u>aeronautical mobile</u>		
1	318 319		Radiolocation		
	430 - 440 NOC		Amateur		
	AMATEUR				
	RADIOLOCATION				
	318 319 319B 320 320A 321 322				
	440 - 450 NOC				
	FIXED				
	MOBILE except aeronautical mobile				
	Radiolocation	210 2100 2000	218 2104 210B 2204		
	318 319 319A	323 324 323 324	323 324 329 324		

<u>Reasons</u>: The band 420 - 450 MHz will be utilized for fixed and mobile services in the Democratic Republic of Afghanistan.



AFG/430/36

н М	Region 1	Region 2	Region 3
	470 - 582 (NOC)	470 - 890 NOC	470 - 585 (NOC)
	BROADCASTING	BROADCASTING	BROADCASTING
	582 - 606 (NOC)		335
MOD	BROADCASTING		585 - 610
	RADIONAVIGATION		RADIONAVIGATION
1	325 327 328 329		BROADCASTING
	606 - 790 (NOC)		Radionavigation
	BROADCASTING		336 337
	329 330 330A 331 332 332A		610 - 890 (мос)
	790 - 890 (NOC)		FIXED
	FIXED		MOBILE
	BROADCASTING		BROADCASTING
	329 331 333 334	329A 332 332A	330B 332 332A 338 339

MHz 470 - 890

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<u>Reasons</u>: We have a plan for broadcasting services in the Democratic Republic of Afghanistan, and there is no need for radionavigation in this country.

(Geneva, 1979)

Document No. 431-E 31 October 1979 Original : English

COMMITTEE 5

United States of America

Information paper

SOUND BROADCASTING IN THE BROADCASTING-SATELLITE SERVICE : IMPLICATIONS OF OPERATING FREQUENCY AND INDIVIDUAL VS. COMMUNITY RECEPTION ON THE SPACE STATION DESIGN

Introduction

1.

Section 5.2.8.5.2 of the SPM Report summarizes the results of a feasibility study of sound broadcasting to low cost portable and automobile radios using space techniques. The Report states that : "According to these studies, such a system is feasible in a frequency band in the vicinity of 1 GHz. The lower and upper frequency limits are dictated by the following considerations :

- for the lower limit (around 500 MHz) :
 - the man-made noise increases proportionally with decreasing frequency;
 - the diameter of the satellite transmit antenna increases proportionally with decreasing frequency;
- for the upper limit (around 2 GHz) :
 - the effective area of the receive antenna which is necessary for such a system diminishes with increasing frequency; this entails an increase of the satellite transmit power."

The purpose of this memo is to examine in a preliminary manner the implications on the space station design of using portions of the spectrum around 0.7, 1.0, 1.5 and 2.0 GHz to provide sound broadcasting; and to develop and apply certain criteria to determine the "optimum" frequency band for this service.

Section 2 describes the methodology used to estimate the space station mass and transmitter power. Section 3 presents the assumptions; Section 4 the results and finally Section 5 the conclusions.



2. Methodology

A number of studies conducted in the United States, and no doubt elsewhere, have demonstrated the feasibility of estimating the space station mass required to meet a set of system performance objectives based on parametric relationships between the spacecraft sub-systems /1/. The model divides the space station into two major parts : the bus and the communication payload. The total in orbit space station mass is simply the sum of the two. Not included in the total mass is the propellant mass of the apogee kick motor or any other final stage required to put the space station in a geostationary orbit.

The bus accounts for the mechanical structure, station-keeping, attitude control, tracking, telemetry and command sub-systems. The payload accounts for the transponder (receiver, local oscillator chain, intermediate amplifiers, filters and power amplifier) antenna, and power sub-systems. The ratio of the payload mass to the total in orbit space station mass is a function of the total space station mass and stabilization method (spin stabilized or three axis stabilized) / 1 / . For the purposes of this analysis, a constant value of 0.4 has been assumed.

The system performance objective is stated in terms of a power flux-density at the surface of the Earth, the number of sound broadcasting channels required, the operating frequency and the space station on-axis antenna gain (this is equivalent to specifying the size of the service area). From these performance objectives, the size of the antenna and the transmitter power may be computed.

Parametric relationships are used to estimate the mass of the transmitter required to generate the power output, the mass of the antenna system, the total power required, the mass of the solar array, etc; and to ultimately provide an estimate of the space station mass. The parametric relationships reflect various classes of existing designs and reasonable extrapolations.

It must be borne in mind, however, that models are no substitute for detailed designs. They provide simply and quickly, estimates of space station mass to meet system performance objectives and insight into the tradeoffs to be made during the detailed design phase.

The parametric relationships described in $/ l_/$ have been incorporated into a computer program to permit a quick estimate of space station mass and an identification of the most significant tradeoffs.

As stated previously, the starting point is the specification of the power flux-density at the centre of the service area and operating frequency. The program generates an estimate of the space station mass and per channel saturated transmitter output power for a space station antenna gain between 36 and 48 dBi and between 1 and 9 channels. Each channel shares the common antenna aperture. It will be noted that the range on antenna gain and number of channels is similar to the 1977 WARC-BS Plan for television broadcasting in the 12 GHz band.



3. Assumptions

The performance objective chosen for this analysis is based on the example system of Annex 5.2.8.5.2 of the SPM Report. The power flux-density at the centre of the service area is specified to be -91.4 dBW/m^2 per channel at 1 GHz. To provide identical performance at other frequencies using the same type of receiver, the pfd is adjusted according to,

 $\rho F = \rho l' + 20 \log F, dBw/m^2$

where, ρ l, is -91.4 dBW/m², and ρ F is the pfd in dBW/m² at frequency F expressed in GHz.

The parameter values incorporated in the computer program are given in Table 1 along with a reference to their source. Batteries have not been included for eclipse operation.

4. Results

From the viewpoint of the space station design, there are several criteria by which to determine the "optimum" operating frequency. First, it is highly desirable that the operating frequency impose a minimum number of constraints on the variety of service requirements which may be met. The operating frequency chosen should be such that each Administration planning to implement a sound broadcasting satellite network be afforded the maximum flexibility in determining the size of the service area and the number of channels to be provided commensurate with prevailing technological constraints.

A second criteria is a technological constraint imposed by the availability or non-availability of suitable launch vehicles. It makes little sense to allocate a frequency band to a space service if the space station mass required to meet the service requirements exceeds the capability of the most advanced or planned launch vehicle to put that space station in orbit. In this regard, the current maximum feasible geostationary payload mass for United States launch vehicles is on the order of 2,400 Kg using a combination of the Shuttle and the IUS (Intertial Upper Stage) (6).

The third and final criteria is the limitations on the transmitter maximum RF output power which is imposed by the space operating environment. Figure 1 from Section 5.2.5.1.1 of the SPM Report shows that the maximum possible RF output power is on the order of 5 to 6 kw for frequencies between 0.7 and 2.0 GHz.

These three criteria, i.e. space station mass less than about 2,400 Kg, flexibility in the space station design to meet different service requirements, and transmitter RF output power less than about 6 kw, have been applied to the results of the analysis. Systems which do not exceed these criteria, and which may be assumed feasible in the near time frame, are listed in Table 2 by operating frequency, number of channels and range on transmit antenna gain (and by implication service area).

Document No. 431-E Page 4

As shown in Table 2, 0.7 GHz is an "optimum" frequency in the sense that it permits the greatest flexibility in the design of the space station to meet a variety of service requirements. It is the operating frequency which yields the largest single channel service area such as might be necessary for a regional system or for Administrations of large geographical extent; and yields up to five channels for small service areas.

Use of frequencies about 1.0 GHz provides similar flexibility in the space station design but with a bias towards smaller service areas.

The use of frequencies 1.5 GHz and above are most suitable for serving small geographical areas. However, because of the fewer number of channels that can be provided, there will be a cost penalty compared to systems operating in the lower bands.

Space station costs may be estimated using historical data which shows a close correlation between cost and in-orbit space station mass. For a space station mass of approximately 1,000 Kg, total in-orbit costs are on the order of \$ 60,000 to \$ 80,000 per Kg which equals \$ 60 M to \$ 80 M per space station. This cost includes design, development, manufacturing, launch, launch insurance and a pro rata share of the launch risk (not all launches are successful).

Launch costs alone using the Shuttle are expected to be on the order of \$ 15,000 to about \$ 19,000 per Kg depending on the mass of the space station / 6 7.

For space stations of the 2,400 Kg class listed in Table 2, the total cost of two in-orbit space stations (one operational and the second a spare) plus one-half of an on-ground spare would be on the order of \$ 360 M.

An alternative to the sound broadcasting satellite system to low cost portables and automobile radios is the community reception system described in Section 5.2.8.5.3 of the SPM Report. The system envisions up to 42 sound channels being received by a community reception earth station characterized by a parabolic reflector antenna 3 meters in diameter and a receiving system noise temperature of 400° K. The per channel power flux-density at the centre of the service area is -146.7 dBW/m^2 independent of operating frequency.

Estimates of the space station mass have been made using the parameters described previously. Selected results are given in Table 3 for a 40 channel space station.

Table 3 shows that a space station mass up to about 2,750 Kg is required to provide service at 0.7 GHz to small service areas (antenna gain = 48 dBi) whereas only a 610 Kg space station is required at 2,5 GHz. The corresponding space segment cost is estimated to be \$ 410 M at 0,7 GHz and \$ 92 M at 2,5 GHz.

The per channel investment costs would be on the order of \$ 72 M for the sound broadcasting satellite-individual reception and, about \$ 10 M for the 0.7 GHz community reception and \$ 2.3 M for the 2.5 GHz community reception.

Document No. 431-E Page 5

5. Conclusions

Applying the three criteria of Section 4 to the results of the computer model of the space station, it is concluded that frequencies near 0.7 and 1.0 GHz are the most suitable for sound broadcasting to low cost portable and automobile radios. The use of these frequencies provide the maximum flexibility to the system designer to meet service area requirements similar to those incorporated in the 1977 WARC-BS Plan. The use of the 0.7 GHz band is more advantageous in serving large service areas, whereas the 1.0 GHz band is more advantageous in serving the smallest service areas. The use of frequencies above 1.0 GHz will limit the maximum feasible size of the service area and the number of channels feasible from a single space station. These limitations will in turn incur cost penalties when compared to equivalent systems operating in the lower bands.

A comparison between space stations operating in either the 0.7 GHz or the 2.5 GHz bands for 40 channel sound broadcasting to community reception earth stations favours the use of the 2.5 GHz band.

The space segment per channel investment costs have been estimated to be \$ 72 M per channel for individual reception independent of frequency, and \$ 10 M per channel for 0.7 GHz and \$ 2.3 M for 2.5 GHz community reception.

References

- (1) Kiesling, J.E., Elbert, B.R., Gainer, W.B., and Morgan, W.L., "A Technique for Modeling Communications Satellites," Comsat Technical Review, Vol. 2, No. 1 Spring 1972, pp 73-101.
- (2) Chidester, L.G., "Advanced Lightweight Solar Array Technology," AIAA 7th Communications Sate-lite System Conference, April 1978, pp 55-60.
- (3) Sparks, R.H., "Nickel-Cadium Battery Technology Advancements for Geosynchronous Orbit Spacecraft," AIAA 7th Communications Satellite Systems for Conference, April 1978, pp 61-65.
- (4) Fager, J.A., "Large Space Erectable Antenna Stiffness Requirements," AIAA 7th Communications Satellite Systems Conference, April 1978, pp 415-422.
- (5) Ho, P.T., Rubin, M.O, Wherry, J.G., "Solid-State Power Amplifiers in Communications Satellites," AIAA 7th Communications Satellite Systems Conference, April 1978, pp 182-187.
- (6) Wheelon, A.D., "The Impact of Space Shuttle on the Future of Communication Satellites," Presented at The Telecommunications Association Tokyo, Japan, November 9, 1978.

TABLE 1

Solar Array (2)	Y = 66 w/Kg
Specific Energy Storage (3)	G = 35.3 W-H/Kg
Antenna Density (4)	$P_{a} = 0.5 \text{ Kg/m}^{2}$
Transmitter Efficiency (5)	$n_{\rm T} = 40\%$
Antenna Feed Loss	$L_{f} = 1 dB$
Spares Ratio	S = 1/2
Transmitter Mass Density (5)	$A_S = 0.2 \text{ Kg/w}$
Receiver Mass	$W_{R} = 2 \text{ Kg}$
Feed Mass	$W_{f} = 1 \text{ Kg}$
Receiver Power Consumption	$P_R = 5w$
All Power Subsystem Efficiencies	$n_{x} = 90\%$

TABLE 2

Service Characteristics of Space Stations Meeting the Criteria

Operating	Frequency	0.7 GHz	1.0 GHz	1.5 GHz	2.0 GHz
Number of	Channels	Antenna Gain (dBi)	Antenna Gain (dBi)	Antenna Gain (dBi)	Antenna Gain (dBi)
1		36-48	39-48	42-48	45-48
2		39-45	42-48	45-48	48
3		42-45	45-48	48	
4		45	48		
5		45	48		

Document No. 431-E Page 7

TABLE 3

Antenna Gain (dBi)	0.7 GHz Space Station Mass (Kg)	2.5 GHz Space Station Mass (Kg)
30	470	440
33	500	440
36	580	- 440
39	720	450
42	1000	480
45	1590	530
48	2750	610

Space Station Characteristics for 40 Channel Sound Broadcasting - Community Reception

INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 432-E 31 October 1979 Original : English

COMMITTEE 4

NOTE FROM THE CHAIRMAN OF WORKING GROUP 4A

Working Group 4A proposes the following text of a note to be sent from Committee 4 to Committee 6 :

" NOTE FROM THE CHAIRMAN OF COMMITTEE 4 TO THE CHAIRMAN OF COMMITTEE 6

1. Referring to your note in Document No. 372 about the term 'acceptable level of interference', Committee 4 wishes to re-state that it had already considered <u>three</u> levels of interference :

- harmful interference
- accepted interference
- permissible interference.

This was done on the basis that :

- <u>harmful</u> interference, a well known term which can be found also in the Convention, relates to a level of serious degradation of the system;
- <u>accepted</u> interference relates to a level of interference agreed upon by <u>two or more</u> Administrations concerned, without prejudice to other Administrations;
- <u>permissible</u> interference relates to a level of interference agreed upon by <u>all</u> Administrations or by a regional agreement.

It follows that the level of "accepted" interference is normally <u>above</u> the level for "permissible" interference.



2. Committee 4 considers that your request of a definition of the term 'acceptable level of interference', which is necessary for clarification of the provision 4170/492D, sub paragraph c), falls into the category of 'accepted' interference.

3. 'Unaccepted' or 'unacceptable' interference clearly relates to interference that exceeds a level that could be 'accepted'. If therefore 'accepted interference' is defined there is no need to define 'unaccepted interference', 'acceptable level of interference' or 'unacceptable level of interference'.

4. However you may wish to consider modifying No. 4170/492D, sub-paragraph c) to read :

c) there is disagreement between the Administration seeking coordination and an Administration with which coordination is sought on the <u>level of interference</u> that can be accepted."

This may make it clearer that the provision refers to "accepted intereference, as defined in Article N1.

A.R. BASTIKAR Chairman of Working Group 4A



(Geneva, 1979)

B.2

Document No. 433 5 November 1979

PLENARY MEETING

2nd SERIES OF TEXTS SUBMITTED BY THE EDITORIAL COMMITTEE TO THE PLENARY MEETING

Page B.2-28

Replace the text of No. 6893/1494 by the following:

NOC 6893 1494 (2) In the cases prescribed in Nos. 6997/1612, 7000/1615 and 7004/1619, the safety signal and the message which follows it shall be transmitted as soon as possible, and shall be repeated at the end of the first period of silence which follows.

Corrigendum No. 1 to

E



(Geneva, 1979)

B.2

Document No. 433 31 October 1979

PLENARY MEETING

2nd SERIES OF TEXTS SUBMITTED BY THE EDITORIAL COMMITTEE TO THE PLENARY MEETING

The following texts are submitted to the Plenary Meeting for <u>first</u> reading:

Source	Document No.		
	-		
C.8	346 + 347		

Art. N34 to Art. N38

Title

P. BASSOLE				
Chairn	an	of	the	
Editoria	1 (Com	ittee	

Annex: 33 pages



RCHIV U.I.T. GENEVI E

CHAPTER NIX

NOC

Distress and Safety Communications

ARTICLE N34

NOC

MOD

General Provisions

6589 1380 **§** 1. The procedure specified in this Chapter is obligatory in the maritime mobile service and for communications between aircraft stations and stations of the maritime mobile service. The provisions of this Chapter are also applicable to the aeronautical mobile service except in the case of special arrangements between the governments concerned.

1380A MOD 6590 8 2. The procedure specified in this Chapter Mar2 is obligatory in the maritime mobile-satellite service and for communications between stations on board aircraft and stations of the maritime mobile-satellite service, where this service or stations of this service are specifically mentioned. Nos. 6767/1394, 6771/1391, **6776**/1397, **6777**/1398, **6778**/1399, **6779**/1400, **6877**/1481, 6880/1483 and 6888/1490 are also applicable.

NOC 6591 1381 **§** 3.(1) No provision of these Regulations Mar2 prevents the use by a mobile station or ship earth station in distress of any means at its disposal to attract attention, make known its position, and obtain help.

NOC 6592 1381A(2)No provision of these Regulations Mar2 prevents the use by stations on board aircraft or ships engaged in search and rescue operations, in exceptional circumstances, of any means at their disposal to assist a mobile station in distress.

(MOD) 6593 1382(3)No provision of these Regulations prevents the use by a land station, in exceptional circumstances, of any means at its disposal to assist a mobile station in distress (see also No. 3920/416).

1384 NOC 6594

In cases of distress, urgency or safety, 84. transmissions:

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NOC	6595	1385	a) by radiotelegraphy, shall not in general exceed a speed of sixteen words a minute;
NOC	6596	1386	b) by radiotelephony, shall be made slowly and distinctly, each word being clearly pronounced to facilitate transcription.
NOC	6597	1386A Mar	§ 5. The abbreviations and signals of Appendix 13A and the Phonetic Alphabet and Figure Code in Appendix 16 should be used where applicable and, where language difficulties exist, the use of the International Code of Signals also is recommended.
NOC	6598	965	§ 6.(1) The International Convention for the Safety of Life at Sea prescribes which ships and which of their survival craft shall be fitted with radio equipment and which ships shall carry portable radio equipment for use in survival craft. It also prescribes the requirements which shall be complied with by such installations.
NOC	6599	966(2)	The Annexes to the Convention on International Civil Aviation state which aircraft should be fitted with radio equipment and which aircraft should carry portable radio equipment for use in survival craft. They state also the requirements which should be complied with by such installations.
NOC	6600	967	§ 7. The applicable provisions of the present Regulations shall, however, be observed in the use of all such installations.
NOC	6601	968	§ 8. Mobile stations of the maritime mobile service may communicate, for safety purposes, with stations of the aeronautical mobile service.
NOC	6602	992 Mar2	8 9. Any aircraft required by national or international regulations to communicate for distress, urgency or safety purposes with stations of the maritime mobile service, shall be capable of transmitting preferably class[A2 or A2H] and receiving preferably class[A2 and A2H] [] emissions on the carrier frequency 500 kHz or, on the carrier [] frequency 2 182 kHz, transmitting class[A3 or A3H] and [] receiving class[A3 and A3H] emissions, or on the frequency [] 156.8 MHz transmitting and receiving class[F3] emissions. []
	6603 to 6628		NOT allocated.

ARTICLE N35

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NOC			Frequencies for Distress and Safety
NOC			Section I. Availability of Frequencies
NOC	6629		$\underline{\mathbf{A.} \mathbf{500 \ kHz}}$
MOD	6630	1107	§ 1. (1) The frequency 500 kHz is the international distress frequency for radiotelegraphy (see also No. 3480/187); it shall be used for this purpose by ship, aircraft and survival craft stations using frequencies in the bands between 405 and 535 kHz when requesting assistance from the maritime services. It shall be used for the distress call and distress traffic, for the urgency signal and urgency messages, for the safety signal and, outside regions of heavy traffic, for short safety messages. When practicable, safety messages shall be transmitted on the working frequency after a preliminary announcement on 500 kHz (see also No. 8087/1122).
NOC	6631	1108	(2) However, ship and aircraft stations which cannot transmit on 500 kHz should use any other available frequency on which attention might be attracted.
NOC	6632		<u>B. 2 182 kHz</u>
MOD	6633	1323 Mar	8 2. (1) The frequency 2 182 kHz ¹ is the international distress frequency for radiotelephony (see also Nos. 3494/201 and 3495/201A); it shall be used for this purpose by ship, aircraft and survival craft stations and by emergency position-indicating radiobeacons using frequencies in the authorized bands between 1 605 and 4 000 kHz when requesting assistance from the maritime services. It is used for the distress call and distress traffic, for signals of emergency position-indicating radiobeacons, for the urgency signal and urgency messages and for the safety signal. Safety messages shall be transmitted, where practicable, on a working frequency after a preliminary announcement on 2 182 kHz. The class of emission to be used for radiotelephony on the frequency 2 182 kHz shall be A3 or A3H (see No. 7945/984). The class of emission to be used by emergency position-indicating radiobeacons shall be as specified in Appendix 20A (see also No. 6930/1476G).
NOC	6633.1	1323.1 Mar	¹ Where administrations provide at their coast stations a watch on 2 182 kHz for receiving class[A3A and A3J]emissions as well as class[A3 and A3H]

£3

emissions, ship stations beyond the A3 or A3H communication [] range of such coast stations may call them for safety purposes using class [A3A or A3J] emissions. This procedure shall only be used when calling by the use of class [A3 and A3H] emissions has not been successful.

MOD **6634** 1323A Mar2

6635

MOD

1324

Mar2

1326

Mar

(2) In the zone of Regions 1 and 2 south of latitude 15° N, including Mexico, and in the zone of Region 3 south of latitude 25° N, if a distress message on the carrier frequency 2 182 kHz has not been acknowledged, the radiotelephone alarm signal, whenever possible followed by the distress call and message, may be transmitted again on a carrier frequency of 4 125 kHz or 6 215.5 kHz, as appropriate (see Nos. 6643/1351E, 6648/1351F and 6710/1354A).

(3) However, ship and aircraft stations which cannot transmit on the carrier frequency 2 182 kHz or, in accordance with No. **6634**/1323A, on the carrier frequencies 4 125 kHz or 6 215.5 kHz, should use any other available frequency on which attention might be attracted.

NOC 6636 1325A (4) Selective calling under the provisions Mar2 of Article N59/28A may be used on the carrier frequency 2 182 kHz in the shore-to-ship, ship-to-shore and ship-to-ship directions and on this frequency shall be confined to distress and urgency and to vital navigational warnings. In no circumstances shall such selective calling be used in place of the procedures given in Nos. 6782/1402, 6783/1403, 6797/1416, 6798/1417 and 6937/1465.

NOC 6637

NOC 6638 1326AA Mar2 transmit the radiotelephone alarm signal described in No. 6937/1465 (see also Nos. 6946/1471, 6947/1472 and 6948/1473).

frequency 2 182 kHz for distress purposes shall be able to

(5) Any coast station using the carrier

(6) Any coast station authorized to send navigational warnings should be able to transmit the navigational warning signal described in Nos. 6953/1476AA, 6954/1476AB and 6955/1476AC.

NOC	6639		C. 3 023 kHz	
	H612 0	1326C Aer2	8 3. (1) The aeronautical carrier (reference) frequency 3 023 kHz may be used for intercommunication between mobile stations when they are engaged in co-ordinated search and rescue operations, and for communication between these stations and participating land stations, in accordance with the provisions of Appendix 27 Aer2 (see also Nos. 3495/201A and 3500/205A).	
SUP	6641	969 A Aer2	(2)	
MOD	6642		D. 4 125 kHz	
MOD	6643	1351E Mar2	§ 4. (1) In the zone of Regions 1 and 2 south of latitude 15° N, including Mexico, and in the zone of Region 3 south of latitude 25° N, the carrier frequency 4 125 kHz is designated to supplement the carrier frequency of 2 182 kHz for distress and safety purposes and for call and reply (see also No. 3505/209A). Stations using the frequency 4 125 kHz may continue to use class [A3H] emission until 1 January 1984.	£]
SUP	6644	13511 Mar2	(2)	
NOC	6645		E. 5 680 kHz	
MOD	6646	1353B Aer2	8 5. The aeronautical carrier (reference) frequency 5 680 kHz may be used for intercommunication between mobile stations when they are engaged in co-ordinated search and rescue operations, and for communication between these stations and participating land stations, in accordance with the provisions of Appendix 27 Aer2 (see also Nos. 3495/201A, 3500/205A and 6641/969A).	
MOD	6647		F. 6 215.5 kHz	
MOD	6648	1351F Mar2	§ 6. In the zone of Region 3 south of latitude 25° N, the carrier frequency 6 215.5 kHz is designated to supplement the carrier frequency 2 182 kHz for distress and safety purposes and for call and reply (see also Nos. 3508/211A). Stations using the frequency 6 215.5 kHz may continue to use class[A3H] emission until 1 January 1984.	£3

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NOC	6649		<u>G. 8 364 kHz</u>	
MOD	6650	1179 Mar2	§ 7. The frequency 8 364 kHz is designated for use by survival craft stations if they are equipped to transmit on frequencies in the bands between 4 000 and 27 500 kHz and if they desire to establish communications relating to search and rescue operations with stations of the maritime and aeronautical mobile services (see also No. 3495/201A).	
NOC	6651		H. 121.5 and 123.1 MHz	
NOC	6651 A	968	§ 8. (1) Mobile stations of the maritime mobile service may communicate, for safety purposes, with stations of the aeronautical mobile service.	
MOD	6652	969 Mar2	(2) For these purposes only, they may use the aeronautical emergency frequency 121.5 MHz and the aeronautical auxiliary frequency 123.1 MHz, using class [A3] emissions for both frequencies (see also Nos. 3495/201A and 3572/273). They shall then comply with any special arrangements between the governments concerned by which the aeronautical mobile service is regulated.	£3
MOD	6653		I. 156.3 and 156.8 MHz	
MOD	6654	953 Mar2	§ 9. The frequencies 156.3 MHz and 156.8 MHz may be used by aircraft stations for safety purposes only (see also note h of Appendix 18).	
SUP	6655		<u>J.</u>	
MOD	6656	1359 Mar2	8 10. (1) The frequency 156.8 MHz is the international distress, safety and calling frequency for radiotelephony for stations of the maritime mobile service when they use frequencies in the authorized bands between 156 and 174 MHz (see also Nos. 3495/201A and 3595/287). It is used for the distress signal and call and distress traffic, for the urgency signal, urgency traffic and for the safety signal (see also No. 6654/953). Safety messages shall be transmitted where practicable on a working frequency after a preliminary announcement on 156.8 MHz. The class of emission to be used for radiotelephony on the frequency 156.8 MHz shall be [F3] (see Appendix 19).	£} £}
NOC	6657	1359AA Mar2	(2) However, ship stations which cannot transmit on 156.8 MHz should use any other available frequency on which attention might be attracted.	

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MOD	6658		<u>K. 243 MHz</u>	
			(See Nos. 3495/201A and 3619/309.)	
MOD	6659		L. 406-406.1 MHz Band	
			(See No. 3634/317A.)	
NOC	6660		M. Aircraft in Distress	
SUP	6661	1208	§ 11. (1)	
MOD	6662	1321 Mar2*	(2) Any aircraft in distress shall transmit the distress call on the frequency on which watch is kept by the land or mobile stations capable of helping it. When the call is intended for stations in the maritime mobile service, the provisions of Nos. 6630 /1107 and 6631 /1108 or 6633 /1323 and 6635 /1324 or 6656 /1359 and 6657 /1359AA shall be complied with.	
NOC	6663		N. Survival Craft Stations	
NOC	6664	994	\$ 12. Equipment provided for use in survival craft stations shall, if capable of operating on any frequency:	
NOC	6665	995 Mar	— in the bands between 405 and 535 kHz; be able to transmit with a carrier frequency of 500 kHz using class A2 or A2H; emissions. If a receiver is provided for any of these bands, it shall be able to receive class A2 and A2H; emissions on a carrier frequency of 500 kHz;	£3 £3 £3
NOC	6666	996 Mar2	in the bands between 1 605 and 2 850 kHz; be able to transmit with a carrier frequency of 2 182 kHz using class A3 or A3H emissions. If a receiver is provided for any of these bands, it shall be able to receive class A3 and A3H emissions on a carrier frequency of 2 182 kHz;	£3 {}
NOC	6667	997 Mar	— in the bands between 4 000 and 27 500 kHz, be able to transmit with a carrier frequency of 8 364 kHz using class [A2 or A2H] emissions. If a receiver is provided for any of these bands, it	£Э

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			shall be able to receive class[Al, A2 and A2H]emissions throughout the band [8 341.75 to 8 728.5 kHz;]	£3 £3
NOC	6668	998	— in the bands between 118 and 132 MHz, be able to transmit on 121.5 MHz, preferably using amplitude modulated emission. If a receiver is provided for any of these bands, it shall be able to receive class A3 emissions on 121.5 MHz;	£3 £3
NOC	6669	998A Mar2	— in the bands between [156 and 174 MHz]; be able to transmit on 156.8 MHz using class [F3] emission. If a receiver is provided for any of these bands it shall be able to receive class [F3] emissions on 156.8 MHz;	£3 £3 £3
NOC	6670	999	 in the bands between 235 and 328.6 MHz; be able to transmit on the frequency 243 MHz. 	{ }
NOC		Se	ction II. Protection of Distress Frequencies	
NOC	6671		A. General	
NOC	6672	421 Mar2	§ 13. Any emission capable of causing harmful interference to distress, alarm, urgency or safety communications on the international distress frequencies 500 kHz or 2 182 kHz is prohibited (see Nos. 3480/187, 3494/201, 6676/1112 and 6681/1325). Any emission causing harmful interference to distress, safety and calling communications on the frequency 156.8 MHz is prohibited (see Nos. 3595/287, 6691/1363 and 8258/1376).	
MOD	6673	1295 Mar2	§ 14. (1) Any signals sent for testing shall be kept to a minimum, particularly:	
			 on the carrier frequency 2 182 kHz; 	
			 on the frequency 156.8 MHz; 	
		. •	 in the zone of Regions 1 and 2 south of latitude 15° N, including Mexico, and in the zone of Region 3 south of latitude 25° N, on the carrier frequency 4 125 kHz; 	

 in the zone of Region 3 south of
latitude 25° N also on the carrier
frequency 6 215.5 kHz.

NOC 6674	1295A Mar2	(2) It is not permitted to send test transmissions of the radiotelephone alarm signal on the carrier frequency 2 182 kHz and the frequency 156.8 MHz, except where emergency equipment which can operate only on these frequencies is involved, in which case measures shall be taken to prevent radiation. Measures shall also be taken to prevent radiation from radiotelephone alarm tests carried out on frequencies other than 2 182 kHz and 156.8 MHz.
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NOC	6675		B. 500 kHz	
NOC	6676	1112	§ 15. (1) Apart from the transmissions authorized on 500 kHz, and taking account of No. 8077/1115, all transmissions on the frequencies included between 490 and 510 kHz are forbidden.	{ }
NOC	6677	1113 Mar	(2) In order to facilitate the reception of distress calls, other transmissions on the frequency 500 kHz shall be reduced to a minimum, and in any case shall not exceed one minute.	
NOC	6678	1113A Mar	(3) Before transmitting on 500 kHz, stations in the mobile service must listen on this frequency for a reasonable period to make sure that no distress traffic is being sent (see Nos. 7459/1007 or 8426/1007).	
NOC	6679	1113B Mar	(4) The provisions of No. 6678 /1113A do not apply to stations in distress.	
NOC	6680		C. 2 182 kHz	
NOC	6681	1325 Mar	§ 16. (1) Except for transmissions authorized on the carrier frequency 2 182 kHz, all transmissions on the frequencies between 2 173.5 and 2 190.5 kHz are forbidden.	£Ĵ
NOC	6682	1326A Mar	(2) Before transmitting on the carrier frequency 2 182 kHz, a station in the mobile service should listen on this frequency for a reasonable period to make sure that no distress traffic is being sent (see No. 8683/1217).	
NOC	6683	1326B Mar	(3) The provisions of No. 6682 /1326A do not apply to stations in distress.	
NOC	6684	1331	(4) To facilitate the reception of distress calls, all transmissions on 2 182 kHz shall be kept to a minimum.	

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NOC	6685	1466B Mar2	(5) To reduce unnecessary alarm signal emissions, tests of the radiotelephone alarm signal on the carrier frequency 2 182 kHz are prohibited (see No. 6674/1295A).
(mod)	6686	1466C Mar2	(6) As an exception such tests are permitted for radiotelephone emergency equipment which can operate only on the international distress frequency 2 182 kHz, in which case a suitable artificial antenna shall be employed.
MOD	6687		D. 4 125 and 6 215.5 kHz
MOD	6688	1351G Mar2	8 17. (1) In the zone of Regions 1 and 2 south of latitude 15° N, including Mexico, and in the zone of Region 3 south of latitude 25° N, before transmitting on the carrier frequency 4 125 kHz or 6 215.5 kHz, a station shall listen on the frequency for a reasonable period to make sure that no distress traffic is being sent (see No. 8683/1217).
NOC	6689	1351H Mar2	(2) The provisions of No. 6688 /1351G do not apply to stations in distress.
NOC	6690		E. 156.8 MHz
NOC	6691	1363 Mar	§ 18. (1) All emissions in the band 156.725-156.875 MHz ¹ capable of causing harmful interference to the authorized transmissions of stations of the maritime mobile service on 156.8 MHz are forbidden.
NOC	6691.1	1363.1 Mar2	l After 1 January 1983 this band is reduced to 156.7625-156.8375 MHz (see Resolution No. Mar2 - 14).
NOC	6692	1363A Mar2	(2) Before transmitting on the frequency 156.8 MHz, a station in the mobile service should listen on this frequency for a reasonable period to make sure that no distress traffic is being sent (see No. 8683/1217).
NOC	6693	1363B Mar2	(3) The provisions of No. 6692 /1363A do not apply to stations in distress.

B.2-11

NOC			Section III. Watch on Distress Frequencies	
NOC	6695		A. 500 kHz	
NOC	6696	1130	§ 19. (1) In order to increase the safety of life at sea and over the sea, all stations of the maritime mobile service normally keeping watch on frequencies in the authorized bands between 405 and 535 kHz]shall, during their hours of service, take the necessary measures to ensure watch on the international distress frequency 500 kHz for three minutes twice an hour beginning at x h. 15 and x h. 45 Greenwich Mean Time (G.M.T.) by an operator using headphones or a loudspeaker.	£3
MOD	6697	1131	(2) During the periods mentioned above, except for the emissions provided for in Chapter NIX:	
NOC	6698	1132	<u>a)</u> transmissions shall cease in the bands between 485 and 515 kHz;	£3
NOC	6699	1133	b) outside these bands, transmissions of stations of the mobile service may continue; stations of the maritime mobile service may listen to these transmissions on the express condition that they first ensure watch on the distress frequency as required by No. 6696/1130.	
NOC	6700	1134 Mar	§ 20. (1) Stations of the maritime mobile service open to public correspondence and using frequencies in the authorized bands between 405 and 535 kHz shall, during their hours of service, remain on watch on 500 kHz. This watch is obligatory only for class A2 and A2H emissions.	£€ €€
NOC	6701	1135	(2) These stations, while observing the requirements of No. 6696 /1130, are authorized to relinquish this watch only when they are engaged in communications on other frequencies.	
NOC	6702	1136	(3) When they are engaged in such communications:	
			 ship stations may maintain this watch on 500 kHz by means of an operator using headphones or a loudspeaker or by some appropriate means such as an automatic alarm receiver. coast stations may maintain this watch on 500 kHz by means of an operator using headphones or a loudspeaker; in the latter case an indication may be inserted in the List of Coast Stations. 	

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NOC	6703		B. 2 182 kHz	
NOC	6704	1332	§ 21. (1) All coast stations which are open to public correspondence and which form an essential part of the coverage of the area for distress purposes shall, during their hours of service, maintain a watch on 2 182 kHz.	
NOC	6705	1333	(2) These stations shall maintain this watch by means of an operator using some aural method, such as headphones, split headphones or loudspeaker.	
NOC	6706	1334 Mar2	(3) In addition, ship stations should keep the maximum watch practicable on the carrier frequency 2 182 kHz for receiving by any appropriate means the radiotelephone alarm signal described in No. 6937 /1465, and the navigational warning signal described in Nos. 6953 /1476AA, 6954 /1476AB and 6955 /1476AC, as well as distress, urgency and safety signals.	
NOC	6707	1335	§ 22. Ship stations open to public correspondence should, as far as possible during their hours service, keep watch on 2 182 kHz.	of
NOC	6708	1335A Mar2	§ 23. In order to increase the safety of life at sea and over the sea, all stations of the maritime mobile service normally keeping watch on frequencies in the authorized bands between [1 605 and 2 850 kHz] shall, during their hours of service, and as far as possible, take steps to keep watch on the international distress carrier frequency 2 182 kHz for three minutes twice each hour beginning at \underline{x} h. 00 and \underline{x} h. 30 Greenwich Mean Time (G.M.T.):	£} £}
MOD	6709		C. 4 125 and 6 215 kHz	
MOD	6710	1354A Mar2	§ 24. (1) In the zone of Regions 1 and 2 south of latitude 15° N, including Mexico, and in the zone of Region 3 south of latitude 25° N, all coast stations which are open to public correspondence and which form an essential part of the coverage of the area for distress purposes may, during their hours of service, maintain a watch on the carrier frequencies 4 125 kHz and/or 6 215.5 kHz, as appropriate (see Nos. 6643/1351E and 6648/1351F). Such watch should be indicated in the List of Coast Stations.	
NOC	6711	1354B Mar2	(2) These stations should maintain this watch by means of an operator using some aural method, such as headphones, split headphones or loudspeaker.	

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NOC	6712		<u>D. 156 8 MHz</u>
NOC	6713	1364 Mar2	§ 25. (1) A coast station providing an international maritime mobile radiotelephone service in the band $[156-174 \text{ MHz}]$ and which forms an essential part of the coverage of the area for distress purposes should, during its working hours in that band, maintain an efficient aural watch on 156.8 MHz (see Recommendation No. Mar2 - 10).
NOC	6714	1367 Mar2	(2) Ship stations should, where practicable, maintain watch on 156.8 MHz when within the service area of a coast station providing international maritime mobile radiotelephone service in the band [156-174 MHz]. Ship stations fitted only with VHF radiotelephone equipment operating in the authorized bands between [156 and 174 MHz], should maintain watch on 156.8 MHz, when at sea.
NOC	6715	1367A Mar2	(3) Ship stations, when in communication with a port station may, on an exceptional basis and subject to the agreeement of the administration concerned, continue to maintain watch, on the appropriate port operations frequency only, provided that watch on 156.8 MHz is being maintained by the port station.
NOC	6716	1367B Mar2	(4) Ship stations, when in communication with a coast station in the ship movement service and subject to the agreement of the administrations concerned, may continue to maintain watch on the appropriate ship movement service frequency only, provided the watch on 156.8 MHz is being maintained by that coast station.
6717 to 6766			NOT allocated.

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NOC			ARTICLE N36/36				
NOC	Distress Communications						
NOC			Section I. General				
NOC	6767	1394	§ 1. The distress call shall have absolute priority over all other transmissions. All stations which hear it shall immediately cease any transmission capable of interfering with the distress traffic and shall continue to listen on the frequency used for the emission of the distress call. This call shall not be addressed to a particular station and acknowledgement of receipt shall not be given before the distress message which follows it is sent.				
NOC	6768	1383 Mar2	§ 2. The distress call and message shall be sent only on the authority of the master or person responsible for the ship, aircraft or other vehicle carrying the mobile station or ship earth station.				
NOC	· .		Section II. Distress Signal				
NOC .	6769	1389	§ 3. (1) The radiotelegraph distress signal consists of the group				
NOC	6770	1390	(2) The radiotelephone distress signal consists of the word MAYDAY pronounced as the French expression "m'aider".				
NOC	6771	1391	(3) These distress signals indicate that a ship, aircraft or other vehicle is threatened by grave and imminent danger and requests immediate assistance.				
NOC			Section III. Distress Call				
NOC	6772	1392	§ 4. (1) The distress call sent by radiotelegraphy consists of:				
·			- the distress signal SOS, sent three times;				
•			- the word DE;				
	•		 the call sign of the mobile station in distress sent three times. 				

B.2-14

NOC 6773 1393 Mar

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(2) The distress call sent by radiotelephony consists of:

- the distress signal MAYDAY, spoken three times;
- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- the call sign or other identification of the mobile station in distress, spoken three times.

Section IV. Distress Messages

NOC 6774 1395 § 5. (1) The radiotelegraph distress message consists of:

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- the distress signal SOS;
 - the name, or other identification, of
 - the mobile station in distress;
 - particulars of its position;
 - the nature of the distress and the kind of assistance desired;
 - any other information which might facilitate the rescue.

(2) The radiotelephone distress message consists of:

- the distress signal MAYDAY;
- the name, or other identification, of the mobile station in distress;
- particulars of its position;
- the nature of the distress and the kind of assistance desired;
- any other information which might facilitate the rescue.
- § 6. (1) As a general rule, a ship shall signal its position in latitude and longitude (Greenwich), using figures for the degrees and minutes, together with one of the words NORTH or SOUTH and one of the words EAST or WEST. In radiotelegraphy, the signal ---- shall be used to separate the degrees from the minutes;

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however this shall not necessarily apply to the maritime mobile-satellite service. When practicable, the true bearing and distance in nautical miles from a known geographical position may be given.

NOC 6777 1398

(2) As a general rule, and if time permits, an aircraft shall transmit in its distress message the following information:

- estimated position and time of the estimate;
- heading in degrees (state whether magnetic or true);

- indicated air speed;

altitude;

type of aircraft;

- nature of distress and type of assistance desired;
- any other information which might facilitate the rescue (including the intention of the person in command, such as forced alighting on the sea or crash landing).

NOC 6778 1399

(3) As a general rule, an aircraft in flight shall signal its position either in radiotelephony or radiotelegraphy:

- by latitude and longitude (Greenwich) using figures for the degrees and minutes, together with one of the words NORTH or SOUTH and one of the words EAST or WEST; or
- by the name of the nearest place, and its approximate distance in relation thereto, together with one of the words NORTH, SOUTH, EAST or WEST, as the case may be, or when practicable, by words indicating intermediate directions.

NOC 6779 1400

(4) However, in radiotelegraphy, the words NORTH or SOUTH and EAST or WEST, indicated in Nos. 6776/1397 and 6778/1399, may be replaced by the letters N or S and E or W.

B.2-16

NOC			Section V. Procedures
NOC	6780		A. Radiotelegraphy
NOC	6781	1401	8 7. (1) The radiotelegraph distress procedure shall consist of:
	6782	1402	 the alarm signal; followed in order by:
	6783	1403	 the distress call and an interval of two minutes;
	6784	1404	— the distress call;
	6785	1405	- the distress message;
x	6786	1406	 two dashes of ten to fifteen seconds duration each;
-	6787	1407	- the call sign of the station in distress.
NOC	6788	1408 Mar	(2) However, when time is vital, the second step of this procedure (No. 6783/1403) or even the first and second steps (Nos. 6782/1402 and 6783/1403), may be omitted or shortened. These two steps of the distress procedure may also be omitted in circumstances where transmission of the alarm signal is considered unnecessary.
NOC	6789	1409	§ 8. (1) The distress message, preceded by the distress call, shall be repeated at intervals, especially during the periods of silence prescribed in No. 6696/1130 for radiotelegraphy, until an answer is received.
NOC	6790	1410	(2) The intervals shall, however, be sufficiently long to allow time for stations preparing to reply to start their sending apparatus.
NOC	6791	1411	(3) The alarm signal may also be repeated, if necessary.
NOC	6792	1412	§ 9. The transmissions under Nos. 6786 /1406 and 6787 /1407, which are to permit direction-finding stations to determine the position of the station in distress, may be repeated at frequent intervals if necessary.
NOC	6793	1413	§ 10. When the mobile station in distress receives no answer to a distress message sent on the distress frequency, the message may be repeated on any other available frequency on which attention might be attracted.

B.2-17

NOC	6794	1414	§ 11. Immediately before a crash landing or a forced landing (on land or sea) of an aircraft, as well as before total abandonment of a ship or an aircraft, the radio apparatus should be set for continuous emission, if considered necessary and circumstances permit.
NOC	6795		B. Radiotelephony
NOC	6796	1415	§ 12. The radiotelephone distress procedure shall consist of:
NOC	6797	1416	 the alarm signal (whenever possible) followed by:
NOC	6798	1417	 the distress call;
NOC	6799	1418	- the distress message.
NOC	6800	1419	§ 13. After the transmission by radiotelephony of its distress message, the mobile station may be requested to transmit suitable signals followed by its call sign or other identification, to permit direction-finding stations to determine its position. This request may be repeated at frequent intervals if necessary.
NOC	6801	1420 Mar*	§ 14. (1) The distress message, preceded by the distress call, shall be repeated at intervals, especially during the periods of silence prescribed in No. 6708/1335A for radiotelephony, until an answer is received.
NOC	6802	1421	(2) The intervals shall, however, be sufficiently long to allow time for stations preparing to reply to start their sending apparatus.
NOC	6803	1422	(3) This repetition shall be preceded by the alarm signal whenever possible.
NOC	6804	1423	§ 15. When the mobile station in distress receives no answer to a distress message sent on the distress frequency, the message may be repeated on any other available frequency on which attention might be attracted.
NOC	6805	1424	§ 16. Immediately before a crash landing or a forced landing (on land or sea) of an aircraft, as well as before total abandonment of a ship or an aircraft, the radio apparatus should be set for continuous emission, if considered necessary and circumstances permit.

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Section VI. Acknowledgement of Receipt of a Distress Message 1425 § 17. (1) Stations of the mobile service which receive a distress message from a mobile station which is, beyond any possible doubt, in their vicinity, shall immediately acknowledge receipt. 1426 (2) However, in areas where reliable communications with one or more coast stations are Mar practicable, ship stations should defer this acknowledgement for a short interval so that a coast station may acknowledge receipt. 1427 (3) Stations of the mobile service which receive a distress message from a mobile station which, beyond any possible doubt, is not in their vicinity, shall allow a short interval of time to elapse before acknowledging receipt of the message, in order to permit stations nearer to the mobile station in distress to acknowledge receipt without interference. 1427A (4) However, stations in the maritime mobile Mar service which receive a distress message from a mobile station which, beyond any possible doubt, is a long distance away, need not acknowledge receipt of messages except as specified in No. 6839/1455.

NOC 6810 1428 **§** 18. The acknowledgement of receipt of a distress message shall be given in the following form:

NOC	6811	1429	a)	Radiotelegraphy:
		Mar2		

- the distress signal \overline{SOS} ;
- the call sign of the station sending the distress message, sent three times;
- the word DE;
- the call sign of the station acknowledging receipt, sent three times;
- the group RRR;
- the distress signal \overline{SOS} .

b) Radiotelephony:

- the distress signal MAYDAY;
- the call sign or other identification of the station sending the distress message, spoken three times;

B.2-19

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NOC 1430 Mar2

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- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- the call sign or other identification of the station acknowledging receipt, spoken three times;
- the word RECEIVED (or RRR spoken as ROMEO ROMEO ROMEO in case of language difficulties);
- the distress signal MAYDAY.

NOC **6813** 1431 Mar § 19. (1) Every mobile station which acknowledges receipt of a distress message shall, on the order of the master or person responsible for the ship, aircraft or other vehicle, transmit, as soon as possible, the following information in the order shown:

- its name;
- its position in the form prescribed in Nos. 6776/1397, 6778/1399 and 6779/1400;
- the speed at which it is proceeding towards, and the approximate time it will take to reach, the mobile station in distress;
- additionally, if the position of the ship in distress appears doubtful, ship stations should also transmit, when available, the true bearing of the ship in distress preceded by the abbreviation QTE (for classification of bearings, see Appendix 23).

NOC 6814 1432 (2) Before transmitting the message specified Mar in No. 6813/1431, the station shall ensure that it will not interfere with the emissions of other stations better situated to render immediate assistance to the station in distress.

NOC Section VII. Distress Traffic

NOC 6815 1433 § 20. Distress traffic consists of all messages relating to the immediate assistance required by the mobile station in distress.

NOC 6816 1434 § 21. In distress traffic, the distress signal shall be sent before the call and at the beginning of the preamble of any radiotelegram.

MOD	6817	1435	§ 22. The control of distress traffic is the responsibility of the mobile station in distress or of the station which, by the application of the provisions of Section VIII of the present Article, has sent the distress message. These stations may, however, delegate the control of the distress traffic to another station.
NOC	6818	1436 Mar	§ 23. The station in distress or the station in control of distress traffic may impose silence either on all stations of the mobile service in the area or on any station which interferes with the distress traffic. It shall address these instructions "to all stations" (CQ) or to one station only, according to circumstances. In either case, it shall use:
NOC	6819	1437	 in radiotelegraphy, the abbreviation <u>QRT</u>, followed by the distress signal SOS;
NOC	6820	1438	 in radiotelephony, the signal SEELONCE MAYDAY, pronounced as the French expression "silence, m'aider".
NOC	6821	1439	§ 24. If it is believed to be essential, any station of the mobile service near the ship, aircraft or other vehicle in distress, may also impose silence. It shall use for this purpose:
NOC	6822	1440	a) in radiotelegraphy, the abbreviation QRT, followed by the word DISTRESS and its own call sign;
NOC	6823	1441	b) in radiotelephony, the word SEELONCE, pronounced as the French word "silence", followed by the word DISTRESS and its own call sign.
NOC	6824	1442	§ 25. (1) In radiotelegraphy, the use of the signal QRT SOS shall be reserved for the mobile station in distress and for the station controlling distress traffic.
NOC	6825	1443	(2) In radiotelephony, the use of the signal SEELONCE MAYDAY shall be reserved for the mobile station in distress and for the station controlling distress traffic.
NOC	6826	1444	§ 26. (1) Any station of the mobile service which has knowledge of distress traffic and which cannot itself assist the station in distress shall nevertheless follow such traffic until it is evident that assistance is being provided.
NOC	6827	1445	(2) Until they receive the message indicating that normal working may be resumed, (see No. 6831 /1449) all stations which are aware of the distress traffic, and which are not taking part in it, are forbidden to transmit on the frequencies on which the distress traffic is taking place.

1446 NOC 6828 \$ 27. A station of the mobile service which, while following distress traffic, is able to continue its normal service, may do so when the distress traffic is well established and on condition that it observes the provisions of No. 6827/1445 and does not interfere with the distress traffic. 6829 NOC 1447 \$ 28. In cases of exceptional importance and provided that no interference or delay is caused to the handling of distress traffic, urgency and safety messages may be announced during a lull in the distress traffic, preferably by coast stations, on the distress frequencies. This announcement shall include an indication of the working frequency on which the urgency or safety message will be transmitted. In this case, the signals provided for in Nos. 6873/1477, 6874/1478, 6886/1488 and 6887/1489 should only be sent once (e.g. XXX DE ABC QSW . . .). 6830 1448 NOC \$ 29. A land station or an earth station in Mar2 the maritime mobile-satellite service at a specified fixed point receiving a distress message shall, without delay, take the necessary action to advise the appropriate authorities responsible for providing for the operation of rescue facilities. NOC 6831 1449 § 30. (1) When distress traffic has ceased Mar2 on a frequency which has been used for distress traffic, the station which has controlled this traffic shall transmit on that frequency a message addressed "to all stations" (CQ) indicating that normal working may be resumed. NOC 6832 1449A (2) When complete silence is no longer Mar2 necessary on a frequency which is being used for distress traffic, the station controlling the traffic shall transmit on that frequency a message addressed "to all stations" (CQ) indicating that restricted working may be resumed. a) NOC 6833 1450 (3) In radiotelegraphy, the message Mar2 referred to in No. 6831/1449 consists of: the distress signal SOS;

- the call "to all stations" (CQ) sent three times;
- the word DE;

- the call sign of the station sending the message;

B.2-23

- the time of handing in of the message;
- the name and call sign of the mobile station which was in distress;
- the service abbreviation QUM.
- b) In radiotelegraphy, the message referred to in No. 6832/1449A consists of:
 - the distress signal SOS;
 - the call "to all stations" (CQ) sent three times;
 - the word DE;
 - the call sign of the station sending the message;
 - the time of handing in of the message;
 - the name and call sign of the mobile station which is in distress;
 - the service abbreviation QUZ.
- <u>a)</u> In radiotelephony, the message referred to in No. **6831**/1449 consists of:
 - the distress signal MAYDAY;
 - the call "Hello all stations" or CQ (spoken as CHARLIE QUEBEC) spoken three times;
 - the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
 - the call sign or other identification of the station sending the message;
 - the time of handing in of the message;
 - the name and call sign of the mobile station which was in distress;
 - the words SEELONCE FEENEE pronounced as the French words "silence fini".

NOC 6834

1451 Mar2 (4)

b) In radiotelephony, the message referred to in No. 6832/1449A consists of:

- the distress signal MAYDAY;

- the call "Hello all stations" or CQ (spoken as CHARLIE QUEBEC) spoken three times;
- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- the call sign or other identification of the station sending the message;
- the time of handing in of the message;
- the name and call sign of the mobile station which is in distress;
- the words PRU-DONCE pronounced as the French word "prudence".

NOC 6835 1451A § 31. When a station in distress has Mar delegated control of distress working to another station, the person in charge of the station in distress should, when he considers silence no longer justified, immediately inform the controlling station, which will act in accordance with the provisions of No. 6831/1449.

Section VIII. Transmission of a Distress Message by a Station Not Itself in Distress

- NOC 6836 1452 § 32. A mobile station or a land station which learns that a mobile station is in distress shall transmit a distress message in any of the following cases:
- NOC 6837 1453 <u>a)</u> when the station in distress is not itself in a position to transmit the distress message;
- NOC 6838 1454 b) when the master or person responsible for the ship, aircraft or other vehicle not in distress, or the person responsible for the land station, considers that further help is necessary;
- NOC 6839 1455 <u>c)</u> when, although not in a position to render assistance, it has heard a distress message which has not been acknowledged.

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NOC	6840	1456 Mar2	 \$ 33. (1) The transmission of a distress message under the conditions prescribed in Nos. 6837/1453 to 6839/1455 shall be made on one or more of the international distress frequencies (500 kHz, 2 182 kHz, 156 8 MHz) or on any other frequency which may be used in case of distress (see Nos. 6630/1107, 6631/1108, 6633/1323, 6635/1324, 6656/1359, 6657/1359AA, 6661/1208 and 6662/1321).
NOC	6841	1457	(2) This transmission of the distress message shall always be preceded by the call indicated below, which shall itself be preceded whenever possible by the radiotelegraph or radiotelephone alarm signal.
NOC	6842	1458	(3) This call consists of:
NOC	6843	1459	a) Radiotelegraphy:
			- <u>the</u> signal DDD SOS SOS SOS DDD;
			- the word DE;
			 the call sign of the transmitting station, sent three times.
	6844	1460 Mar	b) Radiotelephony:
			 the signal MAYDAY RELAY pronounced as the French expression "m'aider relais", spoken three times;
		·	 the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
			 the call sign or other identification of the transmitting station, spoken three times.
NOC	6845	1461	§ 34. When the radiotelegraph alarm signal is used an interval of two minutes shall be allowed, whenever this is considered necessary, before the transmission of the call mentioned in No. 6843 /1459.
NOC	6846	1462	§ 35. When a station of the mobile service transmits a distress message under the conditions mentioned in No. 6839/1455, it shall take all necessary steps to notify the authorities who may be able to render assistance.
NOC	6847	1462A Mar	§ 36. A ship station should not acknowledge receipt of a distress message transmitted by a coast station under the conditions mentioned in Nos. 6836/1452 to 6839/1455 until the master or person responsible has confirmed that the ship station concerned is in a position to render assistance.
6848			NOT allocated.
6872			NOI STIUCALCU,

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ARTICLE N37

NOC			Urgency and Safety Transmissions
NOC			Section I. Urgency Signal and Messages
NOC	6873	1477	§ 1. (1) In radiotelegraphy, the urgency signal consists of three repetitions of the group XXX, sent with the letters of each group and the successive groups clearly separated from each other. It shall be transmitted before the call.
NOC	6874	1478 Mar2	(2) In radiotelephony, the urgency signal consists of three repetitions of the group of words PAN PAN, each word of the group pronounced as the French word "panne". The urgency signal shall be transmitted before the call.
NOC	6875	1479 Mar2	§ 2. (1) The urgency signal shall be sent only on the authority of the master or the person responsible for the ship, aircraft or other vehicle carrying the mobile station or mobile earth station in the maritime mobile-satellite service.
NOC	6876	1480 Mar2	(2) The urgency signal may be transmitted by a land station or an earth station in the maritime mobile-satellite service at specified fixed points only with the approval of the responsible authority.
NOÇ	6877	1481	§ 3. (1) The urgency signal indicates that the calling station has a very urgent message to transmit concerning the safety of a ship, aircraft or other vehicle, or the safety of a person.
NOC	6878	1482 Mar2	(2) The urgency signal and the message following it shall be sent on one or more of the international distress frequencies (500 kHz, 2 182 kHz, 156.8 MHz), or on any other frequency which may be used in case of distress.
NOC	6879	1482A Mar2	(3) However, in the maritime mobile service, the message shall be transmitted on a working frequency:
			<u>a)</u> in the case of a long message or a medical call, <u>or</u>
			b) in areas of heavy traffic in the case of the repetition of a message transmitted in accordance with the provision as laid down in No. 6878 /1482.

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An indication to this effect shall be given at the end of the call.

NOC	6880	1483 Mar2	(4) The urgency signal shall have priority over all other communications, except distress. All stations which hear it shall take care not to interfere with the transmission of the message which follows the urgency signal.
NOC	6881	1483A Mar	(5) In the maritime mobile service, urgency messages may be addressed either to all stations or to a particular station.
NOC	6882	1484	§ 4. Messages preceded by the urgency signal shall, as a general rule, be drawn up in plain language.
NOC	6883	1485 Mar	§ 5. (1) Mobile stations which hear the urgency signal shall continue to listen for at least three minutes. At the end of this period, if no urgency message has been heard, a land station should, if possible, be notified of the receipt of the urgency signal. Thereafter, normal working may be resumed.
NOC	6884	1486	(2) However, land and mobile stations which are in communication on frequencies other than those used for the transmission of the urgency signal and of the call which follows it may continue their normal work without interruption provided the urgency message is not addressed "to all stations" (CQ).
(MOD)	6885	1487	§ 6. When the urgency signal has been sent before transmitting a message "to all stations" (CQ) which calls for action by the stations receiving the message, the station responsible for its transmission shall cancel it as soon as it knows that action is no longer necessary. This message of cancellation shall likewise be addressed "to all stations" (CQ).
NOC			Section II. Safety Signal and Messages
NOC	6886	1488	§ 7. (1) In radiotelegraphy, the safety signal consists of three repetitions of the group TTT, the individual letters of each group and the successive groups being clearly separated from each other. It shall be sent before the call.
NOC	6887	1489	(2) In radiotelephony, the safety signal consists of the word SÉCURITÉ pronounced clearly as in French, spoken three times and transmitted before the call.
NOC	6888	1490 Mar2	§ 8. (1) The safety signal indicates that the station is about to transmit a message containing an important navigational or important meteorological warning.
NOC	6889	1491 Mar2	(2) The safety signal and call shall be sent on one or more of the international distress frequencies (500 kHz, 2 182 kHz, 156.8 MHz) or on any other frequency which may be used in case of distress.

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NOC	6890	1492 Mar2	(3) The safety message which follows the call should be sent on a working frequency. A suitable announcement to this effect shall be made at the end of the call.
NOC	6891	1492A Mar	(4) In the maritime mobile service, safety messages shall generally be addressed to all stations. In some cases, however, they may be addressed to a particular station.
NOC	6892	1493 Mar*	§ 9. (1) With the exception of messages transmitted at fixed times, the safety signal, when used in the maritime mobile service, shall be transmitted towards the end of the first available period of silence (see No. 6696/1130 for radiotelegraphy and No. 6708/1335A for radiotelephony); the message shall be transmitted immediately after the period of silence.
NOC	6893	1494	ses pr é2 dri be dthe ca Nos. 6997 /1612, 7000 /1615 and 7004 /1619, the safety signal and t message which follows it shall be transmitted as soon as possible, and shall be repeated at the end of the first period of silence which follows.
NOC	6894	1495	§ 10. All stations hearing the safety signal shall listen to the safety message until they are satisfied that the message is of no concern to them. They shall not make any transmission likely to interfere with the message.

6895 to

NOT allocated.

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ARTI	CLE	N38
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NOC			Alarm and Warning Signals
NOC		2	Section I. Emergency Position-Indicating Radiobeacon Signals
SUP	6920	1388A Mar	§ 1. (1)
NOC	6921	1476A Mar	(2) The emergency position-indicating radiobeacon signal consists of:
NOC	6922	1476B Mar	<u>a)</u> for medium frequencies, i.e. 2 182 kHz: l
			 a keyed emission modulated by a tone of 1 300 Hz, and having a ratio of the period of the emission to the period of silence equal to or greater than one, and an emission duration between one and five seconds; or
NOC	6922.1	1476B.1 Mar	l In Japan, there are emergency position-indicating radiobeacons which transmit the distress signal and identification on frequencies between [2 089.5 kHz and 2 092.5 kHz] using class[A1]emissions.
NOC	6923	1476C Mar	2) the radiotelephone alarm signal (see No. 6937/1465), followed by the Morse letter B and/or the call sign of the ship to which the radiobeacon belongs transmitted by keying a carrier modulated by a tone of either 1 300 or 2 200 Hz;
(MOD)	6924	1476D Mar	b) for very high frequencies, i.e. 121.5 MHz and 243 MHz, a signal whose characteristics shall be in accordance with those recommended by the Organizations mentioned in Resolution No. Mar 7.
NOC	6925	1476H Mar	§ 2. (1) The essential purpose of the emergency position-indicating radiobeacon signals is to facilitate determining the position of survivors in search and rescue operations.
NOC	6926	1476I Mar	(2) These signals shall indicate that one or more persons are in distress, may no longer be on board a ship or an aircraft, and that receiving facilities may not be available.

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NOC	6927 ⁻	1476J Mar	(3) Any mobile service station receiving one of these signals, while no distress or urgent traffic is being passed, shall consider that the provisions of Nos. 6836 /1452 and 6837 /1453 are applicable.
NOC	6928	1476E Mar	§ 3. (1) Only the signal specified in No. 6922/1476B shall be used by low power radiobeacons (Type L) and it shall be transmitted continuously.
NOC	6929	1476F Mar	(2) High power radiobeacons (Type H) may transmit either of the signals specified in Nos. 6922 /1476B or 6923 /1476C with a keying cycle which consists of the keying signal for between thirty and fifty seconds followed by a period of silence of between thirty and sixty seconds.
NOC	6930	1476G Mar	(3) However, the keying cycles in Nos. 6928 /1476E and 6929 /1476F may be interrupted for speech transmission if administrations so desire.
NOC	6931	1476K Mar	§ 4. (1) Equipment designed to transmit emergency position-indicating radiobeacon signals on the carrier frequency 2 182 kHz shall meet the requirements specified in Appendix 20A .
(MOD)	6932	1476L Mar2	(2) Equipment designed to transmit emergency position-indicating radiobeacon signals on the frequencies 121.5 MHz and 243 MHz shall comply with the recommendations and standards of the Organizations mentioned in Resolution No. Mar 7.
NOC	Se	ction II	. Radiotelegraph and Radiotelephone Alarm Signals
SUP	6933	1387	§ 5. (1)
NOC	6934	1463	(2) The radiotelegraph alarm signal consists of a series of twelve dashes sent in one minute, the duration of each dash being four seconds and the duration of the interval between consecutive dashes one second. It may be transmitted by hand but its transmission by means of an automatic instrument is recommended.
NOC	6935	1464	(3) Any ship station working in the bands between (405 and 535 kHz), which is not provided with an automatic apparatus for the transmission of the radiotelegraph alarm signal shall be permanently equipped with a clock, clearly marking the seconds, preferably by means of a sweep hand completing one revolution per minute. This clock shall be placed at a point sufficiently visible from the operator's table so that the operator may, by keeping it in view, easily and correctly time the different elements of the alarm signal.

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SUP	6936	1388	§ 6. (1)		
NOC	6937 ⁻	1465	(2) two substan transmitted of 2 200 Ha duration of	The ntia 1 al 2 an 5 ea	radiotelephone alarm signal consists of lly sinusoidal audio frequency tones ternately. One tone shall have a frequency d the other a frequency of 1 300 Hz, the ch tone being 250 milliseconds.
NOC	6938	1466	(3) generated b for a peric exceeding c signal shal a period of	The by an od of one r 1 be app	radiotelephone alarm signal, when stomatic means, shall be sent continuously f at least thirty seconds but not minute; when generated by other means, the e sent as continuously as practicable over proximately one minute.
NOC	6939	1466AA Mar2	(4) transmitted Nos. 6937/ by a single	The l by 1465 e toi	radiotelephone alarm signal coast stations shall be that described in and 6938 /1466, which may be followed me of 1 300 Hz for 10 seconds.
SUP	6940	1466A Mar	(5)		
SUP	6941	1473A Mar	(6)		
NOC	6942	1467	§ 7.	The	purpose of these special signals is:
NOC	6943	1468		<u>a)</u>	in radiotelegraphy, the actuation of automatic devices giving the alarm to attract the attention of the operator when there is no listening watch on the distress frequency;
NOC	6944	1469 Mar2		<u>b)</u>	in radiotelephony, to attract the attention of the person on watch or to actuate automatic devices giving the alarm, or activating a silenced loud-speaker for the message which is to follow.
NOC	6945	1470	§ 8. (1) announce:	The	se signals shall only be used to
NOC	6946	1471		<u>a)</u>	that a distress call or message is about to follow; <u>or</u>
NOC	6947	1472 Mar		<u>b)</u>	the transmission of an urgent cyclone warning, which should be preceded by the safety signal (see

Nos. 6886/1488 and 6887/1489). In this case they may only be used by coast stations duly authorized by their government; or

the loss of a person or persons c) overboard. In this case they may only be used when the assistance of other ships is required and cannot be satisfactorily obtained by the use of the urgency signal alone, but the alarm signal shall not be repeated by other stations. The message shall be preceded by the urgency signal (see Nos. 6873/1477 and 6874/1478).

- 1474 (2) In the cases referred to in NOC 6949 Nos. 6947/1472 and 6948/1473, an interval of two Mar minutes should, if possible, separate the end of the radiotelegraph alarm signal and the beginning of the warning or the message.
- NOC 6950 1475 \$ 9. Automatic devices intended for the reception of the radiotelegraph and radiotelephone alarm signals shall meet the requirements specified in Appendix 20.
- Before any such automatic device is NOC 6951 1476 § 10. approved for use on ships, the administration having jurisdiction over those ships shall be satisfied by practical tests made under operating conditions equivalent to those obtaining in practice (including interference, vibration, etc.), that the apparatus complies with the provisions of these Regulations.

NOC

Section III. All Ships Selective Call

NOC 6952 1388AA § 11. The characteristics of the "all ships call" in the selective calling system, which is Mar2 reserved for alarm purposes only, are given in Appendix 20C.

NOC Section IV. Navigational Warning Signal

NOC 6953 1476AA § 12. (1) The navigational warning signal Mar2 consists of one substantially sinusoidal tone of the frequency 2 200 Hz, interrupted so that the durations of tone and space are 250 milliseconds each.

NOC 6954 1476AB (2) The signal should be transmitted by Mar2 coast stations continuously for a period of fifteen seconds before vital navigational warnings on radiotelephony in the medium frequency maritime bands.

(MOD) 6955	1476AC Mar2	(3) The purpose of the signal is to attract the attention of the person on watch using a loudspeaker or a filtered loudspeaker, or to actuate an automatic device to activate a silenced loudspeaker for the message which is to follow.
6956 to		NOT allocated.

6980

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 434-E 31 October 1979 Original : English

COMMITTEE 8

SUMMARY RECORD

OF THE

FIFTH MEETING OF COMMITTEE 8 (RESTRUCTURE)

Monday, 15 October 1979, at 0905 hrs

Chairman : Mr. O. LUNDBERG (Sweden)

Subjects discussed :

Document No.

 Discussion on the best way to consider the proposals based on CCITT Recommendations E.190/F.110 and D.90/F.111 (Resolutions Mar2 - 22, Mar2 - 23)

Consideration of proposals concerning accounting and operating in the maritime mobile service

DT/8, 53A, 62A, 93, 147, 189

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Document No. 434-E Page 2

Discussion on the best way for consideration of proposals based on CCITT <u>Recommendations E.190/F.110 and D.90/F.111</u> (Resolutions Mar2 - 22, Mar2 - 23) (Document No. 7)

Consideration of proposals concerning accounting and operating in the maritime mobile service (Documents Nos. DT/8, 53A, 62A, 93, 147, 189)

1.1 The <u>representative of the CCITT</u> introduced Document No. 7, which contained the report by the Director of the CCITT on the studies carried out by the CCITT concerning public correspondence in the maritime mobile service. He indicated that Annex 2 identified those provisions of an operational or tariff nature currently in the Radio Regulations, which the CCITT thought might be omitted from the new Radio Regulations. He also drew attention to Recommendation E.190/F.110 dealing with operational provisions and Recommendation D.90/F.111 dealing with tariff aspects of the maritime mobile service. Those Recommendations had been approved by letter ballot and were now provisional Recommendations; they would be submitted for final approval to the CCITT Plenary in 1980.

1.2 The <u>Chairman</u>, drawing attention to the coordinated proposals in Document No. DT/8, suggested that the best procedure would be for the Committee first to decide whether it wished to endorse the studies carried out by the CCITT on public correspondence in the maritime mobile service and then to consider to what extent it wished to delete certain Articles from the Radio Regulations and Additional Radio Regulations.

1.3 The delegate of the United Kingdom supported the procedure proposed by the Chairman.

He praised the CCITT and its Joint Working Party SMM for the excellent work they had done and the report produced.

He then introduced his delegation's proposals for the consequential action to be taken in relation to the CCITT studies as indicated in Document No. 53A, page 97.

1.4 The <u>delegate of Japan</u> said that, in principle, his delegation endorsed the CCITT Recommendations, while believing that certain provisions should be maintained in the additional Radio Regulations. He introduced the main points of his delegation's proposals as contained in Document No. 62A, pages 83-84.

1.5 The <u>delegate of Denmark</u> introduced his delegation's proposals as contained in Document No. 24, saying that they were in conformity both with the CCITT proposals and those of the United Kingdom delegation. He pointed out, however, that the CCITT proposals dealt only with maritime provisions and did not cover the aeronautical mobile service. It was for that reason that Denmark had entered a reservation in the Final Acts to the Maritime WARC (1974). So far as the Articles on order of priority were concerned, he believed that they should be retained in the Radio Regulations and he thought that that was the general feeling of the meeting. He pointed out that Articles N48 and N66, dealing with the aeronautical mobile and land mobile services were similar, whereas Article N58 maintained provision for <u>état priorité</u> with which he could not agree. His delegation was not in favour of retaining any Articles in the Additional Radio Regulations but believed that they should be incorporated in CCITT Recommendations.

1.6 The <u>delegate of Canada</u> supported the procedure proposed by the Chairman for dealing with the items under consideration.

1.7 The <u>delegate of India</u> introduced his delegation's proposals in Document No. 93, pages 27-30, which in the majority of cases followed the CCITT Recommendations, with only slight differences where the Articles affected services other than the maritime mobile service. He was unable to agree with the United Kingdom delegate that, because Articles such as N69 and N70^o dealt with other services in addition to the maritime mobile service, they were redundant and should be deleted from the Radio Regulations. He could not agree to delete them entirely unless they were covered by other provisions in the Regulations.

1.8 The <u>delegate of Japan</u> said that the most debatable issue with regard to public correspondence in the maritime mobile service and maritime mobile-satellite service was what provisions should be retained in the Radio Regulations. Public correspondence was dealt with both by ships and by coast stations, and in view of that fact and in order to ensure universal enforcement of service practices and to conduct public correspondence smoothly and efficiently without unnecessary use of the frequency spectrum, he believed that basic elements regarding charging practices should be provided for in the Radio Regulations, which would confer upon them regulatory status. Greater flexibility might be achieved by transferring most of those proposals to CCITT Recommendations but the legal status of a Recommendation was not the same as that of a Radio Regulation and there might be trouble in enforcing its provisions. The Committee must take into account the fact that some difficulties had already been encountered in dealing with correspondence between ship stations and coast stations.

He further pointed out that the CCITT Recommendations had been established by an Assembly consisting of only some 20 to 30 governments whereas a much wider spectrum of national opinion was reflected in a WARC.

In view of the fact that public correspondence in the maritime mobile and maritime mobile-satellite services might be expected to increase considerably in future, his delegation believed that provision should be made for it in the Additional Radio Regulations and that the latter should be retained albeit in simplified form.

1.9 In response to an enquiry by <u>the Chairman, it was agreed</u>, as a first step, to endorse the recommendations made by the CCITT Joint Working Party SMM on public correspondence in the maritime mobile service.

Articles N69, N70, N71 and N72

1.10 The <u>Chairman</u> drew attention to the fact that there were several proposals for the suppression of Articles N69 - N72 and asked whether there was any objection to such suppression.

1.11 The <u>delegate of India</u>, supported by <u>the delegate of Liberia</u>, said that his delegation was opposed to the deletion of Articles N69 and N70 because they dealt also with the aeronautical mobile service.

1.12 The <u>delegate of the German Democratic Republic</u> supported the deletion of all four Articles.

1.13 The <u>representative of the ITF</u> asked whether, if those Articles were deleted from the Radio Regulations, they would appear in any publication for users of the maritime mobile service. He pointed out that they were necessary for ship's radio officers and, if they were deleted from the Radio Regulations, it might become necessary for an additional document to be carried on board vessels.

1.14 The <u>Deputy Secretary-General</u> explained that there was the Manual for use by the maritime mobile and maritime mobile-satellite services and the Secretary-General made a point of including in it all relevant extracts from the Radio Regulations, the instructions, and the CCITT Recommendations.

It was unanimously agreed to delete Article N72.

1.15 The <u>delegate of France</u> said that his delegation was concerned lest a number of provisions which might be applicable to services other than the maritime mobile service should disappear completely from the Radio Regulations. He suggested that since the CCITT's studies had dealt only with public correspondence in the maritime mobile service, the Committee might adopt a resolution to the effect that for the other mobile services and to the extent necessary it would follow the recommendations of the CCITT as applied to the maritime mobile service. Further provisions for the other mobile services might be studied subsequently by the CCITT if necessary and thus the principle of the existence of those services would be retained.

1.16 The <u>delegate of Spain</u> wholeheartedly endorsed the views expressed by the delegate of France.

1.17 The <u>representative of the IFRB</u>, referring to the Manual for use by the maritime mobile service, said that provision for its use on ships was made in Appendix 11 of the Radio Regulations and provision for drawing it up in Resolution Mar 2. He believed that it was necessary to update Resolution Mar 2 in accordance with the provisions contained in the Resolution.

1.18 The <u>Deputy Secretary-General</u> said that the Secretary-General would be glad to do what was required in connection with updating the Manual. He had already done so to take into account the results of the Maritime Conferences and the Resolutions subsequently adopted by the Administrative Telegraph and Telephone Conference and decisions of the CCITT Plenary Assembly.

1.19 The <u>Chairman</u> noted that as far as the maritime mobile service was concerned it would be possible to delete Articles N69, N70 and N71 but that would leave no provision for the aeronautical mobile and fixed mobile services. That problem might be solved by following the French delegate's proposal.

1.20 The <u>representative of the CCITT</u> explained that the CCITT's proposed Recommendations had been drafted in such a way as to enable them to be extended to cover the other mobile services and the CCITT would be glad to do so during a future study period.

1.21 The <u>delegate of Japan</u> said that his delegation had no objection to study by the CCITT of provisions concerning the aeronautical mobile service. He understood, however, that there was at present very little public correspondence in the aeronautical mobile service and suggested that it would be better to delay its study until after the introduction of satellite techniques into aeronautical mobile communications. At the present Conference he would prefer the adoption of the principle that the provisions governing public correspondence in the maritime mobile service should be applied <u>mutatis mutandis</u> to the other services. He therefore advocated the deletion of Articles N69 to N72.

1.22 The <u>Chairman</u> noted the similarity existing between the French and Japanese proposals.

1.23 The <u>delegate of Canada</u> said that if the Articles under discussion were retained unchanged that might lead to the undesirable situation of duplication of provisions relating to the maritime mobile service. He suggested that an editorial group might be set up to remove the maritime mobile references in those Articles so that they would remain, like Article N71, as non-maritime mobile Recommendations.

1.24 The <u>Chairman</u> asked whether the Indian and Liberian delegates could accept the French proposal to draft a Recommendation regarding provisions to cover the other mobile services where required, and to invite the CCITT to study them.

1.25 The <u>delegate of India</u> said that he could accept the Canadian representative's suggestion.

1.26 The <u>delegate of Argentina</u>, recalling the origins of the ITU and its past history, said that it was well known that a provision of the Radio Regulations had much more binding force than the Recommendations of the CCIs. The Articles now under consideration had been incorporated in the Radio Regulations only very recently at the 197¹ Maritime Conference, and their inclusion must then have been deemed necessary by the exparts present. He therefore strongly opposed their deletion by the present Conference.

1.27 The <u>delegate of Norway</u> said that the Committee's discussions were becoming unnecessarily complicated. Delegates must take into account the CCITT Recommendations and the reasons advanced by the United Kingdom and Danish delegates for deletion of the Articles under consideration. The Committee's task was to render the provision in the most simplified possible form. He could not support the Japanese proposal for the deletion of the material from the Additional Radio Regulations, but he suggested that a re-edited key provision giving the requirements for all the mobile services, as proposed by the French delegate, should be adopted. The Committee should first include in the Radio Regulations the proposed text for a new Article as recommended by the CCITT, and then include a text which would ensure that services other than the maritime mobile service were covered until a more permanent solution could be found. 1.28 The <u>delegate of Spain</u> again endorsed the French delegate's proposal and stressed that in view of possible future technical developments in the way of integrated mobile services it was essential to retain the provision in question.

1.29 The <u>delegate of the United Kingdom</u> endorsed the comments made by the delegates of Norway and Spain. Since there was at present no international public correspondence in either the aeronautical or land mobile services, what was under consideration was merely the maritime mobile service, to which aircraft also had access, but provision must be made for the future in case public correspondence should be introduced into the other mobile services. He did not consider the Japanese delegate's proposal a correct statement of the present situation. He could, however, support the French delegate's proposal provided it involved the deletion of the Articles under consideration. He stressed that whatever action was taken by the Committee must be without prejudice to the introduction of new services in the future.

1.30 The <u>delegate of China</u> said that his delegation believed that the matter should be referred to the CCITT for study.

1.31 The <u>delegates of the Republic of Korea and Greece</u>, supported the deletion of Articles N69, N70 and N71.

1.32 The <u>delegates of Ireland and the Federal Republic of Germany</u> supported the deletion of the Articles and the French proposal to draft a Resolution or a Recommendation to extend the CCITT Recommendation to other services in the event of public correspondence being introduced.

1.33 The <u>delegate of the Netherlands</u> was strongly in favour of the deletion of the Article and could also support the French proposal.

1.34 The <u>delegate of the United States of America</u> supported the deletion of the Articles as initially proposed, but could also support the compromise proposal by France. He stressed that the Committee should not lose sight of the fact that the basic idea of the CCITT Recommendations was to provide a way of introducing change as it arose. The French proposal would achieve that aim by charging the CCITT to examine the circumstances when any new service came into being.

1.35 The <u>Chairman</u> suggested that as the Committee was clearly in favour of deleting Articles N69, N70 and N71 and drafting a Resolution taking account of the problems relating to services other than the maritime mobile service, a drafting group might work out final details.

It was so <u>agreed</u>.

1.36 Article N62A

1.36.1 The <u>Chairman</u> drew attention to proposed modifications by Denmark and the United Kingdom, and observed that those proposals differed from the CCITT text only in points of drafting.

1.36.2 The <u>delegate of China</u> drew attention to his delegation's proposal contained in Document No. 189, which was similar to the other proposals put forward. He pointed out that "accounting"charges" on page 3 of Document No. 189 should read "accounting procedures".

1.36.3 The <u>Chairman</u> said that as there was no objection he took it that the Committee was in favour of the inclusion of a new Article, and that any drafting differences could be dealt with by a new drafting group.

It was so agreed.

1.37 The <u>Chairman</u> invited the Committee to consider the placing of the new draft Article, observing that it had been proposed both as N62A and as N72A.

1.37.1 The <u>representive of the IFRB</u> said that the substance of the Article placed it at the end of Chapter NXI.

1.37.2 The <u>delegate of Norway</u> was of the opinion that the most convenient place was after the different mobile services.

1.37.3 The <u>delegate of the United Kingdom</u> said that the most logical place would be as Article 62A at the end of Chapter XI.

1.37.4 The <u>delegate of Denmark</u> supported the Norwegian view and pointed out that his delegation had proposed it should be N72A.

1.37.5 The <u>delegate of Japan</u> supported the substance of the new Article but reserved his position as to its position, which in his view should be deferred until a decision on the Additional Radio Regulations were taken.

1.37.6 The <u>Chairman</u> suggested that since there were no strong objections in respect of the substance of the new Article, a decision on its position might be deferred for the time being. The wording of the new draft Article could be considered by a new drafting group.

It was so agreed.

1.38 Additional Regulations

1.38.1 The <u>delegate of India</u> said that his delegation supported the suppression of the Additional Radio Regulations as recommended by the CCITT, except for Section II of Article 8.

1.38.2 . The <u>delegate of the United States of America</u> supported by the <u>delegates of the</u> <u>United Kingdom, Denmark, the Netherlands, the German Democratic Republic and Ireland</u>, said that in view of the decisions already taken in respect of Articles N69, N70 and N71, and the CCITT Recommendations concerning other Articles, there was no point in retaining the Additional Radio Regulations.

1.38.3 The <u>delegate of Greece</u> also supported the suppression of the Additional Radio Regulations, except for minor points regarding safety in Articles N48, N58 and N66.

1.38.4 The <u>delegate of Japan</u> said that having listened to previous speakers, he still believed that the line of the Japanese proposal was the best, but that to facilitate the work of the Committee his delegation was prepared to withdraw its proposal to retain the Additional Radio Regulations, but reserved the right to rediscuss the contents of its proposal at a later stage.

1.38.5 The <u>delegate of Norway</u> was in favour of suppressing the Additional Radio Regulations but was prepared to discuss the question of whether or not some of the important provisions which the Japanese delegation had proposed for inclusion in the Additional Radio Regulations could be inserted somewhere in the Regulations themselves.

1.38.6 The <u>delegate of France</u> said that his delegation had no objection to suppressing the Additional Radio Regulations provided that the Resolution or Recommendation he had earlier proposed would be drafted and that the CCITT could continue its studies on services other than the maritime mobile service.

1.38.7 The <u>delegate of India</u> said that in view of the general support for the suppression of the Additional Regulations, he too would be prepared to agree provided that Section II of Article 8 was reflected elsewhere.

1.38.8 The <u>Chairman</u> said that he took it that the Committee as a whole agreed to the suppression of the Additional Radio Regulations, and to allowing a new drafting group to consider the insertion of Section II of Article 8 and the Japanese proposals elsewhere.

It was so agreed.

1.39 Articles N48, N58, N66

1.39.1 The <u>Chairman</u> drew attention to the relevant proposals by Japan and Denmark contained in Document No. DT/8.

1.39.2 The <u>delegate of Denmark</u> said that his delegation's proposal MOD/7408/1496 (DNK/24/1) had been introduced for purposes of clarification, feeling that it was more logical to start with an order of priority. The proposal to suppress paragraphs 7 - 10 had been made purely for practical reasons, since they were quite simply out of date.

1.39.3 The <u>delegate of Japan</u> said that since the Committee had decided to suppress the Additional Radio Regulations, the appropriate Japanese proposal concerning the order of the priority was No. J/62A/182 on page 18 of Document No. DT/8. The proposal gave absolute priority to distress calls, distress messages and distress traffic even in the case of automatic or semi-automatic systems, and differed from the CCITT Recommendation by the addition of a phrase in the introductory paragraph "except in the case of automatic or semi-automatic systems in which nevertheless category 1 communications shall have priority.".

1.39.4 The <u>delegate of Norway</u> said that there was no need in principle to have Article N48 in the aeronautical chapter but he was prepared to go along with a compromise proposal. If it could not be deleted in its entirety, his delegation was prepared to support the Danish proposal provided that the first sentence was deleted. The other Danish proposal for a new paragraph 6A would bring the provisions of the aeronautical chapter into line with those of the maritime chapter.

1.39.5 The <u>delegate of the United Kingdom</u> said that he could support the first Danish proposal to delete the first sentence of Article N48, and could also support the Japanese proposal, turning the first sentence into a footnote. He fully endorsed the view of the Japanese delegation that a full order of priority should be retained, giving absolute priority to category 1 calls even in a fully automated system. There were certain contradictions at the lower end of the order of priority, but those should be resolved by a future conference competent to deal with Articles N48 and N58. It was not a good idea to specify only half an order of priority in the Radio Regulations on account of the safety aspects and the difficulties which an incomplete order would create for operators.

1.39.6 The <u>delegate of India</u> fully endorsed the need to retain a full order of priority in the Radio Regulations.

1.39.7 The <u>delegate of Canada</u> supported the retention of an order of priority and the modification contained in G/53A/218 in respect of Provision 8361.

1.39.8 The <u>delegate of France</u> fully supported the Danish proposal DNK/24/1, but was in favour of retaining a complete order of priority.

1.39.9 The <u>delegate of Denmark</u> said that he had been disturbed by the suggestion that a future conference might resolve the contradictions in the order of priority. The Danish proposal concerning paragraphs 7 - 10 were in strict conformity with the current CCITT Recommendations. The present Conference could follow those Recommendations if nothing else.

1.39.10 The <u>delegate of China</u> agreed that it was better to make definite provisions in the Radio Regulations concerning an order of priority. His delegation therefore proposed that the words "except where technically impracticable" should be inserted in the introductory paragraph of 8361. As far as paragraphs 1 - 6 were concerned, his delegation was in favour of no change, but was in favour of deleting paragraphs 7 - 10.

1.39.11 The <u>delegate of the United States of America</u> supported the retention of Article N58 in the Radio Regulations, including the paragraph prepared at the outset. Some of the comments, including that of the delegate of China, might be worked out by the proposed new drafting group.

1.39.12 The <u>delegate of Japan</u> said that the intention of his delegation's proposal for Article N62A was that the provision should apply to communications in the maritime mobile and satellite services. As far as Denmark's proposal to delete sub-paragraphs 8 and 9 were concerned, his delegation felt that it was not clear whether or not the present provision applied to all communications in the mobile service or only to public correspondence in that service. Provisions concerning an order of priority should apply to every kind of communication in the mobile services and he could therefore agree to the deletion of sub-paragraphs 8 and 9. 1.39.13 The <u>delegate of the USSR</u> asked whether the Committee's terms of reference enabled it to add to or remove anything from the existing text of the Radio Regulations.

1.39.14 The <u>Deputy Secretary-General</u> replied that the second part of the Committee's terms of reference authorized it to examine proposals based on CCITT studies which covered matters of significant substance. Replying to a question raised by the <u>delegate of Argentina</u>, he referred him to page 5 of Document No. 159 and drew attention to item 2.8 of the Conference agenda to consider proposals based on CCITT studies and to take appropriate decisions.

1.39.15 The <u>delegate of Norway</u> said that while some difficulties could be left to the drafting group, the Committee might consider the possibility of removing the order of priority of communications for each of the mobile chapters as they now appeared in the aeronautical, maritime and land mobile chapters and inserting them in Chapter NXIII with other articles, starting with the order of priority in one Article, followed by another on routing, accounting, charging, etc. Such charges could be covered by the Resolution proposed by France.

1.39.16 The <u>representative of the CCITT</u> emphasized that when the problem of the order of priority was considered by the drafting group, account should also be taken of Articles 25 and 26 of the Malaga Convention containing two basically different priorities : an absolute priority insofar as the safety of life at sea, on land, in the air and in outer-space was concerned, and the priority given to Government calls which "may be given priority upon specific request". The Japanese proposal was in line with the CCITT Recommendation in that it distinguished between category 1 and category 2 calls where priority might, but need not, be given.

1.39.17 The <u>Deputy Secretary-General</u> drew attention to No. 19 of the Telegraph Regulations dealing with the consequence of agreement between Administrations to grant special priority to telegrams sent by certain United Nations officials under the United Nations Charter. He also drew attention to the difference between paragraphs 7 and 8 of Article N48 for the aeronautical mobile service and 7 and 8 for the maritime mobile service resulting from the 1974 Conference which had arranged the introduction of priorities in the maritime mobile-satellite service but had not been competent to change the provisions for other mobile services. It had therefore adopted the equivalent of Article N58 covering the two maritime services, and for which it had brought up to date the terminology relating to the United Nations in paragraphs 7 and 8 in Article N58. Such United Nations terminology references could be considered also in the priorities for the other services.

1.39.18 The <u>Chairman</u> suggested that in view of the general agreement within the Committee, the problems concerning Articles N48, N58 and N66 could be left to a drafting group.

It was so agreed.

1.40 Appendices

1.40.1 The <u>Chairman</u> drew attention to the relevant proposals contained in Document No. DT/8 including the proposed Resolution ZA by the United Kingdom and a draft Recommendation (KOR/29/14) by the Republic of Korea.

1.40.2 The <u>delegate of the United Kingdom</u> said that the proposed Resolution was self-explanatory and a consequence of earlier CCITT work concerning change in procedure for ship station accounting, providing for certain changes to be abolished from 31 December 1987. The matter had been fully worked out by the CCITT in collaboration with the shipping services concerned.

1.40.3 The <u>Chairman</u> said that since there was no opposition, he took it that the Committee agreed in principle to drafting a Resolution on the lines of that proposed by the United Kingdom.

It was so agreed.

1.40.4 The <u>delegate of the Republic of Korea</u> asked the Committee to consider the content of the draft Recommendation, and whether the Conference was the right forum to deal with the type of question it contained. If the majority view was that it should be dealt with by the Plenipotentiary Conference, then his delegation was prepared to accept that view. 1.40.5 The <u>delegate of Japan</u> said that his delegation would agree to the principle of the the Recommendation proposed by the Republic of Korea, but felt that the matter should be addressed to some other organ such as the next Plenipotentiary Conference.

1.40.6 The <u>Deputy Secretary-General</u> wondered how far the Plenipotentiary Conference could deal with such a Recommendation without it having first been properly studied elsewhere. It would be more appropriate for the CCITT to examine it in the first instance and make the appropriate recommendations to the appropriate conference.

It was so <u>agreed</u>.

1.41 The <u>Chairman</u> suggested that the new Drafting Group to consider Articles, Appendices, draft Resolutions and Recommendations should consist of those delegates wishing to participate, with Mr. Fulton as Convenor. It was to be hoped that the group would be in a position to present a coordinated proposal on the issues submitted to it at the next meeting of Committee 8.

1.42 The <u>delegate of Ireland</u> said that in view of the fact that his delegation was unable to attend all Committee and Working Group meetings, he wished it to be known that as far as the CCITT items were concerned, his delegation supported the United Kingdom proposals and in principle supported those of other Administrations. Where the United Kingdom proposals went further than those of the CCITT, his delegation was prepared to support them.

The meeting rose at 1225 hours.

The Secretary :

J. PELEGRI

The Chairman :

O. LUNDBERG

INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 435-E 31 October 1979 Original : English

COMMITTEE 5

State of Israel

PROPOSALS FOR THE WORK OF THE CONFERENCE

ISR/435/23 ADD 3585A Additional allocation : In Israel, the band 138 - 144 MHz is also allocated to the maritime mobile and land mobile services on a primary basis.

Reasons : Expanding requirements of those services.

3788/405BT 3788/405BD (the rest unchanged)

ISR/344/21 (Corr.1)

ISR/435/24

MOD 3627/313

Add ISR to the note

<u>Reasons</u> : Expanding requirements of those services.



WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 436(Rev.1)-E 6 November 1979 Original : French

WORKING GROUP 5E

REPORT BY SUB-WORKING GROUP 5E8 TO WORKING GROUP 5E

1. At its meeting on Wednesday, 31 October 1979, which was attended by representatives of the Federal Republic of Germany, Australia, the United States of America, France, Japan, the United Kingdom and the USSR, Sub-Working Group 5E8 considered the proposals relating to the frequency bands above 275 GHz, including the optical bands.

2. After examining the conclusions of Sub-Working Group 5El (Document No. 414), the Sub-Working Group decided to recommend that no allocations be made to any services for frequency bands above 275 GHz. However, since the band up to 400 GHz may be used for experimentation with, and development of, various active and passive services, an appropriate footnote was included for the frequency band 275 - 400 GHz.

(Hz	S
275	_	400

Region 1	Region 2	Region 3
275 - 400	Not allocated	
	3816P	

ADD 3816P

The frequency band 275 GHz - 400 GHz may be used by Administrations for experimentation with, and development of, various active and passive services. In this band a need has been identified for the following spectral line measurements for passive services :

- radio astronomy service : 278 - 280 GHz and 343 - 348 GHz;

- Earth exploration-satellite service (passive) and space research service (passive) : 275 - 277 GHz, 300 - 302 GHz, 324 - 326 GHz, 345 - 347 GHz, 363 - 365 GHz and 379 - 381 GHz.

Future research in this largely unexplored spectral region may yield additional spectral lines and continuum bands of interest to the passive services. Administrations are urged to take all practicable steps to protect these passive services from harmful interference until the next appropriate World Administrative Radio Conference.

> L. BOURGEAT Chairman of Sub-Working Group 5E8



WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 436-E 31 October 1979 Original : French

WORKING GROUP 5E

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2. After examining the conclusions of Sub-Working Group 5El (Document No. 414), the Sub-Working Group decided to make the following proposals :

GHz 275 - 400

Region 1	Region 2	Region 3
275 - 400	Not allocated	
	3816P	

<u>Note</u> : The World Administrative Radio Conference, 1979, took action on frequencies up to 400 GHz. Above 400 GHz, no action was taken.

ADD 3816P

The frequency band 275 GHz - 400 GHz is being used by Administrations for experimentation with and development of various active and passive services. In this band a need has been identified for the following spectral line measurements for passive services :

- radio astronomy service : 278 - 280 GHz and 343 - 348 GHz

- Earth exploration-satellite service (passive) and space research service (passive) : 275 - 277 GHz, 300 - 302 GHz, 324 - 326 GHz, 345 - 347 GHz, 363 - 365 GHz and 379 - 381 GHz.

Future research (theoretical and experimental) in this largely unexplored spectral region may yield additional spectral lines and continuum bands of interest to the passive services. Administrations are urged to take all practicable steps to protect these passive measurements from harmful interference.

> L. BOURGEAT Chairman of Sub-Working Group 5E8


WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

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COMMITTEE 5

USA

INFORMATION PAPER CONCERNING REMOTE SENSING FREQUENCY ALLOCATIONS FOR SPACEBORNE PASSIVE MICROWAVE SENSORS

1. Introduction

Today, every nation faces critical problems in managing its natural resources and protecting the quality of its environment.

Supplies of energy, food and water must be nurtured and developed, land must be cultivated and protected, and the effects of natural disasters must be minimized.

The increasing demands on resources are international problems, from which no nation is immune. They cannot be solved alone by any country.

Fortunately, the technological tools we need to help solve many of these problems are being developed.

Today, all nations can benefit from technical innovations that help them understand and evaluate climate, weather, ocean effects and resources, land structure, geographical and geological characteristics and other scientific data important to environmental quality.

Since the 1950s, when scientists began experimenting with satellite-based electro-optical scanners, spaceborne sensing equipment has developed into an effective tool for exploring and understanding our planet.

At the present time, satellites regularly provide many nations with significant data concerning : land use, pollution control, agriculture, climate study, natural disaster assessment and relief, topography, marine safety, ocean effects and resources, and mineral development.

2. Experience of remote sensing

Over one hundred nations have used data from US Earth exploration satellites.

In the Sudan, for example, LANDSAT data has provided an incisive overview of land and water resources along the path of the proposed Jonglei Canal.

Computer-generated mosaics of LANDSAT data have helped the Joint Nile Commission estimate the environmental impact of the proposed canal, and locate the areas best suited for irrigated agriculture.

From satellite data collected by Brazil's Earth station, Bolivia has developed its first comprehensive land use map.

This map - which would have taken almost twenty years to complete by conventional techniques - has already saved Bolivia an estimated twelve million dollars by providing information for routing a gas pipeline through the country.



Document No. 437-E Page 2

Throughout the world, weather satellites are providing data for storm tracking and weather reporting to over one hundred countries that need current weather reports and long-term climate analysis.

Satellites bearing electro-optical scanners have assisted all these projects by providing data that can be practically gathered in no other way.

3. Microwave sensor development

Now, a new generation of satellites using active and passive microwave sensors is significantly expanding our ability to explore our planet in ways never before possible.

Unlike the older electro-optical scanners, microwave sensors operate day and night, through almost all weather conditions.

. Their sensing capabilities extend beyond the visible and infrared frequencies of the electromagnetic spectrum to a much broader range.

Passive microwave sensors are basically receivers, monitoring the electromagnetic energy emitted by all matter.

Atmospheric measurements - watervapour, liquid water, temperature, pollutants - can be accurately gathered by passive sensors.

On land and ocean surfaces, passive sensors can help determine soil moisture, sea state, surface temperature, salinity, rain, snow, and environmental pollutants.

4. Frequency requirements

Passive sensors impose certain frequency requirements for effective operation.

All substances emit electro-magnetic energy in accordance with their own characteristics. Since passive sensors measure the microwaves emitted or absorbed by the study subject, passive sensors must receive at frequencies dictated by the laws of physics which govern microwave emissions.

5. Atmospheric measurements

Passive sensors can monitor atmospheric gases only at certain discrete frequencies because the gases emit and absorb microwaves only at those resonance frequencies.

Oxygen - which indicates atmospheric temperature - water vapour, nitrous oxide : each emits and absorbs microwave energy only within a narrow range of specific frequencies based on its individual physical properties.

6. Surface measurements

Surface measurements by passive sensors are not as tightly constrained, since land and water surfaces emit and absorb signals over a broader range of frequencies than atmospheric gases.

However, because surface phenomena generate different microwave levels at different frequencies, and because, at each frequency, passive sensors detect the total energy reaching the sensors, which includes overlapping signals from several phenomena, passive sensing of the Earth's surface depends upon simultaneous measurements at several frequencies to measure any single phenomenon.

At any frequency, the number of overlapping phenonmena determines the number of simultaneous multi-frequency measurements needed to find the value of any one of those phenomena. If three phenomena emit and absorb in the same frequency range, three measurements, producing three equations with three unknowns, are needed.

For example (see Figure 1), to measure sea surface temperature between 4 and 6 GHz, where its signal is brightest, requires three measurements : near 4, 10, and 18 GHz. Then, the three measurements must be analyzed to isolate the sea surface temperature from signal components from rain and wind speed, which also contribute to the total signal in the 4 to 6 GHz band.

7. Allocation and protection needs

The frequency requirements for remote microwave sensing must be satisfied if we are to continue its development and apply its full capabilities to the global problems we now face.

Unfortunately, the growth of land- and satellite-based communications has already begun to affect the efficiency of these measuring devices.

Unless specific steps are taken to protect the frequencies at which sensors operate, their usefulness to all nations may be lost entirely.

Lack of key frequency allocations may prevent effective monitoring of : rain rate; sea surface winds; sea surface temperature; moisture content of land, ice and snow; water vapour; liquid water, and sea ice concentration.

For these reasons, the United States is proposing frequency allocations for spaceborne microwave sensors. Frequency bands proposed for atmospheric measurements by passive sensors correspond to frequencies at which specific atmospheric components can be measured. These bands are contained in Table 1.

Similarly, allocations are proposed for land and ocean surface measurements by passive sensors. The proposed bands are contained in Table 2. These allocations will allow the simultaneous measurements of surface characteristics required by passive sensors.

All of the frequencies proposed to protect scientific measurement have been selected after a careful analysis to insure reasonable sharing of the communications frequency spectrum while recognizing the natural physical laws which govern remote microwave sensing.

Unless these frequencies are protected, the expansion of satellite- and land-based communications stations may make the continued development of microwave sensing, and its use in conjunction with global Earth resource programs such as the LANDSAT program, impossible.

8. Conclusion

Our ability to gather and analyze information determines how well the world community deals with the challenges of our natural environment - now and in the future.

Today, many nations are using information from LANDSAT and other satellite programs to meet those challenges.

In the future, more nations will need more and increasingly complex data ... data that satellites equipped with remote microwave sensing can help provide.

Allocation of the needed frequencies will enable countries around the world to share in the benefits remote microwave sensing can offer.



Document Page 4

No

437-Е

TABLE 1

Passive remote sensing for atmospheric measurements

Frequency	(GHz)	Principal measurement
21.2-21.4 22.21-22.5 23.6-24.0		Water Vapour, Liquid Water
50.2-50.4 51.4-59 64-65		Atmospheric Temperature
105-126		Ozone, Carbon Monoxide, Atmospheric Temperature, Nitrous oxide
200-201.5 225-227 275-277	100-102 150-151 250-252	Nitrous oxide
174.5-176.5		
164-168		Chlorine Oxide
182-185		Water Vapour, Ozone
229-240		Carbon Monoxide, Ozone

TABLE 2

Passive remote sensing f	or terrestrial measurements
Frequency (GHz)	Principal measurements
1.40-1.427	Soil Moisture, Salinity
2.64-2.70	Salinity
4.2-4.4	Sea Surface Temperature
6.425-7.125	Sea Surface Temperature
10.6-10.7	Rain, Snow, Ice, Sea State
15.3-15.4	Water Vapour, Rain
18.6-18.8	Sea State, Rain, Ice
31.3-31.8	Ice, Water Vapour, Oil Spills, Clouds, Liquid Water
36-37	Rain, Snow, Ice, Oil Spills, Clouds
86-92	Clouds, Oil Spills, Ice, Snow

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 438-E 31 October 1979 Original : English

PLENARY MEETING

FIRST REPORT OF COMMITTEE 7

(GENERAL ADMINISTRATION)

Committee 7 has had eight meetings to date. In the course of discussions on the proposals and documents allocated to Committee 7 in accordance with its terms of reference, the following decisions were taken :

1. Article N21

1.1 The revision of the text of Article N21 was adopted unanimously.

2. Article N22

2.1 A discussion on the different points of view was held on the use of the terms "Administration" or "government", with some delegations stating that the term "Administration" might be the better term according to its definition in Annex 2 of the Convetion, with other delegations stating that problems could arise from the use of the word "Administration" under their own national legislation; in particular, the delegates of Iraq, Liberia, Qatar and the USSR stated that the matter might have to be dealt with at the Plenary Meeting.

2.2 The attention of Committee 9 is drawn to the use of the words "agreement" and "arrangement" (see Document No. 236).

2.3 The revision of the texts of Article N22 was adopted.

3. Article N30

3.1 The revision of the texts of Article N30 was adopted, with the exception of Provision 6362 which was left pending a decision by Committee 4 on the terms "harmful interference" and "permissible interference".

3.2 The addition of the word "radio" in the texts and the title relating to the amateur service and the amateur-satellite service was approved in Committee 7, but left in square brackets as there seems to be a difference of opinion with another Committee.

4. <u>Article N31</u>

4.1 The revision of the texts of Article N31 was approved.

4.2 With respect to Provision 6389, the delegate of Cuba reserved the right to raise this question at the Plenary Meeting.

5. Article N32

5.1 The revision of the texts of Article N32 was adopted, with the exception of Provision 6427 which was left pending a decision by Committee 4 on the terms "harmful interference" and "permissible interference".

5.2 With respect to Provision 6422, some delegates reserved the right to raise this question at the Plenary Meeting.



6. <u>Article N33</u>

6.1 The texts of Sections I, III and IVA were adopted unanimously; the title and Section II were deferred pending advice from the Committee dealing with the relevant terms and definitions.

7. The revised texts as <u>adopted</u> by Committee 7 have been submitted to the Editorial Committee for subsequent submission to the Plenary Meeting (see Document No. 439).

H.L. VENHAUS Vice-Chairman of Committee 7

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 439-E 2 November 1979 Original : English

COMMITTEE 9

FIRST SERIES OF TEXTS FROM COMMITTEE 7 TO THE EDITORIAL COMMITTEE

The texts mentioned in Document No. 438 are hereby submitted to the Editorial Committee.

H.L. VENHAUS Vice-Chairman of Committee 7

Annex : 1



ANNEX

CHAPTER NVI

Administrative Provisions for Stations

ARTICLE N21/17

Secrecy

			(the)		
MOD	5193	722	Convention, The and prevent:	In the application of the appropriate provisions of administrations bind themselves to take the necessary measures to prohibit	the
NOC	5194	723	a)	the unauthorized interception of radiocommunications not intended for the general use of the public;	
NOC	5195	724	b)	the divulgence of the contents, simple disclosure of the existence, publication or any use whatever, without authorization of information of any nature whatever obtained by the interception of the radiocommunications mentioned in No. 5194/723.	
	5196 to 5220		NOT allocated	1.	

ARTICLE N22/18

Licences

MOD

5221 725

5222 726

§ 1. (1) No transmitting station may be established or operated by a private person or by any enterprise without a licence issued by the government of the country to which the station in question is subject. (However, see Nos. 5222/726 and 5228/732.) in an appropriate form and in conformity with the provisions of these Regulations

administration

MOD

more

(2) However, the government of a country may conclude with the government of mone or neighbouring country a special agreement concerning one or several stations of its (countries) broadcasting service or of its land mobile services, operating on frequencies above 41 MHz, situated in the territory of the neighbouring country and intended to improve national coverage. This agreement, which shall be compatible with the provisions of the present Regulations as well as of those regional agreements to which the countries concerned are signatories, may allow exceptions to the provisions of No. 5221/725 and shall be communicated to the Secretary-General in order that it may be brought to the notice of administrations for their information.

			Annex to Document No. 439-E
			Page 3
NOC	5223	727	(3) Mobile stations which are registered in a territory or group of territories which does not have full responsibility for its international relations may be considered, in so far as the issue of licences is concerned, as subject to the authority of that territory or group of territories.
MOD	5224	728	\$ 2. The holder of a licence is required to preserve the secrecy of telecommunications, as provided in Article 22 of the Convention. Moreover, the licence shall provide, specifically or by reference, that if the station includes a receiver, the interception of radiocommunication correspondence, other than that which the station is authorized to receive, is forbidden, and that in the case where such correspondence is involuntarily received, it shall not be reproduced, nor communicated to third parties, nor used for any purpose, and even its existence shall not be disclosed.
MOD	5225	729	§ 3. To facilitate the verification of licences issued to mobile stations, there shall be added, when necessary, to the text written in the national language, a translation of the text in one of a language widely-used in international relations. the Union's working languages.
MOD	5226	730	(administration) § 4. (1) The government which issues a licence to a mobile station shall mention therein in clear form the particulars of the station, including its name, call sign and public correspon- dence category, as well as the general characteristics of the installation. , where appropriate, the
MOD	5227	731	 including stations consisting only of one or more receivers, (2) For land mobile stations a clause shall be included in the licence, specifically or by reference, under which the operation of these stations shall be forbidden in countries other than the country which has issued the licence, except as may be provided by special agreement between the governments of the countries concerned. in
NOC 5228	732	§ is ad flig sta the val air	5. (1) In the case of a new registration of a ship or aircraft in circumstances where delay likely to occur in the issue of a licence by the country in which it will be registered, the ministration of the country from which the mobile station wishes to make its voyage or ght may, at the request of the operating company, issue a certificate to the effect that the tion complies with these Regulations. This certificate, drawn up in a form determined by e issuing administration, shall give the particulars mentioned in No. 5226 /730 and shall be identified only for the voyage or flight to the country in which the registration of the ship or craft will be effected, or for a period of three months, whichever is the lesser.

ADD 5228A

(2) In the case of hire, lease or interchange of aircraft, the administration having authority over the aircraft operator receiving an aircraft under such an /arrangement/ may, by /agreement/ with the administration of the country in which the aircraft is registered, issue a licence in conformity with that specified in 5226/730 as a temporary substitute for the original licence.

Annex	to Docume	nt No. <u>439-E</u>	
Page 4			
(MOD) 522	.9 733	(3)-(2) The administration issuing the certificate shall inform the administration responsible for issuing the licence of the action taken.	
(MOD) 523	0 734	(4) - (3) The holder of the certificate shall comply/with the provisions of these Regulations applicable to licence-holders.	
523 to 53 3	31 80	NOT allocated.	
		ARTICLE N30/41	
[(MOD)]		[Radio] [Radio] Amateur Service and VAmateur-Satellite Service	
(MOD)		[Radio] Section I. VAmateur Service	
(MOD)	6354	[radio] 1560 § 1. Radiocommunications between Tamateur stations of different countries shall be forbidden if the administration of one of the countries concerned has notified that it objects to such radiocommunications.	
MOD	6355	1561 § 2. (1) When transmissions between amateur stations of different countries are permitted, they shall be made in plain language and shall be limited to messages of a technical nature relating to tests and to remarks of a personal character for which, by reason of their unimportance, recourse to the public telecommunications service is not justified. It is absolutely forbidden for amateur stations to be used for transmitting-international communi- actions on babel of third parties.	
ADD	6355	A (2) \angle absolutely forbidden for amateur stations to be used for transmitting international communications on behalf of third parties.	5
(MOD)	6356	562 (2) The preceding provisions may be modified by special [arrangements] between the administrations of the countries concerned.	
MOD	6357	1563 § 3. (1) Any person operating the apparatus of an amateur station shall have proved that he is able to send correctly by hand and to receive correctly by ear, texts in Morse code signals. Administrations concerned may, however, waive this requirement in the case of stations making use exclusively of frequencies above \$44 MHz.	
MOD	6358 operatio	1564 (2) Administrations shall take such measures as they judge necessary to verify the and technical qualifications of any person operating the apparatus of an amateur station. (wishing to operate) [radio]	
[(mod)]	6359	[radio] 1565 § 4. The maximum power of lamateur stations shall be fixed by the administrations concerned, having regard to the technical qualifications of the operators and to the conditions under which these stations are to work.	

.] (MOD)

6360 1566 § 5. (1) All the general rules of the Convention and of these Regulations shall apply to [radio] amateur stations. In particular, the emitted frequency shall be as stable and as free from spurious emissions as the state of technical development for such stations permits.

(MOD) 6361 1567

(2) During the course of their transmission amateur stations shall transmit their call sign at short intervals.

(MOD)

[Radio] Section II. VAmateur-Satellite Service

ADD 6361A

(1) The provisions of Section I of this Article shall apply as appropriate, equally to the [radio] amateur-satellite service.

6362 1567A (PENDING) Spa2

\$6.

6363 to NOT allocated. 6388

Note to Editorial Committee :

ARTICLE N31

Standard Frequency Service- and Time Signals Service MOD providing or intending to provide dservice) MOD 6389 1623 (1) To facilitate more efficient use of the radio frequency spectrum and to assist other § 1. technical and scientific activities, administrations should -and avoir to provide, -on - a eo ordinated world wide basis, a sorvice of standard frequency and time signal transmissions Attention should be given to the extension of this service to those areas of the world not adequately served. shall co-ordinate , in accordance with the provisions of this Article, the establishment and operation of such service on a world-wide basis (MOD) 6390 1624 (2) To this end, each administration shall take steps to co-ordinate, with the assistance of the International Frequency Registration Board, any new standard frequency or time signal transmission or any change in existing transmissions in the standard frequency bands. For this purpose, administrations shall exchange between themselves, and furnish to the Board, all relevant information. On this matter the Board shall consult the Director of the C.C.I.R. who shall also continue to seek the advice and co-operation of the International Time Bureau (B.I.H.), the International Scientific Radio Union (U.R.S.I.) and other international organizations having a direct and substantial interest in the subject. (MOD) NOC 6391 1625 Concerns French text only. NOC 639**2** 1626 to 6393 1627 (MOD) 6394 - 1628 8 4. In selecting the technical characteristics of standard frequency and time signal transmissions, administrations shall be guided by the relevant C.C.I.R. Recommendations. 6395 NOT allocated. to 6419

Note to Editorial Committee :

ARTICLE N32/42

Experimental Stations

NOC

	6428 to 6452		NOT allocated.
	6427	1575	(PENDING)
MOD	6426	1574	(2) During the course of their transmissions experimental stations shall transmit, at short intervals, their call sign, or, in the case of stations not yet provided with a call sign, then name. or other identification in a recognized form (see Article N23). (any)
MOD	6425	1573	§ 4. (1) All the general rules of the Convention, and of these Regulations, shall apply to experimental stations. In particular, experimental stations shall comply with the technical conditions imposed upon transmitters operating in the same frequency bands, except where the technical principles of the experiments prevent this. In such ⁴ case, the administration which authorizes the operation of these stations may grant a dispensation in an appropriate form.
MOD	6424	1572	§ 3. The administrations concerned shall fix the maximum power of experimental stations, having regard to the purpose for which their establishment has been authorized and the conditions under which they are to work- operate.
MOD	6423	1571	(2) Administrations shall take such steps as they think necessary to verify the qualifications, from the technical point of view, of any person operating the apparatus of an experimental station.
NOC	6422	1570	(MOD) Concerns Spanish text only.
(MOD)	6421	1569	(2) The administrations concerned determine by special [arrangement] the conditions under which communications may be established.
NOC -	6420	1568	§ 1. (1) An experimental station may enter into communication with an experimental station of another country only after it has been authorized to do so by its administration. Each administration shall notify other administrations concerned when such authorizations are issued.

Note to Editorial Committee :

ARTICLE N33

Title	(PENDING)	
NOC		Section I. General Provisions
(MOD)	6453 1576	§ 1. Administrations which have established a radiodetermination service shall take the necessary steps to ensure the effectiveness and regularity of that service; however they accept no responsibility for the consequences that might arise from the use of inaccurate information furnished, defective working, or failure of their stations.
(MOD)	6454 1577	§ 2. In the case of doubtful or unreliable observations, the station taking the bearing or fixing the position shall, whenever possible, notify the station for which the information is being obtained of any such doubt or unreliability. given
[(MOD)]	6455 1578	§ 3. Administrations shall notify to the Secretary-General the characteristics of each radiodetermination station providing an international service of value to the maritime mobile service and, if considered necessary, for each station or group of stations, the sectors in which the information furnished is normally reliable. This information is published in the List of Radiodetermination and Special Service Stations, and the Secretary-General shall be notified of any change of a permanent nature.
(MOD)	6456 1579	§ 4. The method of identification of radiodetermination stations shall be so chosen as to avoid any doubt as to their identity.
(MOD)	6457 1580	§ 5. Signals sent by [radiodetermination] stations shall be such as to permit accurate and precise measurements.
(MOD)	6458 1581	§ 6. Any information concerning modification or irregularity of working of a [radiodetermination] station shall be notified without delay in the following manner:
[(MOD)]	6459 1582	a) Land stations of countries operating a radiodetermination service shall send out daily, if necessary, notices of modifications or irregularities in working until such time as normal working is restored or, if a permanent alteration has been made, until such time as it can reasonably be taken that all navigators interested have been warned.
NOC	6460 1583	b) Permanent alterations or irregularities of long duration shall be published as soon as possible in the relevant notices to navigators.
SUP	6461 1584	

¢

Section II. (PENDING)

6462 1584A (PENDING) Mar2

NOC

Section III. Radio Direction-Finding Stations

Noc 6463 1585 to 6465 1587

(MOD) 6466 1588 § 11. In the absence of prior arrangements, an aircraft station which calls a radio direction finding station for a bearing shall use for this purpose a frequency on which the station called normally keeps watch.

Section IV.

a)

A.

[MOD)]6467 1589

§ 12. In the aeronautical radionavigation service, the procedure contemplated for radio direction-finding in this section is applicable, except where special procedures are in force as a result of [arrangements] concluded between the administrations concerned.

NOC

NOC

NOC 6468

1590 § 13. When an administration thinks it desirable in the interests of navigation to organize a service of radiobeacon stations, it may use for this purpose:

have either directional or non-directional patterns:

General

Radiobeacon Stations

(MOD) 6470 1591

6469

NOC 6471 1592

b) fixed stations, coast stations or aeronautical stations designated to function as radiobeacons, at the request of mobile stations.

radiobeacons properly so called, established on land or on ships permanently moored or, exceptionally, on ships navigating in a restricted area, the limits of which are known and published. The emissions of these radiobeacons may

NOC 6472 1593 to 6474 1595

Note to Editorial Committee :

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 440-E 1 November 1979 Original : French English Spanish

COMMITTEE 6

SECOND REPORT OF WORKING GROUP 6A

Working Group 6A has considered the proposals submitted relating to Article N11. The results of the Working Group's consideration of these proposals are shown in the <u>Annex</u>. Working Group 6A requests Drafting Group 6R to study the possibility of reviewing the wording of No. 4124/639AO with a view to combining in one sentence the two alternatives of agreement or disagreement between Administrations.

> J.K. BJÖRNSJÖ Chairman of Working Group 6A



Annex : 1

ANNEX

ARTICLE NII

Co-ordination of Frequency Assignments to Stations in a Space Radiocommunication Service except Stations in the Broadcasting-Satellite Service and to Appropriate Terrestrial Stations

MOD

NOC

Section I. Procedures for the Advance Publication of Information on Planned Satellite-Systems (Networks 1)

NOC

4099

Publication of Information

ADD

¹ These procedures may be applicable to stations on satellite launching vehicles.



4100 639AA Spa2 § 1. (1) An administration (or one acting on behalf of a group of named administrations) which intends to establish a satellite system shall, prior to the co-ordination procedure in accordance with No. 4114/639AJ where applicable, send to the International Frequency Registration Board not earlier than five years before the date of bringing into service each satellite network of the planned system, the information listed in Appendix IB.

end preferably not later than two years

(<u>Note</u>: Examination of an additional sentence (proposal F/57A/638) deferred until examination of 4625/639CY)

NOC

MOD

4101 639AB Spa2 (2) Any amendments to the information sent concerning a planned satellite system in accordance with No. 4100/639AA shall also be sent to the Board as soon as they become available

Spa2

MOD 4102 639AC

(3) The Board shall publish the information sent under Nos. 4100/639AA and 4101/639AB in a special section of its weekly circular and shall also, when the weekly circular contains such information, so advise all administrations by circular telegram.

The circular telegram shall include the frequency bands to be utilized and, in the case of a geostationary satellite, the orbital location of the space station.

4102A ADD

(4) If the information is found to be incomplete, the Board shall publish it under No. 4102/639AC and immediately seek any clarification and information not provided from the Administration concerned. In such cases, the period of four months specified in No. 4104/639AD shall count from the date of publication under No. 4102/639AC of the complete information.

4103 NOC

Comments on Published Information

MOD

4104 639AD

Spa2

§2 If, after studying the information published under No. 4102/639AC any administration is of the opinion that interference, which may be unacceptable, may be caused to its existing or planned space radiocommunication services, it shall within minepudays after the date of the weekly circular publishing the information listed in Appendix IB. send its comments to the administration concerned. A copy of these comments shall also be sent to the Board. If no such comments are received from an administration within the period mentioned above, it may be assumed that that administration has no basic objections to the planned satellite network(s) of that system on which details have been published.

four months

complet

Annex to Document No. 440-E Page 5

Resolution of Difficulties 4105

(1)

MOD

NOC

4106 639AE Spa2

(8) An administration receiving comments sent in accordance with No. 4104/639AD §3 shall endeavour to resolve any difficulties that may arise

and provide any additional information which may be available.

4107 639AF	(2) (6) In case of difficulties arising when any planned satellite network of a system is
Spa2	intended to use the geostationary satellite orbit:
	a) the administration responsible for the planned system shall first explore all possible means of meeting its requirements, taking into account the
	characteristics of the geostationary satellite networks of other systems, and without considering the possibility of adjustment to systems of other administrations. If no such means can be found, the administration
	concerned is then free to apply to other administrations concerned to solve these difficulties:
	b) an administration receiving a request under a) above shall, in consultation with the requesting administration, explore all possible means of meeting the requirements of the requesting administration, for example, by relocating one or more of its own geostationary space stations involved, or by changing the emissions, frequency usage (including changes in frequency bands) or other
	technical or operational characteristics:
	c) if after following the procedure outlined in a) and b) above there are unresolved difficulties, the administrations concerned shall together make
	every possible effort to resolve these difficulties by means of mutually
· · ·	acceptable adjustments, for example, to geostationary space station locations and to other characteristics of the systems involved in order to provide for
	the normal operation of both the planned and existing systems.

Annex to Document No. 440-E Page 6

NOC 4108 639AG (3) NOC 4108 639AG (3) Spa2 seek the assistance of the Board.

NOC 4109

Results of Advance Publication

MOD 4110 639AI

Spa2

four months

§4 (8) An administration on behalf of which details of planned satellite networks in its system have been published, in accordance with the provisions of Nos. 4100/639AA to 4102/639AC, shall, after the period of and hundred and twenty days specified in No. 4104/639AD, inform the Board whether or not comments envisioned by the provisions of No. 4104/639AD have been received and of the progress made in resolving any difficulties. Additional information on the progress made in resolving any remaining difficulties shall be sent to the Board at intervals not exceeding /six months/ prior to the commencement of co-ordination or the sending of the notices to the Board. The Board shall publish this information in a special section of its weekly circular and shall also, when the weekly circular contains such information, so inform all administrations by circular telegram.

NOC 4111

Commencement of Co-ordination or Notification Procedures

MOD 4112 639AH Spa2

five months

^{§5} (9) In complying with the provisions of Nos. 4106/639AE to 4108/639AG, an administration responsible for a planned satellite system shall, if necessary, defer its commencement of the co-ordination procedure, or where this is not applicable, the sending of its notices to the Board, until one-hundred and fifty days after the date of the weekly circular containing the information listed in Appendix 1B on the relevant satellite network. However, in respect of those administrations with whom difficulties have been resolved or who have responded favourably, the co-ordination procedure, where applicable, may be commenced prior to the expiry of the one hundred and fifty days mentioned above.

NOC

Section II. Co-ordination of Frequency Assignments to a Space Station on a Geostationary Satellite or an Earth Station Communicating with such a Space Station in Relation to Stations of Other Geostationary Satellite Networks

NOC 4113

Requirement for Co-ordination

MOD 4114 639AJ Spa2 (1) Solutions Before an Administration (or, in the case of a space station, one acting on behalf of a group of named Administrations) notifies to the Board or brings into use any frequency assignment to a space station on a geostationary satellite or to an earth station that is to communicate with a space station on a geostationary satellite, it shall, except in the cases described in No. 4115/639AK, effect coordination of the assignment for a space station on a geostationary satellite or for an earth station that communicate with a space station whose assignment for a space station on a geostationary satellite or for an earth station that communicates with a space station on a geostationary satellite.

(might be affected.

Annex to Document No. 440-E Page 8

ADD 4114A

(2) Frequency assignments to which the provisions of No. 4114/639AJ are applicable are those :

- in the same frequency band / 1 / as the planned assignment, and
- in conformity with No. 4587/639BM, and
- recorded in the Master Register, or coordinated under the provisions of this section, or
- to be taken into account for coordination with effect from the date of receipt by the Board in accordance with No. 4118/639AL, of the relevant information as annotated in Appendix 1A, or
- notified to the Board without any coordination in those cases where No. 4115/639AK applies.

4115 639AK

Spa2

(3)

`a)

(2) No co-ordination under No. 4114/639AJ is required:

or a modification to a frequency assignment; when the use of a new frequency assignment will cause, to any service of another administration, an increase in the noise temperature of any space station receiver or earth station receiver, or an increase in the equivalent satellite link noise temperature, as appropriate, not exceeding the predetermined increase of noise temperature calculated in accordance with the method given in Appendix 29; 7

(<u>Note</u>: Examination deferred until decision by Committee 4 on definite limits in Appendix 29.)

/ ADD 4114A.1

MOD

(<u>Note</u> : Examination deferred until definition of the "same band" is adopted by Committee 4.) / MOD

b) when the $\underline{/}$ increase in the noise temperature $\overline{/}$ / level of interference / resulting from a modification to a frequency assignment, which has previously been coordinated, will not exceed the value agreed during coordination;

ADD

c) when an Administration proposes to notify or bring into use a new Earth station within the service area of an existing satellite network, provided that the characteristics of the Earth station will not cause interference of a level greater than that caused by an Earth station having the characteristics published together with the information concerning the space station in accordance with No. 4118D;

ADD

d) when, for a new frequency assignment to a receiving station, the notifying Administration states that it accepts the / level of / interference resulting from the frequency assignments listed in No. 4114A;

ADD

e) between Earth stations using frequency assignments in the same direction (either Earth-to-space or space-to-Earth).

4116 NOC

Co-ordination Data

MOD 4117/639AJ

§7 (1) For the purpose of effecting coordination, the Administration requesting coordination shall send to any other Administration concerned under No. 4114/639AJ all the information listed in Appendix 1A required for the coordination. The request concerning coordination of a space station or an associated Earth station may specify all or some of the frequency assignments expected to be used by that space station, but thereafter each assignment shall be dealt with individually.

MOD 4118 639AL Spa2 An (administration / initiating the co-ordination procedure referred to in No. 4114/639AJ shall at the same time send to the Board a copy of the request for co-ordination, with the information listed in Appendix IA and the name(s) of the administration(s) with which co-ordination is sought The Board shall publish this information in special section of its weekly circular, together with a reference to the weekly circular in which details of the satellite system were published in accordance with Section I of this Article. When the weekly circular contains such information, the Board shall so inform all administrations by circular telegram.

requesting

(required for coordination, including

. all

(2)The

An Administration believing that the provisions of No. 4115/639AK apply to its planned assignment may send to the Board the relevant information listed in Appendix 1A /, either under this provision or in accordance with No. 4575/639BA. In the latter case, the Board shall immediately inform all Administrations by circular telegram. $\overline{/}$.

(<u>Note</u> : This additional sentence may be reviewed after examination of No. 4575/639BA)

ADD 4118A §8 Upon receipt of the information referred to in No. 4118/639AL, the Board shall :

ADD 4118B a) immediately examine this information with respect to its conformity with No. 4587/639BM and, as soon as possible, send a telegram to all Administrations indicating the identity of the satellite network, its findings with respect to No. 4587/639BM and the date of receipt of the information; this date shall be considered as the date from which the assignment will be taken into account for coordination;

ADD 4118C b) examine the information received with a view to identifying Administrations whose services might be affected, in accordance with No. 4114/639AJ and inform the Administrations concerned by telegram;

ADD 4118D c) publish in a special section of its weekly circular the information received under No. 4118/639AL and the result of the examination under Nos. 4118B and 4118C, together with a reference to the weekly circular in which details of the satellite network were published in accordance with Section I of this Article; when the weekly circular contains such information, the Board shall so inform all Administrations by circular telegram.

NOC 4119 Requests for Inclusion in Co-ordination Procedure

MOD 4120 639AM \$9 157 An administration believing that it should have been included in the co-ordination spa2 procedure under No. 4114/639AJ shall have the right to request that it be brought into the co-ordination procedure.

Such a request shall be sent to the Administration initiating the coordination procedure, with a copy to the Board, as soon as possible. An Administration not having sent a request under this provision within a period of four months after the date of the weekly circular publishing the information under No. 4118/639AL shall be deemed to have no objection to the use of the frequency assignment as published.7

NOC 4121

Acknowledgement of Receipt of Co-ordination Data

MOD 4122 639AO Spa2

 ξ_{10} for administration with which co-ordination is sought under No. 4114/639AJ shall acknowledge receipt of the co-ordination data immediately by telegram. If no acknowledgement is received within/thirty days after the date of the weekly circular publishing the information under No. \$118/639AL, the administration seeking co-ordination shall dispatch a telegram requesting acknowledgement, to which the receiving administration shall reply within a further period of thirty days. Upon receipt of the co-ordination data, an administration shall, having regard to the proposed date of bringing into use of the assignment for which co-ordination was requested, promptly examine the matter with regard to interference which would be caused to the service rendered by its stations in respect of which co-ordination is sought under No. 639AJ; and shall, within ninety days from the date of the relevant weekly circular, notify the administration requesting co ordination of its agreement. If the administration with which co-ordination is sought does not agree, it shalk, within the same period, send to the administration seeking co ordination the technical details upon which its disagreemont is based, and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem. A copy of these comments shall also be sent to the Board.

fifteen

(then

four months

NOC 4123

Examination of Co-ordination Data and Agreement between Administrations

MOD

§11 (2) Am-edministration with which an ordination is sought under No. 639AJ shall acknowledge receipt of the co-ordination data immediately by telegram. If no acknowledge ment is received within thirty days after the date of the weekly circular publishing the information undor No. 639AL, the administration socking co-ordination shall dispatch a tologram_roquosting_acknowledgoment, to_which_the_recoviring_administration_shall_roply within a further psried of thirty days. Upon receipt of the co-ordination data, an administration shally having regard to the proposed date of bringing into use of the assignment for which co-ordination was requested, promptly examine the matter with regard to interference¹ which would be caused to the service rendered by its stations in respect of which co-ordination is sought under No. 4114/639AJ and shall within sines days from the date of the relevant weekly circular, notify the administration requesting co-ordination of its agreement. If the administration with which co-ordination is sought does not agree, it shall, within the same period, send to the administration seeking co-ordination the technical details upon which its disagreement is based, and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem. A copy of these comments shall also be sent to the Board.

or caused by these stations. In so doing, it shall have regard to the proposed date of bringing into use of the assignment for which coordination was requested. It

MOD 4124.1 639A0.1

Spa2

¹ The <u>calculation methods and the interference</u> criteria to be employed in evaluating interference / levels / shall be based upon relevant CCIR Recommendations / <u>accepted in application</u> of <u>Resolution No. Spa2 ~ 6. / / unless otherwise agreed between the</u> <u>Administrations concerned /. er.in In</u> the absence of such Recommendations, <u>those methods and criteria</u> shall be agreed between the Administrations concerned. Whenever the methods and criteria have been agreed between Administrations, it shall be done without prejudice to other Administrations.

4124 639AO

Spa2

(1)

(2)

NOC 4125 639AT Spa2

4125A

(8) Either the administration seeking co-ordination or an administration with which co-ordination is sought. or the Board, may request additional information which they may require to assess the level of interference to the services concerned.

Results of coordination

ADD

ADD 4125B

§ 12 Any Administration which has initiated a coordination procedure under the provisions of Nos. 4114/639AJ to 4118/639AL shall communicate to the Board, at the expiry of the period of four months following the date of the relevant weekly circular mentioned in No. 4118/639AL, the names of the Administrations with which an agreement has been reached and any changes in the characteristics of its frequency assignment. It shall also inform the Board of the progress made in resolving the problem with the other Administrations or of any difficulties. Such a communication shall be made to the Board every six months after the abovementioned period. The Board shall publish this information in a special section of its weekly circular and, when the weekly circular contains information on changes in the characteristics published, it shall so inform all Administrations by circular telegram.

NOC 4126

Requests to I.F.R.B. for Assistance in Effecting Co-ordination

4127 639AS

1.3 Page 15
 § → (1) An administration seeking co-ordination may request the Board to endeavour to effect co-ordination in those cases where:

- / forty five /
- a) an administration with which co-ordination is sought under No. [4114/639A] fails to acknowledge receipt, under No. 4122/639AO, within sixty days after the date of the weekly circular publishing the information relating to the request for co-ordination:
- b) an administration with which co²ordination is sought under No. 639AN fails to acknowledge receipt, under No. 639AP, within thirty days of dispatch of the co-ordination data:
- b) an administration has acknowledged/receipt under No. 4122/639AO, but fails to give a decision within ninety days from the date of the relevant weekly circular;

an administration has acknowledged receipt under No. 639AP, bur fails to give a decision within sixty days from dispatch of the co-ordination data:

c) there is disagreement between the administration seeking co-ordination and an administration with which co-ordination is sought as to the acceptable/level of interference;

In so doing, it shall furnish the Board with the necessary information to enable it to endeavour to effect such co-ordination.

NOC	4128		Action to be Taken by the I.F.R.B.
NOC	4129	639AU Spa2	(1) \$14 (2) Where the Board receives a request under No. 4127/639AS a) it shall forthwith send a telegram to the administration concerned requesting immediate acknow ledgement.
NOC	4130	639AV Spa2	(2) (3) Where the Board receives an acknowledgement following its action under No. 4129/639AU, or where the Board receives a request under No. 4127.639AS (b) (b) (b) (b) (b) (b) (c)
NOC	4131	639AW Spa2	(3) (3) (3) (3) Where the Board receives a request under No. 4127/639AS [9] d), it shall endeavour to effect co-ordination in accordance with the provisions of No. 4114/639AJ and 639AN, as appropriate. The Board shall also where appropriate, act in accordance with No. 4118/639AL. Where the Board receives no acknowledgement to its request for co-ordination within the periods specified in No. 4122/639AO or 639AP as appropriate. It shall act in accordance with No. 4129/639AU.
NOC	4132	6.39AY Spa2	 (4) (5) Where necessary, as part of the procedure under No. 4127/639AS, the Board shall assess the/level of/interference. In any case, the Board shall inform the administrations concerned of the results obtained.
NOC	4133	639AT Spa2	(5) (6) Either the administration seeking co-ordination or an administration with which co-ordination is sought, or The Board may request additional information which it may require to assess the level of interference to the services concerned.

MOD

d) co-ordination between administrations is not possible for any other reason.

4134 639AX Spa2	(6) (7) Where an aministration fails to reply within thirty days of dispatch of the Board's telegram requesting an acknowledgement sent under No. 4129/639AU, or fails to give a decision in the matter within/thirty days/of dispatch of the Board's telegram of request under No. 4130/639AV it shall be deemed that the administration with which co-ordination was sought has undertaken:
	a) that no complaint will be made in respect of any harmful interference which may be caused to the services rendered by its space or terrestrial radiocommunication stations by the use of the assignment for which co-ordination was requested:
	b) that its space <u>or terrestrial</u> radiocommunication stations will not cause harmful interference to the use of the assignment for which co-ordination was requested.
4135	Notification of Frequency Assignments in the Event of Continuing Disagreement
4136/639AZ	§ 15 In the event of continuing disagreement between one Administration seeking to effect coordination and one with which coordination has been sought, the Administration seeking coordination shall, except in the cases where the assistance of the Board has been requested, defer the submission of its notice concerning the proposed assignment by five six months from the date of <u>publication of</u> the request for coordination <u>under No. 4118D</u> , taking into consideration the provisions of No. 4580/639BF.
	Section III. Co-ordination of Frequency Assignments to an Earth Station in Relation to Terrestrial Stations
4137	Requirement for Co-ordination
4138 639AN Spa2	16 (1) Before an administration notifies to the Board or brings into use any frequency assignment to an earth station, whether (for transmitting or receiving, in a particular band allocated with equal rights to space and terrestrial radiocommunication services in the frequency spectrum above 1 GHz, it shall effect co-ordination of the assignment with first other administration whose territory lies wholly or partly within the co-ordination area of the planned earth station. For this purpose it shall send to any other such administration and copy of a diagram drawn to an appropriate scale indicating the location of the earth station and showing the co-ordination areas of the earth station for the cases of transmission and reception by the earth station and the data on which they are based, including all pertinent details of the proposed frequency assignment, as listed in Appendix 1A, and an indication of the approximate date on which it is planned to begin operations. The request for coordination concerning an Earth station may specify all or some of the frequency assignments of the associated space station, but thereafter each assignment shall be dealt with individually.
	4134 639AX Spa2 4135 4136/639AZ 4137 4138 639AN Spa2

 $\frac{1}{2}$ Appendix 28 contains criteria relating only to co-ordination between earth stations and stations in the 4138.1 639AN.1 fixed or mobile service. Until the C.C.I.R., in accordance with Recommendation No. Spa2 9 provides criteria NOC Spa2 relating to other terrestrial radiocommunication services, the criteria to be employed in effecting co-ordination between earth stations and terrestrial radiocommunication stations, other than those of the fixed or mobile service. shall be agreed between the administrations concerned. 7 the relevant section of ² Calculated, in relation to the fixed or mobile service, in accordance with the procedures described in e MOD 4138.2 639AN.2 Appendix 28, / as modified in application of Resolution No. Spa2 - 6_{\cdot} Spa2 MOD (2) No co-ordination under No. 4138/639AN is required when an administration 4139 639AR Spa2 proposes: a) to bring into use an earth station, the co-ordination area of which does not include any of the territory of any other country; to change the characteristics of an existing assignment in such a way as not to *b)* increase the level of interference to or from the terrestrial radiocommunication stations of other administrations; transportable to operate a mobile earth station. However, if the co-ordination area c) Earth station or associated with the operation of such a mobile earth station, in a frequency band referred to in No. 4138/639AN, includes any of the territory of another country, it shall be subject to prior agreement between the administrations concerned in order to avoid harmful interference to existing terrestrial radiocommunication stations of that country. This agreement shall apply to transportable the characteristics of the mobile earth station(s), or to the characteristics of a Earth station(s) or/ typical mobile earth station, and shall apply to a specified service area. Unless otherwise stipulated in the agreement, it shall apply to any mobile earth transportable or/

stations in the specified service area provided that the probability of harmful interference caused by them shall not be greater than that caused by the a typical earth station // for which the technical characteristics appear in the notice and have been or are being submitted in accordance with No. 4578/639BD./

(<u>Note</u>: Deferred until decision of Committee 5 on definition of transportable Earth station need for procedure for such stations)

ADD 4139.1

/ The coordination area is calculated in relation to the fixed or mobile service in accordance with the procedure described in Section 6 bis of Appendix 28./

Annex to Document No. 440-E

Page 18

NOC	4140	Co-ordination Data	the coordination the
MOD	4141 6. S	39AN §17 (J) Before an ad pa2 assignment to an earth allocated with equal rip frequency spectrum abc other administration wh	ministration notifies to the board or brings into use any frequency station, whyther for transmitting or receiving, in a particular band this to space and terrestrial radiocommunication services in the wo I GHz it shall effect co ordination of the assignment with any ose territory lies whythy or partly within the co ordination area of F For this purpose shall send to encounter administration es
concern No. 413	ed under 8/639AN	a and showing the co-ord reception by the earth s	in to an appropriate scale indicating the location of the earth station ζ in to an appropriate scale indicating the location of the earth station ζ in the cases of transmission and tation and the data on which they are based, including all pertinent
informa concern	tion ing	ethe approximate date on	requency assignment, and indication of which it is planned to begin operations. I. as annotated in
			A copy of this information with the date of dispatch of the request for coordination shall also be sent to the Board.
· · ·			or of the mobile Earth station service area

/_the relevant section of $\overline{/}$ Appendix 28 / , as modified in application of Resolution No. Spa2 - 6. 7

MOD .

1 1 4141.2/639AN.2

1

² 'Calculated in relation to the fixed or mobile service, in accordance with the procedures described in Appendix 28 / or in Appendix 28A for a mobile Earth station ky

NOC

Acknowledgement of Receipt of Co-ordination Data

thirty

4143 639AP Spa2

4142

\$18 (III) An administration with which co-ordination is sought under No. 4138/639AN shall acknowledge receipt of the co-ordination data immediately by telegram. If no acknowledgement is received within fitteen-days of dispatch of the co-ordination data, the administration seeking co-ordination shall dispatch a telegram requesting acknowledgement, to which the receiving administration shall reply within a further period of fifteen days. Doon receipt of the co-ordination data an administration shall, having regard to the proposed date of bringing into use of the assignment for which co-ordination was requested, promptly examine the matter with regard both to:

- a) interference² which would be caused to the service rendered by its terrestrial radio communication stations operating in accordance with the Convention and thes Regulations, or to be so operated prior to the planned date of bringing the earth station assignment into service, or within the next three years, whicheven is the longer; and to
- b) interference² which would be caused to reception at the earth station by the service rendered by its terrestrial radiocommunication stations operating in accordance with the Convention and these Regulations, or to be so operated prior to the planned date of bringing the earth station assignment into service, or within the next three years, whichever is the longer.

The administration with which co-ordination is sought shall then, within sixty days from dispatch of the co-ordination data, notify the administration requesting co-ordination of its agreement. If the administration with which co-ordination is sought does not agree it shall, within the same period, send to the administration seeking co-ordination a copy of a diagram drawn to an appropriate scale showing the location of its terrestrial radiocommuni cation stations which are or will be within the co-ordination area of the earth transmitting or receiving station, as appropriate, together with all other relevant basic characteristics, and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem.

NOC

4144

Examination of Co-ordination Data and Agreement between Administrations

MOD

(1)

MOD 4145 639AP

Spa2

519 477 An administration with which co-ordination is sought under No. 639AN shall acknowledge receipt of the co-ordination data immediately by telegram. If no acknowledge ment is received within fifteen days of dispatch of the co-ordination data, the administration seeking co-ordination shall diseatch a telegram requesting acknowledgement, to which the receiving administration shall reply within a further period of lifteen days. Upon receipt of the co-ordination data an administration shall, having regard to the proposed date of bringing into use of the assignment for which co-ordination was requested, promptly examine the matter with regard both to:

a) interference \hat{z} which would be caused to the service rendered by its terrestrial radiocommunication stations operating in accordance with the Convention and these Regulations, or to be so operated prior to the planned date of bringing the earth station assignment into service, or within the next three years, whichever is the longer; and to

b) interference^Z which would be caused to reception at the earth station by the service rendered by its terrestrial radiocommunication stations operating in accordance with the Convention and these Regulations, or to be so operated prior to the planned date of bringing the earth station assignment into service, or within the next three years, whichever is the longer.

The periods referred to in sub-paragraphs a) and b) above may be extended by agreement between the Administrations concerned in order to take planned terrestrial networks into account



1
Annex to Document No. 440-E Page 21

ADD 4145A

(2) The Administration with which coordination is sought shall, within four months from despatch of the coordination data :

- a) notify the Administration requesting coordination of its agreement with a copy to the Board, indicating, where appropriate, the part of the allocated frequency band containing the coordinated frequency assignments; or
- b) send to that Administration a request for inclusion in coordination of the terrestrial radiocommunication stations mentioned in Nos. 4145 a) and 4145 b); or
- c) notify that Administration of its disagreement.

In the cases mentioned in sub-paragraphs b) and c) of this provision, the Administration with which coordination is sought shall send to the Administration requesting coordination a copy of a diagram drawn to an appropriate scale indicating the location of these terrestrial radiocommunication stations which are or will be within the coordination area of the Earth transmitting or receiving station, as appropriate, together with all other relevant basic characteristics and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem.

MOD

4146/639AQ

Spa2

(3)

required in application of No. 4145A c)

The Board shall consider as notifications in accordance with Section 1 of Article N12/9, only that information relating to existing terrestrial radiocommunication stations or to those to be brought into use within the next three years.

three months.

ADD 4146A

(4) When an agreement on coordination is reached, as a consequence of No. 4145A, the Administration responsible for the terrestrial stations may send to the Board the information concerning those terrestrial stations covered by the agreement which are intended to be notified in accordance with Section I of Article N12/9. The Board shall consider as notifications in accordance with that Section only that information relating to existing terrestrial radiocommunication stations or to those to be brought into use within the next three years.

NOC 4147 639AT Spa2 (5)

F Either the administration seeking co-ordination or an administration with which co-ordination is sought, for the Board may request additional information which they may require to assess the level of interference to the services concerned.

MOD

the Requests to [I.F.R.B. for Assistance in Effecting Co-ordination

MOD 4149 639AS Spa2

4148

20 $\frac{50}{10}$ (A) An administration seeking co-ordination may request the Board to endeavour to effect co-ordination in those cases where:

> a) an administration with which co-ordination is sought under No. 639AJ fails to acknowledge receipt, under No. 639AO, within sixty days after the date of the weekly circular publishing the information relating to the request for co-ordination;

a) an administration with which co-ordination is sought under No. 4138/639AN fails to acknowledge receipt, under No. 4143/639AP, within thirty days of dispatch of the co-ordination data;



c) an administration has acknowledged raccipt under No. 639AQ, but fails to give a decision within ninety days from the date of the relevant weekly circular;

b) an administration has acknowledged receipt under No. 4143/639AP, but fails to give a decision within <u>sinty days</u> from dispatch of the coordination data four months

under	No.	4141/639AN

ø

c) there is disagreement between the administration seeking co-ordination and an administration with which co-ordination is sought as to the acceptable level of interference;



d) co-ordination between administrations is not possible for any other reason.

In so doing, it shall furnish the Board with the necessary information to enable it to endeavour to effect such co-ordination.

NOC 4150 Action to be Taken by the I.F.R.B.

NOC

4151 639AU Spa2

(1)

\$21 Where the Board receives a request under No. 4149/639AS (a) or b) a, it shall forthwith send a telegram to the administration concerned requesting immediate acknowledgement.

NOC 4152 639AV Spa2

(2) Where the Board receives an acknowledgement following its, action under No. 4151/639AU, or where the Board receives a request under No. 4149/639AS $\boldsymbol{\omega}$ it shall forthwith send a telegram to the administration concerned requesting an early decision in the matter.

NOC	4153 639AW Spa2	(3) Where the Board receives a request under No. 4149/639AS d), it shall endeavour to effect co-ordination in accordance with the provisions of No[s]. 639AJ and 4138/639AN, as appropriate. The Board-shall also, where appropriate act in accor- dance with No. 639AL. Where the Board receives no acknowledgement to its request for co-ordination within the period specified in No. 639AO or 4143/639AP as appropriate. It shall act in accordance with No. 4151/639AU.
NOC	4154 639AY Spa2	(4) (5) Where necessary, as part of the procedure under No. 4149/639AS, the Board shall assess the level of interference. In any case, the Board shall inform the administrations concerned of the results obtained.
NOC	4155 639AT Spa2	(5) (6) Either the administration seeking co-ordination or an administration with which co-ordination is sought, or The Board may request additional information which they may require to assess the level of interference to the services concerned.
NOC	4156 639AX Spa2	 (6) (1) Where an administration fails to reply within thirty days of dispatch of the Board's telegram requesting an acknowledgement sent under No. 4151/639AU, or fails to give a decision in the matter within thirty days of dispatch of the Board's telegram of request under No. 4152/639AV it shall be deemed that the administration with which co-ordination was sought has undertaken: a) that no complaint will be made in respect of any harmful interference which may be caused to the services rendered by its space or terrestrial radiocommunication stations by the use of the assignment for which co-ordination was requested;
	 	b) that its <u>space or</u> terrestrial radiocommunication stations will not cause harmful interference to the use of the assignment for which co-ordination was requested.

NOC 4157

Notification of Frequency Assignments in the Event of Continuing Disagreement

4158/639AZ MOD

§22 In the event of continuing disagreement between one Administration seeking to effect coordination and one with which coordination has been sought, the Administration seeking coordination shall, except in the cases where the assistance of the Board has been requested, delay defer the submission of its notice concerning the proposed assignment by five six months from the date of the request for coordination, taking into consideration the provisions of No. 4580/639BF.

NOC

Section IV. Co-ordination of Frequency Assignments to a Terrestrial Station for Transmission in Relation to an Earth Station

NOC

Requirement for Co-ordination

MOD 4160/492A

4159

(1) Before an Administration notifies to the Board, §23 or brings into use any frequency assignment to a terrestrial station¹ within the coordination area of an Earth station, in a band above 1 GHz allocated with equal rights to terrestrial radiocommunication services and space radiocommunication services (space-to-Earth), excepting the broadcasting-satellite service, it shall, except in cases described in No. 4161/492C, effect coordination of the proposed assignment with the Administration responsible for the Earth station with respect to the frequency assignments which are :

- in conformity with No. 4587/639BM and coordinated under No. 4138/639AN,

-lor

- to be taken into account for coordination with effect from the date of communication of the information referred to in No. 4138/639AN, or
- recorded in the Master Register with a favourable Finding with respect to No. 4589/639B0, or
- recorded in the Master Register with an unfavourable Finding with respect to No. 4589/639BO and a favourable Finding with respect to No. 4592/639BR, or
- recorded in the Master Register with an unfavourable Finding with respect to No. 4589/639BO and No. 4592/639BR but the notifying Administration has stated that it has accepted the level of interference resulting from the existing terrestrial stations located within the coordination area of the Earth station on the date of its recording.

NOC

4160.1 492A.1 Spa2

L¹ Appendix 28 contains criteria relating only to co-ordination between earth stations and stations in the fixed or the mobile service. Until the C.C.I.R., in accordance with Recommendation No. Spa2 - 9 provides criteria for other terrestrial radiocommunication services, the criteria to be used in effecting co-ordination between earth stations and terrestrial stations other than those of the fixed or the mobile service, shall be agreed between the administrations concerned.

4161 492C

Spa2

MOD

(2) No co-ordination under No. 4160/492A is required when an administration proposes:

> to bring into use a terrestrial station which is located, in relation to an earth e) station, outside the co-ordination area; or

> b) to change the characteristics of an existing assignment in such a way as not to Lizeroese the level of interference to the earth stations of other administrations.

exceed / permissible

ADD

c) to bring into use a terrestrial station within the coordination area of an Earth station, provided that the proposed terrestrial assignment is outside any part of a frequency band coordinated under No. 4145A for reception by that Earth station.

	• 1 + 2 · 2 · 2 · 2 · 2 · 2 · 2 · 2 · 2 · 2
4162	· Co-cretination Data
	The request for coordination may specify all or some of the frequency assignments expected to be used within the next three years by stations of a terrestrial network, wholly or partly within the coordination area of the Earth station. This period may be extended by agreement between the Administrations concerned. Thereafter each assignment shall be dealt with individually.
Г	
5163 492A Spa2	§24 (3) Before an administration notifies to the Board, or brings into use any frequency assignment to a terrestrial station ¹ for transmitting in a band allocated with equal rights to terrestrial radiocommunication services and space radiocommunication services (space to-Earth) in the frequency spectrum above 1 GHz, it shall initiate co-ordination of the proposed assignment with the administration responsible for the receiving earth station concerned in the assignment is for use within the co-ordination area of an existing receiving earth station or of one for which the co-ordination procedure referred to in No. 639AN has been initiated. For the purpose of effecting co-ordination, it shall send to any other even administration by the fastest possible means, a copy of a diagram drawn to an appropriate scale indicating the location of the terrestrial station and all other pertinent details of the proposed frequency assignment, and the approximate date on which it is planned to bring the station into use. X Concerned under No. 4160/492A,
	4162 3163 492A Spa2

NOC

4164

Acknowledgement of Receipt of Co-ordination Data

MOD

4165 492B Spa2 \$25 (JF) An administration with which co-ordination is sought under No. 4160/492A shall acknowledge receipt of the co-ordination data immediately by telegram. If no acknowledgement is received within fifteen (days of dispatch, the administration seeking co-ordination may dispatch a telegram requesting acknowledgement of receipt of the co-ordination data, to which the receiving administration shall reply Upon receipt of the co-ordination data an administration shall promptly examine the matter with regard to interference ' which would be caused to the services rendered by its earth stations operating in accordance with the Convention and these Regulations, or to be so operated within the next three years, with the provise that in this latter case co-ordination procedure has already been ightiated; and shall, within an overall period of sixty days from dispatch of the co-ordination data, either notify the administration requesting co-ordination of its agreement to the proposals or, if this is not possible, indicate the reasons therefor and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem.

within a further period of fifteen days

thirty

NOC

4166

Examination of Co-ordination Data and Agreement between Administrations

listed in No. 4160/492A

MOD 4167/492B

favourable finding with

espect to

\$26 ⁽⁵⁾ Upon receipt of the coordination data, the Administration shall promptly examine the matter with regard to interference¹ which would be caused to the services rendered by its Earth stations operating, in accordance with No. 4370/570AB of the Radio Regulations, or to be **40** operated within the next three years with the provise that in the last two cases one or more of the following conditions are fulfilled :

a) in conformity with No. 4587/639BM, and / following conditions

- b) **\$**) the coordination specified in No. 4138/639ANY has been effected, or coordination procedure has been initiated, or
- c) $\not(b)$ the Earth station has been recorded in the Master Register with a favourable finding with respect to No. 4589/639BO, or
- d) g) the Earth station has been recorded in the Master Register with an unfavourable Finding with respect to No. 4589/639BO and y No. 4592/639BR, or

 e) d) the Earth station has been recorded in the Master Register with an unpavourable Finding with respect to No. 4589/639BO and No. 4592/639BR, but the notifying Administration has stated that it has accepted the level of interference resulting from the existing terrestrial stations located within the coordination orea of the Earth station on the date of its recording. /four months²/

The Administration with which coordination is sought shall, within an overall period of /<u>ninety</u> / days from despatch of the coordination data, either notify the Administration requesting coordination of its agreement to the proposals or, if this is not possible, indicate the reasons therefor and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem.

In doing so, the Administration may take into account any frequency assignment communicated to it for use more than three years in advance.

Annex to Document No. 440-E Page 29



ADD 4167.2 ² This period may be extended with the agreement of the Administration which requested the coordination.

MOD

4168 492E Spa2 527 Either the administration seeking co-ordination or an administration with which co-ordination is sought, or the Board, may request additional information which they may require to assess the level of interference to the services concerned.

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4169

4170 492D

Spa2

MOD

Requests to I.F.R.B. for Assistance in Effecting Co-ordination

the

§28

MOD

MOD

IF (IF) An administration seeking co-ordination may request the Board to endeavour to effect co-ordination, in those cases where:

- a) an administration with which co-ordination is sought under No. 4160/492A fails to acknowledge receipt under No. 4165/492B within thirty days of dispatch of the co-ordination data;
- b) an administration which has acknowledged receipt under No. 4165/492B but fails to give a decision within ninety days of dispatch of the co-ordination data; four months
- c) there is disagreement between the administration seeking co-ordination and an administration with which co-ordination is sought as to the acceptable level of interference; or
- d) special assistance is required J
- a) **W** co-ordination between administrations is not possible for any other reason.

In so doing, it shall furnish the Board with the necessary information to enable it to endeavour to effect such co-ordination.

NOC	4171	Action to be Taken by the 1.F.R.B.
NOC	4172 492F Spa2	(1) §29 KH Where the Board receives a request under No. 4170/492D a), it shall forthwith send a telegram to the administration concerned requesting immediate acknowledgement.
NOC	4173 492FA Spa2	(2) (37Where the Board receives an acknowledgement following its action under No. 4172/492F, or where the Board receives a request under No. 4170/492D b), it shall forthwith send a telegram to the administration concerned requesting an early decision in the matter.
NOC	4174 492FB Spa2	 (3) (4) Where the Board receives a request under No. 4170/492D d), it shall endeavour to effect co-ordination in accordance with the provisions of No. 4160/492A. Where the Board receives no acknowledgement of its request for co-ordination within the period specified in No. 4165/492B, it shall act in accordance with No. 4172/492F.
NOC	4175 492G Spa2	(4) (5). Where necessary, as part of the procedure under No. 4170/492D, the Board shall assess the level of interference. In any case, the Board shall inform the administrations concerned of the results obtained.
NOC	4176 492E Spa2	(5) (6) Either the administration secting co-ordination or an administration with which <u>co-ordination is sought</u> , or The Board may fequest additional information which it may require to assess the level of interference to the services concerned.
NOC	4177 492FC Spa2	(6) Where an administration fails to reply within thirty days of dispatch of the Board's telegram sent under No. 4172/492F requesting an acknowledgement, or fails to give a decision in the matter within sixty days of dispatch of the Board's telegram of request sent under No. 4173/492FA, it shall be deemed that the administration with which co-ordination was sought has undertaken that no complaint will be made in respect of any harmful
		interference which may be caused by the terrestrial station being co-ordinated to the service rendered by its earth station.

/ two months 7

NOC 4178

Notification of Frequency Assignments in the Event of Continuing Disagreement

MOD 4179/492GA

§30 In the event of continuing disagreement between one Administration seeking to effect coordination and one with which coordination has been sought, the Administration seeking coordination shall, except in the cases where the assistance of the Board has been requested, <u>defer</u> delay the submission of its notice concerning the proposed assignment by <u>six</u> five months from the date of the request for coordination, taking into consideration the provisions of No. 4580/639BF.

/ § 30. (1) If it is requested by any administration, particularly by an administration of a country in need of special assistance, and if the circumstances appear to warrant, the Board, using such means at its disposal as are appropriate in the circumstances, shall render the following assistance:

- a) computation of the increases in noise temperatures in accordance with No. 4115/639AK;
- b) preparation of diagrams showing the co-ordination areas as in No. 4141/639AN;
- c) any other assistance of a technical nature for completion of the procedures in this Article. 7

(<u>Note</u> : Present text of No. 4646/639DT to be included in a series of provisions to cover the assistance to the Administrations.)

(Geneva, 1979)

Document No. 441-E 31 October 1979 Original : English

COMMITTEE 6

NOTE FROM THE CHAIRMAN OF COMMITTEE 4 TO THE CHAIRMAN OF COMMITTEE 6

Committee 4 has approved a revision of Article N3 "Designation of Emissions" (Document No. 406). In this connection the question was raised which symbols monitoring stations should use when certain characteristics cannot be unambiguously identified, e.g. phase modulation as opposed to frequency modulation (see Radio Regulation 3214, sub-section (1.3)) or number of channels in a digital signal (see Radio Regulation 3215, sub-sections (2.2), (2.3), (2.5)). Committee 6 might wish to consider this question when revising Appendices 6, 7 and 8. For the first example given above, Committee 4 suggests that the symbol F be used.

> N. MORISHIMA Chairman of Committee 4



(Geneva, 1979)

Document No. 442-E 31 October 1979 Original : English

COMMITTEE 5

NOTE FROM THE CHAIRMAN OF COMMITTEE 4

TO THE CHAIRMAN OF COMMITTEE 5

As the result of deliberations concerning appropriate criteria of sharing between the intersatellite service and the radionavigation service in frequency bands between 23 and 40 GHz, Committee 4 finds that :

- a) the radionavigation service has the nature of a safety-of-life service and needs to be well protected;
- b) limits of power flux-density which would have to be imposed upon the intersatellite service would have to be fairly low and may preclude interregional operation in that service (SPM 5.3.2.6.2);
- c) lack of information regarding the characteristics of the radionavigation service allow only provisional estimates of the necessary mutual protection between the two services to be made (SPM 5.3.2.6.2 in connection with 5.3.2.6.1).

While concurring with the implicit conclusion of the SPM that sharing between the two services in these bands may be feasible, Committee 4 finds it difficult to assess the problem of sharing criteria in the context of these Regulations.

Therefore, Committee 4 considers that Committee 5 may wish to explore the possibility of frequency allocations to the intersatellite service which would encounter more favourable and more easily assessable sharing conditions with the services to which such frequencies would also be allocated than in bands that would be shared with the radionavigation service.

If Committee 5 were to decide on shared allocations to the intersatellite and the radionavigation services, Committee 4 suggests that a Note accompany the allocations, stating that the control of mutual interference between systems in the two services should be subject to agreements between Administrations concerned and affected.

N. MORISHIMA Chairman of Committee 4



(Geneva, 1979)

BLUE PAGES

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Corrigendum No. 1 to Document No. 443 6 November 1979

PLENARY MEETING

3rd SERIES OF TEXTS SUBMITTED BY THE EDITORIAL COMMITTEE TO THE PLENARY MEETING

Page B.3-14 Replace the text of No. 7315/949 by the following:

(MOD) 7315 949 § 1. Except as otherwise provided in these Regulations, the aeronautical mobile service may be regulated by special agreements between governments concerned under the provision for special arrangements in Article 31 of the Convention.

Replace the text of No. 7316/950 by the following:

MOD 7316 950

§ 2. In the absence of special agreements, the provisions of these Regulations concerning the exchanging of and accounting for public correspondence shall be applicable to stations in the aeronautical mobile service. (See also No. 7379/432.)



в.3

(Geneva, 1979)

B.3

Document No. 443 1 November 1979

PLENARY MEETING

3rd SERIES OF TEXTS SUBMITTED BY THE EDITORIAL COMMITTEE TO THE PLENARY MEETING

The following texts are submitted to the Plenary Meeting for first reading:

Source	Document No.	Title
C.8	377 + 378 (DT93)	Art. 40 to 46; Art. 48 to 50

P. BASSOLE Chairman of the Editorial Committee

Annex: 29 pages



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B.3-1

CHAPTER NX

Aeronautical Mobile Service

ARTICLE N40/22

Authority of the Person Responsible for the Mobile Stations in the Aeronautical Mobile Service

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MOD	7108	845	§ 1. The service of a mobile station is placed under the supreme authority of the person responsible for the aircraft or other vehicle carrying the mobile station.
NOC	7109	846	\$ 2. The person holding this authority shall require that each operator comply with these Regulations and that the mobile station for which the operator is responsible is used, at all times, in accordance with these Regulations.
MOD	7110	847	§ 3. The person responsible, as well as all the persons who may have knowledge of the text or even of the existence of a radiotelegram, or of any information whatever obtained by means of the radiocommunication service, are placed under the obligation of observing and ensuring the secrecy of correspondence.
	7111 to 7135		NOT allocated.

NOC

MOD

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ARTICLE N41

NOC		O]	perators' Certificates for Aircraft Stations
NOC			Section I. General Provisions
MOD	7136	848	§ 1. (1) The service of every aircraft radiotelegraph station shall be performed by an operator holding a certificate issued or recognized by the government to which the station is subject.
MOD	7137	849	(2) The service of every aircraft radiotelephone station shall be controlled by an operator holding a certificate issued or recognized by the government to which the station is subject. Provided the station is so controlled, other persons besides the holder of the certificate may use the radiotelephone equipment.
MOD	7138	850	(3) The service of automatic communication devices 1 installed in aircraft stations shall be controlled by an operator holding a certificate issued or recognized by the government to which the station is subject. Provided the devices are so controlled, they may be used by other persons. If such devices require for their basic function the use of Morse code signals specified in the Instructions for the Operation of the International Public Telegram Service, the service shall be performed by an operator holding a radiotelegraph certificate. However, this latter requirement does not apply to automatic devices which may use Morse code signals solely for identification purposes.
NOC	7138.1	850.1	l The term "automatic communication devices" is intended to include such equipment as teleprinters, data transfer systems, etc.
NOC	7139	851	(4) Nevertheless, in the service of radiotelephone stations operating solely on frequency above 30 MHz, each government shall decide for itself whether a certificate is necessary and, if so, shall define the conditions for obtaining it.
MOD	7140	852	(5) The provisions of No. 7139 /851 shall not, however, apply to any aircraft station working on frequencies assigned for international use.
MOD	7141	853	§ 2. (1) In the case of complete unavailability of the operator in the course of a flight, and solely as a temporary measure, the person responsible for the station may authorize an operator holding a certificate issued by the government of another Member of the Union to perform the radiocommunication service.

	MOD	7142	854	(2) When it is necessary to employ a person without a certificate or an operator not holding an adequate certificate as a temporary operator, his performance as such must be limited solely to signals of distress, urgency and safety, messages relating thereto, messages relating directly to the safety of life and essential messages relating to the navigation and safe movement of the aircraft. Persons employed in these cases are bound by the provisions of No. 7146/858 regarding the secrecy of correspondence.
	NOC	7143	855	(3) In all cases, such temporary operators must be replaced as soon as possible by operators holding the certificate prescribed in \$ 1 of this Article.
-	NOC	7144	856	§ 3. (1) Each administration shall take the necessary steps to prevent, to the maximum extent possible, the fraudulent use of certificates. For this purpose, such certificates shall bear the holder's signature and shall be authenticated by the issuing administration. Administrations may employ, if they wish, other means of identification such as photographs, fingerprints, etc.
	NOC	7145	857	(2) To facilitate verification of certificates, these may carry, if necessary, in addition to the text in the national language, a translation of this text in a working language of the Union.
	NOC	7146	858	§ 4. Each administration shall take the necessary steps to place operators under the obligation to preserve the secrecy of correspondence as provided for in No. 5244/728.
	NOC		Sectio	on II. Classes and Categories of Certificates
	NOC	7147	859	§ 5. (1) There are two classes of certificates, as well as a special certificate, for radiotelegraph operators. ¹
	NOC	7147.1	859.1	l As regards the employment of operators holding the different certificates, see Article N42 /24.
	(MOD)	7148	860	(2) There are two categories of radiotelephone operator's certificates, general and restricted. 2
	(MOD)	7148.1	860.1	2 See No. 7147.1/859.1.
	NOC	7149	861 Mar2	§6. (1) The holder of a first- or second-class radiotelegraph operator's certificate may carry out the radiotelegraph or radiotelephone service of any aircraft station.

NOC 7150 862 Mar2 NOC 7151 863

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(2) The holder of a radiotelephone operator's general certificate may carry out the radiotelephone service of any aircraft station.

(3) The holder of a radiotelephone operator's restricted certificate may carry out the radiotelephone service of any aircraft station, when working on frequencies of the maritime mobile service, provided that:

> the peak envelope power of the transmitter does not exceed 200 watts: or

 the operation of the transmitter requires only the use of simple external switching devices, exluding all manual adjustment of frequency determining elements, with the stability of the frequencies maintained by the transmitter itself within the limits of tolerance specified by Appendix 3, and the peak envelope power of the transmitter does not exceed 1 kilowatt.

NOC 7152 864 Mar2

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(4) The holder of a radiotelephone operator's restricted certificate may carry out the radiotelephone service of any aircraft station operating on frequencies allocated exclusively to the aeronautical mobile service, provided that the operation of the transmitter requires only the use of simple external switching devices, excluding all manual adjustment of frequency determining elements, and that the stability of the frequencies is maintained by the transmitter itself within the limits of tolerance specified by Appendix 3.

(5) The radiotelephone service of aircraft stations for which only a restricted radiotelephone operator's certificate is required may be carried out by an operator holding a radiotelegraph operator's special certificate.

NOC 7154 866 § 7. Exceptionally, the second-class radiotelegraph operator's certificate as well as the radiotelegraph operator's special certificate may be limited exclusively to the radiotelegraph service. In such cases the certificate shall be suitably endorsed.

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NOC	SECT	TION III.	Conditions for the Issue of Operator's Certificates
NOC	7155		A. General
NOC	7156	867	§ 8. (1) The conditions to be imposed for obtaining the various certificates are contained in the following paragraphs and represent the minimum requirements.
NOC	7157	868	(2) Each administration is free to fix the number of examinations necessary to obtain each certificate.
MOD	7158	869	§ 9. (1) The administration which issues a certificate may, before authorizing an operator to carry out the service on board aircraft, require the fulfilment of other conditions (for example: experience with automatic communication devices; further technical and professional knowledge relating particularly to navigation; physical fitness; the completion as an operator of a certain number of flying hours, etc.).
NOC	7159	870	(2) Administrations should take whatever steps they consider necessary to ensure the continued proficiency of operators after prolonged absences from operational duties.
NOC	7160		B. First-Class Radiotelegraph
			Operator's Certificate
NOC	7161	871	§ 10. The first-class certificate is issued to candidates who have given proof of the technical and professional knowledge and qualifications enumerated below:
NOC	7162	872	 a) knowledge both of the general principles of electricity and of the theory of radio, knowledge of the adjustment and practical working of various types of radiotelegraph and radiotelephone apparatus used in the mobile service, including apparatus used for radio direction-finding and the taking of direction-finding bearings, as well as a general knowledge of the principles of operation of other apparatus generally used for radionavigation;
NOC	7163	873	b) theoretical and practical knowledge of the operation and maintenance of apparatus, such as motor-generators, storage batteries, etc., used in the

operation and adjustment of the radiotelegraph, radiotelephone and radio direction-finding apparatus mentioned in No. 7162/872;

- c) practical knowledge necessary to repair, with the means available on board, damage which may occur to the radiotelegraph, radiotelephone and radio direction-finding apparatus during a flight;
 - d) ability to send correctly by hand and to receive correctly by ear, in the Morse code, code groups (mixed letters, figures and punctuation marks) at a speed of twenty groups a minute, and a plain language text at a speed of twenty-five words a minute. Each code group shall comprise five characters, each figure or punctuation mark counting as two characters. The average word of the text in plain language shall contain five characters. The duration of each test of sending and of receiving shall be, as a rule, five minutes;
 - e) ability to send correctly and to receive correctly by telephone;
 - f) Detailed knowledge of the Regulations applying to radiocommunications, knowledge of the documents relating to charges for radiocommunications, knowledge of the provisions of the Convention for the Safety of Life at Sea which relate to radio, and, in the case of air navigation, knowledge of the special provisions governing the aeronautical fixed, mobile, and radionavigation services. In the latter case, the certificate states that the holder has successfully passed the tests relating to these special provisions;
 - g) a sufficient knowledge of world geography, especially the principal shipping and air routes and the most important telecommunication routes;

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NOC	7169	879	 <u>h</u>) sufficient knowledge of one of the working languages of the Union. Candidates should be able to express themselves satisfactorily in that language, both orally and in writing. Each administration shall decide for itself the language or languages required.
NOC	7170		C. Second-Class Radiotelegraph Operator's Certificate
NOC	7171	880	§ 11. The second-class certificate is issued to candidates who have given proof of the technical and professional knowledge and qualifications enumerated below:
NOC	7172	881	a) elementary theoretical and practical knowledge of electricity and of radio, knowledge of the adjustment and practical working of the various types of radiotelegraph and radiotelephone apparatus used in the mobile service, including apparatus used for radio direction-finding and the taking of direction-finding bearings, as well as elementary knowledge of the principles of operation of other apparatus in general use for radionavigation;
NOC	7173	882	b) elementary theoretical and practical knowledge of the operation and maintenance of apparatus, such as motor-generators, storage batteries, etc., used in the operation and adjustment of the radiotelegraph, radiotelephone and radio direction-finding apparatus mentioned in No. 7172/881;
MOD	7174	883	 c) practical knowledge sufficient for effecting repairs in the case of minor damage which may occur to the radiotelegraph, radiotelephone and radio direction-finding apparatus during a flight;
NOC	7175	884	<u>d</u>) ability to send correctly by hand and to receive correctly by ear in the Morse code, code groups (mixed letters, figures and punctuation marks) at a speed of sixteen groups a minute, and a plain language text at a speed of twenty words a minute. Each code group shall comprise five characters, each figure, or punctuation mark counting as two characters. The average word of the

text in plain language shall contain five characters. The duration of each test of sending and of receiving shall, as a rule, be five minutes;

e) ability to send correctly and to NOC 7176 885 receive correctly by telephone, except in the case provided for in No. 7154/866; f) NOC 7177 886 knowledge of the Regulations applying to radiocommunications, knowledge of the documents relating to charges for radiocommunications, knowledge of the provisions of the Convention for the Safety of Life at Sea which relate to radio, and, in the case of air navigation, knowledge of the special provisions governing the aeronautical fixed, mobile, and radionavigation services. In the latter case, the certificate states that the holder has successfully passed the tests relating to these special provisions; g) a sufficient knowledge of world NOC 7178 887 geography, especially the principal shipping and air routes and the most important telecommunication routes; 7179 888 if necessary, an elementary NOC h) knowledge of one of the working languages of the Union. Candidates should be able to express themselves satisfactorily in that language, both orally and in writing. Each administration shall decide for itself the language or languages required. NOC 7180 D. Radiotelegraph Operator's Special Certificate 889 NOC 7181 § 12. (1) The radiotelegraph operator's special certificate is issued to candidates who have given proof of the knowledge and professional qualifications enumerated below:

NOC 7182 890

a) ability to send correctly by hand and receive correctly by ear in the Morse code, code groups (mixed letters, figures, and punctuation marks) at a speed of sixteen groups a minute, and a plain language text of speed of twenty words a minute. Each code group shall comprise five characters, each figure or punctuation mark counting as two characters. The average word of the text in plain language shall contain five characters;

- b) knowledge of the practical operation and adjustment of radiotelegraph apparatus;
- NOC7184892c) knowledge of the Regulations
applying to radiotelegraph communications
and specifically of that part of those
Regulations relating to safety of life at
sea.NOC7185893(2) Each administration concerned shall fix the
 - other conditions for obtaining this certificate. However, except as provided for in No. 7154/866, the conditions specified in Nos. 7192/899, 7193/900, 7194/901 and 7195/902 or 7196/903, as the case may be, shall be satisfied.
 - (MOD) 7186 E. Radiotelephone Operators' Certificates
 MOD 7187 894 § 13. The radiotelephone operator's general Mar2 certificate is issued to candidates who have given proof of the knowledge and professional qualifications enumerated below (see also Nos. 7149/861 and 7150/862):
 - NOC 7188 895 <u>a)</u> a knowledge of the elementary principles of radiotelephony;
 - NOC 7189 896 <u>b)</u> detailed knowledge of the practical operation and adjustment of radiotelephone apparatus;
 - <u>c)</u> ability to send correctly and to receive correctly by telephone;
 - NOC 7191 898 <u>d</u> detailed knowledge of the Regulations applying to radiotelephone communications and specifically of that part of those Regulations relating to the safety of life.
- NOC 7192 899 § 14. (1) The restricted radiotelephone operator's certificate is issued to candidates who have given proof of the knowledge and professional qualifications enumerated below:
- NOC 7193 900 <u>a)</u> practical knowledge of radiotelephone operation and procedure;

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NOC	7194	901	b) ability to send correctly and to receive correctly by telephone;	
NOC	7195	902	<u>c)</u> general knowledge of the Regulations applying to radiotelephone communications and specifically of that part of those Regulations relating to the safety of life.	
MOD	7196	903 Mar	(2) For aircraft radiotelephone stations operating on frequencies allocated exclusively to the aeronautical mobile service, each administration ma itself fix these conditions for obtaining a restricted radiotelephone operator's certificate, provided that the operation of the transmitter requires only the use of simple external switching devices, excluding all manual adjustment of frequency determining elements, and that the stability of the frequencies is maintained by the transmitter itself within the limits of tolerance specified in Appendix 3. However, in fixing the conditions, administrations shall ensure that the operator has an adequate knowledge of radiotelephone operation and procedure particularly as far as distress, urgency and safety are concerned. This in no way contravenes the provisions of No. 7199/906.	y
NOC	7197	904	(3) Administrations in Region 1 do not issue certificates under No. 7196 /903.	
NOC	7198	905	§ 15. A radiotelephone operator's certificate shall show whether it is a general certificate or a restricted certificate and, in the latter case, if it has been issued in conformity with the provisions of No. 7196/903.	
NOC	7199	906	§ 16. In order to meet special needs, special agreements between administrations may fix the conditions to be fulfilled in order to obtain a radiotelephone operator's certificate intended to be used in radiotelephone stations complying with certain toobnical conditions and cortain correcting conditions	£3
			These fagreements; if made, shall be on the conditions that harmful interference to international services shall not result therefrom. These conditions and fagreements shall be mentioned in the certificates issued	£ 3 £ 3
			to such operators.	
	7200 to		NOT allocated	

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ARTICLE N42

MOD

Personnel of Aeronautical Stations

SUP

Section I.

MOD **7225** 948

§ 1. Administrations shall ensure that the staff on duty in aeronautical stations shall be adequately qualified to operate the stations efficiently.

SUP			Section II.
SUP	7226	912 Mar2	§ 2.
SUP	7227	913 Mar2	§ 3.
SUP	7228	919	<u>a)</u>
SUP	7229	920	<u>b)</u>
SUP	7229.1	920.1	
	7230 to 7254		NOT allocated.

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ARTICLE N43/21

MOD			Inspection of Aircraft Stations
MOD	7255	838 Mar2	§ 1. (1) The governments or appropriate administrations of countries which an aircraft station visits, may require the production of the licence for examination. The operator of the station, or the person responsible for the station, shall facilitate this examination. The licence shall be kept in such a way that it can be produced upon request. As far as possible, the licence, or a copy certified by the authority which has issued it, should be permanently exhibited in the station.
MOD	7256	839 Mar2	2) The inspectors shall have in their possession an identity card or badge, issued by the competent authority, which they shall show on request of the person responsible for the aircraft.
NOC	7257	840	(3) When the licence cannot be produced or when manifest irregularities are observed, governments or administrations may inspect the radio installations in order to satisfy themselves that these conform to the conditions imposed by these Regulations.
NOC	7258	841	(4) In addition, inspectors have the right to require the production of the operators' certificates, but proof of professional knowledge may not be demanded.
MOD	7259	842 Mar2	§ 2. (1) When a government or an administration has found it necessary to adopt the course indicated in No. 7257/840, or when the operators' certificates cannot be produced, the government or administration to which the aircraft station is subject shall be so informed without delay. In addition, the procedure specified in Article N19/16 is followed when necessary.
MOD	7260	843 Mar2	(2) Before leaving, the inspector shall report the result of his inspection to the person responsible for the aircraft. If any breach of the conditions imposed by these Regulations is observed, the inspector shall make this report in writing.
MOD	7261	844 Mar2	§ 3. The Members of the Union undertake not to impose upon foreign aircraft stations which are temporarily within their territorial waters or which make a temporary stay in their territory, technical and operating conditions more severe than those contemplated in these Regulations. This undertaking in no way affects arrangements which are made under international agreements relating to air navigation, and which are therefore not covered by these Regulations.
	7262 to 7286		NOT allocated.

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ARTICLE N44

Working Hours of Stations in the Aeronautical Mobile Service

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NOC			Section I. Preamble
MOD	7287	921	§ 1. In order to permit the application of the following rules on the subject of hours of watch, every station of the aeronautical mobile service shall have an accurate clock correctly regulated to [Greenwich Mean Time (G.M.T.).]
NOC			Section II. Aeronautical Stations
NOC	728 8	928	§ 2. The service of an aeronautical station shall be continuous throughout the period during which it bears responsibility for the radiocommunication service to aircraft in flight.
NOC			Section III. Aircraft Stations
NOC	7289	947	§ 3. For the international public correspondence service, aircraft stations constitute a single category. The duration of the service of such stations is not fixed by these Regulations.
	7290 to 7314		NOT allocated.

B-3-14

NOC

ARTICLE N45

Working Conditions in the Aeronautical Mobile Service

NOC			Section I. General
(MOD)	7315	949	§ 1. Except as otherwise provided in these Regulations, the aeronautical mobile service may be regulated by special arrangement between governments concerned (see Article 31 of the Convention).
MOD	7316	950	§ 2. In the absence of special arrangements, the provisions of these Regulations concerning the exchanging of and accounting for public correspondence shall be applicable to stations in the aeronautical mobile service. (See also No. 7379/432.)
NOC	Section	n II. C an	ommunication with Stations in the Maritime Mobile Service d in the Maritime Mobile-Satellite Service
MOD	7317	951 Spa2	§ 3. Stations on board aircraft may communicate with stations of the maritime mobile or maritime mobile-satellite services. They shall conform to those provisions of these Regulations which relate to these services. (See Chapter NXI, especially Article N56, Section III.)
	7318 to 7342		NOT allocated.

B.3-15

ARTICLE N46

NOC			Conditions to be Observed by Mobile Stations in the Aeronautical Mobile Service
MOD	7343	955 Mar	§ 1. Mobile stations shall be established in such a way as to conform to the provisions of Chapters NIII and NX as regards frequencies and classes of emission.
NOC	7344	957	§ 2. The frequencies of emission of mobile stations shall be checked as often as possible by the inspection service to which these stations are subject.
NOC	7345	958	§ 3. The energy radiated by receiving apparatus shall be reduced to the lowest possible value and shall not cause harmful interference to other stations.
NOC	7346	959	§ 4. Administrations shall take all practicable steps necessary to ensure that the operation of any electrical or electronic apparatus installed in mobile stations does not cause harmful interference to the essential radio services of stations which are operating in accordance with the provisions of these Regulations.
NOC	7347	960	§ 5. (1) Changes of frequency in the sending and receiving apparatus of any mobile station shall be capable of being made as rapidly as possible.
NOC	7348	961	(2) Installations of any mobile station shall be capable, once communication is established, of changing from transmission to reception and vice versa in as short a time as possible.
MOD	7349	962	§ 6. The operation of a broadcasting service (see No. 3040 /28) by an aircraft station at sea and over the sea is prohibited (see also No. 6214 /422).
MOD	7350	963	§ 7. Mobile stations other than survival craft stations shall be provided with the documents enumerated in the appropriate section of Appendix 11 (Section VI. Aircraft Stations).
	7351 to 7375		NOT allocated.

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ARTICLE N48/37

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NOC

Order of Priority of Communications in the Aeronautical Mobile Service

MOD 7408 1496

The order of priority for communications 1 in the aeronautical mobile service shall be as follows, except where impracticable in a fully automated system in which, nevertheless, category 1 shall receive priority:

- 1. Distress calls, distress messages, and distress traffic.
- 2. Communications preceded by the urgency signal.
- 3. Communications preceded by the safety signal.
- 4. Communications relating to radio direction-finding.
- 5. Communications relating to the navigation and safe movement of aircraft engaged in search and rescue operations.
- 6. Communications relating to the navigation, movements, and needs of ships, and weather observation messages destined for an official meteorological service.
- 7. ETATPRIORITENATIONS Radiotelegrams relativing to the application of the United Nation Charter.
- ETATPRIORITE Government radiotelegrams with priority and Government calls for which priority has been expressly requested.
- 9. Service communications relating to the working of the telecommunication service or to communications previously exchanged.
- 10. Government communications other than those shown in 8 above, ordinary private communications, RCT ² radiotelegrams and press radiotelegrams.

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ADD	7408.1	1496.1	l The term <u>communications</u> as used in this Article includes radiotelegrams, radiotelephone calls and radiotelex calls.
ADD	7408.2	1496.2	² RCT (Red Cross Telegrams): Telegrams concerning persons protected in time of war by the Geneva Conventions of 12 August 1949.
•	7409 to 7433		NOT allocated.

B.3-18

ARTICLE N49

NOC			General Radiotelegraph Procedure in the Aeronautical Mobile Service
NOC			Section 1. General Provisions
MOD	7434	1000	§ 1. (1) The procedure detailed in this Article is obligatory, except in cases of distress, urgency or safety, to which the provisions of Chapter NIX are applicable.
MOD	7435	1001	(2) The procedure specified in Sections IV, V and VI of the present Article is applicable only in the absence of special farrangements to the contrary E3 concluded between the governments concerned.
MOD	7436	1003	§ 2. The use of the Morse code signals specified in the Instructions for the Operation of the International Public Telegram Service shall be obligatory in the aeronautical mobile service. However, for radiocommunications of a special character, the use of other signals is not precluded.
MOD	7437	1004 Mar	§ 3. In order to facilitate radiocommunications, stations shall use the service abbreviations given in Appendix 13.
NOC			Section II. Calls
NOC	7438		A. General
NOC	7439	1063	§ 4. The provisions of this Article are not applicable to the aeronautical mobile service when special fagreements exist between the governments concerned. F3
MOD	7440	1065	§ 5. (1) As a general rule, it rests with the aircraft station to establish communication with the aeronautical station. For this purpose, the aircraft station may call the aeronautical station only when it comes within the service area of the latter, that is to say, that area within which, by using an appropriate frequency, the aircraft station can be heard by the aeronautical station.
MOD	7441	1066	(2) However, an aeronautical station having traffic for an aircraft station may call this station if it has reason to believe that the aircraft station is keeping watch and is within the service area of the aeronautical station.
MOD	7442	1076 Mar2*	§ 6. When an aeronautical station receives calls from several aircraft stations at practically the same time, it decides the order in which these stations may transmit

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B.3-19

their traffic. Its decision shall be based on the priority (see No. 7408/1496) of the radiotelegrams that aircraft stations have on hand and on the need for allowing each calling station to clear the greatest possible number of communications.

NOC 7443 1077 § 7. (1) When a station called does not reply to a call sent three times at intervals of two minutes, the calling shall cease and shall not be renewed until after an interval of fifteen minutes.

> (2) Before renewing the call, the calling station shall ascertain that the station called is not in communication with another station.

MOD 7445 1080 (3) If there is no reason to believe that harmful interference will be caused to other communications in progress, the provisions of No. 7443/1077 are not applicable. In such cases the call, sent three times at intervals of two minutes, may be repeated after an interval of less than fifteen minutes but not less than three minutes.

MOD 7446 1081 § 8. Aircraft stations shall not radiate a carrier wave between calls.

MOD 7447 1082 § 9. When the name and address of the administration or private operating agency controlling an aircraft station are not given in the appropriate list of stations or are no longer in agreement with the particulars given therein, it is the duty of the aircraft station to furnish as a matter of regular procedure, to the aeronautical station to which it transmits traffic, all the necessary information in this respect.

MOD 7448 1083 § 10. (1) The aeronautical station may, by means of the abbreviation TR, ask the aircraft station to furnish it with the following information:

7449 1084 <u>a)</u> position and, whenever possible, heading and speed;

MOD 7450 1085 b) next destination.

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(2) The information referred to in Nos. 7448/1083 to 7450/1085, preceded by the abbreviation TR, should be furnished by aircraft stations, whenever this seems appropriate, without prior request from the aeronautical station. The provision of this information is authorized only by the person responsible for the aircraft.

NOC	7452		B. Calls to Several Stations
NOC	7453	1088	§ 11. Two types of calling signal "to all stations" are recognized:
MOD	7454	1089	<u>a)</u> call CQ followed by the letter K (see No. 7456/1091);
NOC	7455	1090	b) call CQ not followed by the letter K (see No. 7457/1093).
NOC	7456	1091	§ 12. Stations desiring to enter into communication with stations of the mobile service without, however, knowing the names of any such stations within their service area may use the enquiry signal CQ in place of the call sign of the station called in the calling formula, the call being followed by the letter K (general call to all stations in the mobile service with request for reply).
NOC	7457	1093	§ 13. The call CQ not followed by the letter K (general call to all stations without request for reply) is used before the transmission of information of any kind intended to be read or used by anyone who can intercept it.
NOC	7458	1094	§ 14. The call CP followed by two or more call signs or by a code word (call to certain receiving stations without request for reply) is used only for the transmission of information of any nature intended to be read or used by the persons authorized.
NOC			Section III. Preliminary Operations
NOC	7459	1007 Mar2	§ 15. (1) Before transmitting, a station shall take precautions to ensure that its emissions will not interfere with transmissions already in progress; if such interference is likely, the station shall await an appropriate break in the communications in progress. This obligation does not apply to stations where unattended operation is possible through automatic means (see No. 7138/850) on frequencies dedicated to narrow-band direct-printing.
NOC	7460	1008	(2) If, these precautions having been taken, the emissions of the station should, nevertheless, interfere with a transmission already in progress, the following rules shall be applied:
MOD	7461	1009	a) the aircraft station whose emission causes interference to the correspondence of a mobile station with a land station, shall cease sending at the first request of the land station:

B.3-20
MOD 7462 1010 the aircraft station whose emission b) causes interference to communications already in progress between mobile stations shall cease sending at the first request of one of the other stations; NOC 7463 1011 <u>c)</u> the station which requests this cessation shall indicate the approximate waiting time imposed on the station whose emission it suspends. NOC Section IV. Method of Calling, Reply to Calls and Signals Preparatory to Traffic NOC 7464 Method of Calling Α. NOC 7465 1012 § 16. (1) The call consists of: the call sign of the station called, not more than three times; the word DE; the call sign of the calling station, not more than three times. NOC 7466 1013 (2) However, in the bands between 4 000 and 27 500 kHz, when the conditions of establishing contact are difficult, the call signs may be transmitted more than three times, but not more than ten times each. In this case, the call signs of the called and the calling station shall be transmitted in alternate sequence up to a total of twenty call signs altogether (e.g. ABC ABC de WXYZ WXYZ ... or ABC ABC ABC de WXYZ WXYZ WXYZ ...). This call may be sent three times at intervals of two minutes; thereafter it shall not be repeated until an interval of fifteen minutes has elapsed. 7467 NOC 1014 **§** 17. For making the call and for transmitting prepartory signals, the calling station shall use a frequency on which the station called keeps watch. B. Indication of the Frequency to Be NOC 7468 Used for Traffic MOD 7469 1016 § 18. (1) The call, as described in Nos. 7465/1012 and 7466/1013, shall be Mar2 followed by the service abbreviation indicating the working frequency and, if useful, the class of emission which the

traffic.

calling station proposes to use for the transmission of its

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MOD	7470	1017 Mar	(2) When, as an exception to this rule, the call is not followed by an indication of the frequency to be used for the traffic, this indicates:
MOD	7471	1018 Mar	a) where the calling station is an aeronautical station, that it proposes to use for traffic its normal working frequency shown in the appropriate document;
MOD	7472	1019	b) where the calling station is an aircraft station, that the frequency to be used for traffic is to be chosen by the station called from the frequencies on which the calling station can transmit.
NOC	7473	<u>C.</u>	Indication of Priority, of the Reason for the Call, and of Transmission of Radiotelegrams in Series
MOD	7474	1020 Mar2	19. (1) When the calling station has more than one radiotelegram to transmit to the station called, the above-mentioned preparatory signals shall be followed by the service abbreviation and the figure giving the number of such radiotelegrams.
NOC	7475	1021	(2) Moreover, when the calling station wishes to send its radiotelegrams in series, it shall indicate this by adding the service abbreviation for requesting the consent of the station called.
NOC	7476		D. Form of Reply to Calls
MOD	7477	1022 Mar2	§ 20. The reply to calls consists of:
			 the call sign of the calling station, not more than three times;
			- the word DE;
			- the call sign of the station called, once only.
NOC	7478		E. Frequency for Reply
NOC	7479	1023 Mar	§ 2.1 Except as otherwise provided in these Regulations, for transmitting the reply to calls and to preparatory signals, the station called shall use the frequency on which the calling station keeps watch, unless the calling station has specified a frequency for the reply.

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NOC	7480		F. Agreement on the Frequency to Be Used for Traffic
NOC	7481	1027	§ 22. (1) If the station called is in agreement with the calling station, it shall transmit:
NOC	7482	1028	<u>a)</u> the reply to the call;
NOC	7483	1029	b) the service abbreviation indicating that from that moment onwards it will listen on the working frequency announced by the calling station;
NOC	7484	1030	<u>c)</u> if necessary, the indications referred to in No. 7493 /1038;
MOD	7485	1031 Mar2	<u>d)</u> if useful, the service abbreviation and figure indicating the strength and/or intelligibility of the signals received (see Appendix 13);
NOC	7486	1032 Mar2	e) the letter K if the station called is ready to receive the traffic of the calling station.
NOC	7487	1033	(2) If the station called is not in agreement with the calling station on the working frequency to be used, it shall transmit:
NOC	7488	1034	<u>a)</u> the reply to the call;
NOC	7489	1035	b) the service abbreviation indicating the working frequency to be used by the calling station and, if necessary, the class of emission;
NOC	7490	1036	<u>c)</u> if necessary, the indications specified in No. 7493 /1038.
NOC	7491	1037	(3) When agreement is reached regarding the working frequency which the calling station shall use for its traffic, the station call shall transmit the letter K after the indications contained in its reply.
NOC	7492	<u>G.</u>	Reply to the Request for Transmission by Series
NOC	7493	1038	§ 23. The station called, in replying to a calling station which has proposed to transmit its radiotelegrams by series (see No. 7475/1021), shall indicate, by means of the service abbreviation, its acceptance or refusal. In the former case it shall specify, if necessary, the number of radiotelegrams which it is ready to receive in one series.

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NOC	7494		H. Difficulties in Reception
NOC	7495	1039	§ 24. (1) If the station called is unable to accept traffic immediately, it shall reply to the call as indicated in Nos. 7481/1027 to 7486/1032, but it shall replace the letter K by the signal (wait), followed by a number indicating in minutes the probable duration of the waiting time. If the probable duration exceeds ten minutes (five minutes in the case of an aircraft station communicating with a station of the maritime mobile service), the reason for the delay shall be given.
NOC	7496	1040	(2) When a station receives a call without being certain that such a call is intended for it, it shall not reply until the call has been repeated and understood. When, on the other hand, a station receives a call which is intended for it but is uncertain of the call sign of the calling station, it shall reply immediately using the service abbreviation in place of the call sign of this latter station.
NOC			Section V. Forwarding (Routing) of Traffic
NOC	7497		A. Traffic Frequency
MOD	7498	1041	§ 25. (1) As a general rule, a station of the aeronautical mobile service shall transmit its traffic on one of its working frequencies in that band in which the call has been made.
MOD	7499	1043	(2) The use of frequencies reserved for calling shall be forbidden for traffic, except distress traffic (see Chapter NIX).
NOC	7500	1044 Mar2	(3) If the transmission of a radiotelegram is to take place on a frequency and/or with a class of emission other than those used for the call, the transmission of the radiotelegram shall be preceded by:
			more than twice;
			- the word DE;
			 the call sign of the calling station, once only.
NOC	7501	1045	(4) If the transmission is to be made on the same frequency and with the same class of emission as the call, the transmission of the radiotelegram shall be preceded, if necessary, by:

the call sign of the station called;

B.3-25

- the word DE;

- the call sign of the calling station.

NOC	7502		B. Numbering in Daily Series
MOD	7503	1046	§ 26. (1) As a general rule, radiotelegrams in the public correspondence service transmitted by aircraft stations shall be numbered in a daily series; number 1 shall be given to the first radiotelegram sent each day to each separate station.
NOC	7504	1047	(2) A series of numbers which has begun in radiotelegraphy should be continued in radiotelephony and vice versa.
NOC	7505		C. Long Radiotelegrams
NOC	7506	1048	§ 27. (1) In cases where both stations are able to change from sending to receiving without manual switching, the transmitting station may continue to send until completion of the message or until the receiving station breaks in on the transmission with the service abbreviation BK. Before commencing, both stations normally agree on such a method of working by means of the abbreviation QSK.
NOC	7507	1049	(2) If this method of working cannot be employed, long radiotelegrams, whether in plain language or in secret language, shall, as a general rule, be transmitted in sections, each section containing fifty words in the case of plain language and twenty words or groups if secret language is used.
NOC	7508	1050	(3) At the end of each section the signal (?) meaning "Have you received the radiotelegram correctly up this point?" shall be transmitted. If the section has been correctly received, the receiving station shall reply by sending the letter K and the transmission of the radiotelegram shall be continued.
NOC	7509		D. Suspension of Traffic
MOD	7510	1051	§ 28. When an aircraft station transmits on a working frequency of an aeronautical station and causes interference to the transmission of such an aeronautical station, it shall suspend working at the first request of the latter.

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NOC			Section VI. End of Traffic and Work
NOC	7511		A. Signal for the End of Transmission
NOC	7512	1052	§ 29. (1) The transmission of a radiotelegram shall be terminated by the signal (end of transmission), followed by the letter K.
NOC	7513	1053	(2) In the case of transmission by series, the end of each radiotelegram shall be indicated by the signal $$ (end of transmission) and the end of the series by the letter K.
NOC	7514		B. Acknowledgement of Receipt
NOC	7515	1054	\$ 30. (1) The acknowledgement of receipt of a radiotelegram or a series of radiotelegrams shall be given by the receiving station in the following manner:
			 the call sign of the sending station;
			- the word DE;
			- the call sign of the receiving station;
			 the letter R followed by the number of the radiotelegram; or
			 the letter R followed by the number of the last radiotelegram of a series.
MOD	7516	1055	(2) The acknowledgement of receipt shall be transmitted by the receiving station on the traffic frequency (see No. 7498/1041).
NOC	7517		C. End of Work
NOC	7518	1056	§ 31. (1) The end of work between two stations shall be indicated by each of them by means of the signal (end of work).
NOC	7519	1057	(2) The signal (end of work) shall also be used:
			 when the transmission of radiotelegrams of general information, meteorological information and general safety notices is finished; and
			 when transmission is ended in long-distance radiocommunication services with deferred acknowledgement of receipt

or without acknowledgement of receipt.

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NOC			Section VII. Control of Working
NOC	7520	1058	§ 32. The provisions of this section are not applicable in cases of distress, urgency or safety (see No. 7434/1000).
MOD	7521	1059	33. In communication between aeronautical stations and aircraft stations the aircraft station shall comply with the instructions given by the aeronautical station, in all questions relating to the order and time of transmission, to the choice of frequency and class of emission, and to the duration and suspension of work.
MOD	7522	1060	§ 34. In communication between aircraft stations the station called shall control the working in the manner indicated in No. 7521 /1059. However, if an aeronautical station finds it necessary to intervene, these stations shall comply with the instructions given by the aeronautical station.
NOC			Section VIII. Tests
MOD	7523	1061	8 35. When it is necessary for an aircraft station to send signals for testing or adjustment which are liable to interfere with the working of neighbouring coast or aeronautical stations, the consent of these stations shall be obtained before such signals are sent.
MOD	7524	1062	§ 36. When it is necessary for a station in the aeronautical mobile service to send test signals, either for the adjustment of a transmitter before making a call or for the adjustment of a receiver, such signals shall not be continued for more than ten seconds and shall be composed of a series of VVV followed by the call sign of the station emitting the test signals.
	7525 to 7549		NOT allocated.

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ARTICLE N50

NOC			Radiotelephone Procedure in the Aeronautical Mobile Service — Calls
NOC	7550	1296	8 1. The provisions of this Article are not applicable to the aeronautical mobile service when special fagreements exist between the governments concerned.
MOD	7551	1298	§ 2. (1) As a general rule, it rests with the aircraft station to establish communication with the aeronautical station. For this purpose the aircraft station may call the aeronautical station only when it comes within the service area of the latter, that is to say, that area within which, by using an appropriate frequency, the aircraft station can be heard by the aeronautical station.
MOD	7552	1299	(2) However, an aeronautical station having traffic for an aircraft station may call this station if it has reason to believe that the aircraft station is keeping watch and is within the service area of the aeronautical station.
MOD	7553	1307 Mar2*	§ 3. When an aeronautical station receives calls from several aircraft stations at practically the same time, it decides the order in which these stations may transmit their traffic. Its decision shall be based on the priority (see No. 7408/1496) of the radiotelegrams or radiotelephone calls that aircraft stations have on hand and on the need for allowing each calling station to clear the greatest possible number of communications.
NOC	7554	1308	§ 4. (1) When a station called does not reply to a call sent three times at intervals of two minutes, the calling shall cease and shall not be renewed until after an interval of fifteen minutes.
NOC	7555	1310	(2) Before renewing the call, the calling station shall ascertain that the station called is not in communication with another station.
MOD	7556	1311	(3) If there is no reason to believe that harmful interference will be caused to other communications in progress, the provisions of No. 7554/1308 are not applicable. In such cases the call, sent three times at intervals of two minutes, may be repeated after an interval of less than fifteen minutes but not less than three minutes.

MOD	7557	1312	š 5.	Aircraft	stations	shall	not	radiate	а
			carrier	wave between	n calls.				

MOD 7558 1313 § 6. When the name and address of the administration or private operating agency controlling an aircraft station are not given in the appropriate list of stations or are no longer in agreement with the particulars given therein, it is the duty of the aircraft station to furnish as a matter of regular procedure, to the aeronautical station to which it transmits traffic, all the necessary information in this respect.

MOD75591314§ 7. (1) The aeronautical station may, by means
of the abbreviation TR (spoken as TANGO ROMEO), ask the
aircraft station to furnish it with the following
information:

MOD **7560** 1315

Mar.

 a) position and, whenever possible, heading and speed;

MOD 7561 1316 b) next destination.

MOD **7562** 1317

(2) The information referred to in Nos. 7559/1314 to 7561/1316, preceded by the abbreviation TR, should be furnished by aircraft stations, whenever this seems appropriate, without prior request from the aeronautical station. The provision of this information is authorized only by the person responsible for the aircraft.

7563 to

NOT allocated.

7662

(Geneva, 1979)

Document No. 444-E 31 October 1979 Original : French

COMMITTEE 5

France

DEFINITION OF THE RADIO ASTRONOMY SERVICE

In the existing version of the Radio Regulations, the radio astronomy service is not defined as a radiocommunication service (see No. 3121/75), although the reception of the natural signals emitted by the stars is in fact "radiocommunication" within the meaning of Nos. 3004/9 and 3002/2, because it is the "reception of ... signals ... by radio ... systems". The radio astronomy service is, moreover, regarded as a radiocommunication service, for example, for the purpose of the regulation of cases of interference, as stipulated in No. 3281/116A.

In its proposal F/57A/543 (Document No. 57A), France proposes that the radio astronomy service should be defined in Article 1 as a radiocommunication service. The only difference between the radio astronomy service and the other radicommunication services is that the signals received by radio astronomy stations are emitted naturally by the stars and are not emitted deliberately by a transmitting station. But other services have receiving stations which receive signals emitted naturally : these are the space radicommunication services which use passive detectors on board satellites, for example, the space research service, or the Earth (radio) exploration-satellite service; in these cases, the signals consist of the natural emissions of the Earth or its atmosphere.

The systems using passive detectors on board satellites are not excluded from the space radiocommunication services. Radio astronomy should therefore also be regarded as a radicommunication service, which would accord with the definition ADD 3023X proposed by Working Group 5A (Document No. 382).

If radio astronomy were not regarded as a radiocommunication service, it would not be possible to maintain the systems using passive detectors in the space radicommunication services as is at present the case in the space research service, for example.



(Geneva, 1979)

Document No. 445-E 31 October 1979 Original : English

WORKING GROUP 5BA

REPORT OF AD HOC WORKING GROUP 5BA-1

Subject : Allocations in bands 130 - / 490 7 kHz in Region 1

The ad hoc Group, with representatives from the Administrations of Algeria, Ivory Coast, France, Greece, Netherlands, Norway, United Kingdom, Senegal, Sweden, USSR, Yugoslavia, and from IATA, ICAO and IMCO, has held two meetings. After discussions in accordance with the terms of reference entrusted to it by Working Group 5BA in Document No. DL/105, the ad hoc Group was unable to agree upon a Recommendation to Working Group 5BA regarding the aeronautical radionavigation service. Some delegations felt that the ad hoc Group could not properly reflect the opinion of Working Group 5BA or Committee 5, and they therefore wanted the matter to be discussed at a higher level.

However, after the discussions in the ad hoc Group two main ideas remained concerning the band 415 - / 490 / kHz :

1. Some delegations preferred to maintain status quo in the Table i.e. FC, but with a footnote indicating those countries who want AL as an alternative service. Furthermore, a Recommendation should be written on the convening of an administrative radio conference to prepare a revised frequency assignment plan for the maritime mobile service in this band. Such a plan could leave possibilities to meet the needs of the aeronautical radionavigation service.

2. A majority within the ad hoc Group favoured a combined Senegal-Netherlands proposal, put forward in an effort to reach a compromise :

255 - 283.5 kHz BC /AL/ 415 - 435 kHz AL /FC/ 435 - / 490 7 kHz FC Al.

After a brief discussion the ad hoc Group considered that the limits of the low-frequency broadcasting band should be 148.5 and 283.5 kHz. The delegate of the USSR reserved the right to come back to this matter.

The ad hoc Group furthermore concluded that the aeronautical mobile service will not need the band 325 - 405 kHz in the future, and should be deleted.

G. MALMGREN Acting Chairman of ad hoc Group 5BA-1



(Geneva, 1979)

Document No. 446-E 31 October 1979 Original : English

COMMITTEE 6

REPORT OF WORKING GROUP 6 AD HOC 1 TO COMMITTEE 6

The Working Group has considered the proposal G/358/986 and has agreed to present the Resolution shown in the Annex for adoption by Committee 6.

P.V. LARSEN Chairman of Working Group 6 ad hoc 1

Annex : 1



Document No. 446-E Page 2

ANNEX

RESOLUTION No.

Relating to the circulation of current information on CCIR Recommendations referred to in the Radio Regulations

The World Administrative Radio Conference, Geneva, 1979,

noting

a) that reference is made in the Radio Regulations to specific CCIR Recommendations as well as to "relevant CCIR Recommendations";

b) that Resolution Spa2 - 6 provides for consultation on the applicability of those CCIR Recommendations relating to the technical criteria for sharing frequency bands between space radiocommunication and terrestrial radiocommunication services or between space radiocommunication services;

c) that the CCIR Recommendations may be revised by CCIR Plenary Assemblies, with consequent changes of reference numbers;

considering

a) that a correct application of the Radio Regulations requires the identification by Administrations of the relevant CCIR Recommendations to be taken into account;

ъ)

) that information on the up-dating of these Recommendations is of the utmost importance;

invites the CCIR

1. to identify and list those provisions of the Radio Regulations containing a reference to a specific CCIR Recommendation or to a "relevant CCIR Recommendation" together with the reference numbers and titles of those Recommendations;

2. to instruct the Director of the CCIR to provide the Secretary-General with information required to up-date the list;

requests the Secretary-General to transmit to all Administrations the list of these Recommendations as well as any subsequent up-dating thereof.

INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 447-E 31 October 1979 Original : French English Spanish

WORKING GROUP 5A

REPORT OF SUB-WORKING GROUP 5A3 TO WORKING GROUP 5A

The Sub-Working Group adopted definitions for the terms :

allocation

- allotment
- assignment.

The texts of these definitions are given in the Annex.

The delegation of Greece reserved its position on the definition of the term "Assignment".

R. BLETTERIE Chairman of Sub-Working Group 5A3

Annex : 1



A N N E X

a) <u>Allocation (of a frequency band)</u>: Entry in the Table of Frequency Allocations of these Radio Regulations of a given frequency band for the purpose of its use by one or more named radio services under specified conditions. This term shall also be applied to the frequency band concerned.

b) <u>Allotment (of a frequency channel)</u>: Entry of a designated frequency channel, in an agreed plan adopted / by a competent Conference_/, for use by one or more Administrations for a radiocommunications service in one or more defined countries or geographical areas and under specified conditions.

c) <u>Assignment (of a radio frequency or radio frequency channel)</u>: Authorization given by an Administration to a radio station to use a frequency or radio frequency channel under prescribed conditions.

(Geneva, 1979)

Addendum No. 1 to Document No. 448(Rev.1)-E 10 November 1979 Original : English

COMMITTEE

THIRD REPORT OF WORKING GROUP 5E TO COMMITTEE 5

Add, on page 3 :

- in the box 95 - 100 GHz : <u>3814CA</u> against MOBILE

- at the bottom of the page, the following footnote :

ADD

3814CA

In the bands 43.5 - 47 GHz, 66 - 71 GHz, 95 - 100 GHz, 134 - 142 GHz, 190 - 200 GHz and 252 - 265 GHz, the use of stations in the land mobile service is subject to not causing harmful interference to the satellite services to which these bands are allocated (see No. 3442/148).

> A.W. ADEY Chairman of Working Group 5E



(Geneva, 1979)

Document No. 448(Rev.1)-E 9 November 1979 Original : English

COMMITTEE 5

THIRD REPORT OF WORKING GROUP 5E TO COMMITTEE 5 (ALLOCATIONS)

Subject : Frequency bands between 84 GHz and 105 GHz

All of the proposals for this band were examined and the Working Group 5E <u>decided</u> <u>unanimously</u> to recommend the adoption of the Table of Allocations shown in the Annex.

Dr. A.W. ADEY Chairman of Working Group 5E

Annex : 1



ANNEX

GHz 84 - 95

Allocation to Services					
Region 1	Region 2	Region 3			
84 - 86	FIXED				
	MOBILE				
	BROADCASTING				
	BROADCASTING-SATELLITE				
· · · · ·	3815F	. ·			
86 - 92	EARTH EXPLORATION-SATELLI	TE (Passíve)			
	RADIO ASTRONOMY				
	SPACE RESEARCH (Passive)				
	3815/412J				
92 - 95	FIXED				
	FIXED-SATELLITE (Earth-to	-space)			
	MOBILE				
	RADIOLOCATION				
	3815G				

- MOD 3815/412J In the bands 51.4 54.25 GHz, 58.2 59 GHz, 64 65 GHz, 86 - 92 GHz, 105 - 116 GHz, and 217 - 231 GHz all emissions are prohibited. In these bands the use of passive sensors by other services is also authorized.
- ADD 3815F In the band 84 86 GHz, the stations in the fixed, mobile and broadcasting services shall not cause harmful interference to the broadcasting-satellite stations operating in accordance with the decisions of the appropriate frequency assignment planning conference for the broadcastingsatellite service.
- ADD 3815G The band 93.07 93.27 GHz is also used by the radio astronomy service for spectral line observations. In making assignments to stations of other services to which this band is allocated, Administrations are urged to take all practicable steps in the band to protect radio astronomy observations from harmful interference. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 3280/116 and 3281/116A and Article N33A).

GHz 95 - 100

Region 1	Region 2	Region 3
95 - 100	MOBILE	
й ,	MOBILE-SATELLITE	
	RADIONAVIGATION	
	RADIONAVIGATION-SATELLITE	
	Radiolocation	
	3814C 3814D	- <u>.</u>

- ADD 3814C In the bands 43.5 47 GHz, 66 71 GHz, 95 100 GHz, 134 - 142 GHz, 190 - 200 GHz, and 252 - 265 GHz, satellite links connecting land stations at specified fixed points are also authorized when used in conjunction with the mobile-satellite service or the radionavigation-satellite service.
- ADD 3814D The bands 48.94 49.04 GHz and 97.88 98.08 GHz are also allocated to the radio astronomy service on a primary basis for spectral line observations. In making assignments to stations of other services to which these bands are allocated, Administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 3280/116 and 3281/116A and Article N33A).

GHz 100 - 105

100 - 102	EARTH EXPLORATION-SATELLITE (Passive)
	FIXED
	MOBILE
· · · · ·	SPACE RESEARCH (Passive)
	3679A

GHz 100 - 105 (cont.)

Region 1	Region 2	Region 3	
102 - 105	FIXED		
	FIXED-SATELLITE (Space-to-Earth)		
	MOBILE		
· · · · · · · · · · · · · · · · · · ·	3679A		

ADD 3679A In the bands / 1 400 - 1 727 MHz, / 101 - 120 GHz, and 197 - 220 GHz, passive research is being conducted by some countries in a programme for the search for intentional emissions of extra-terrestrial origin.

(Geneva, 1979)

Document No. 448-E 3 November 1979 Original : English

COMMITTEE 5

THIRD REPORT OF WORKING GROUP 5E TO COMMITTEE 5

(ALLOCATIONS)

Subject : Frequency bands between 84 GHz and 105 GHz

1. All of the proposals for this band were examined and the Working Group 5E <u>decided</u> <u>unanimously</u> to recommend to Committee 5 the table of allocations and the related footnotes shown in the Annex.

2. Consideration of the proposals for the Earth exploration (passive) service for the bands 86 - 92 GHz and 100 - 102 GHz was deferred pending a decision in Working Group 5A on a definition for this service.

Dr. A.W. ADEY Chairman of Working Group 5E

Annex : 1



ANNEX

GHz 84 - 95

	·		
	Allocation to Services	·	
Region l	Region 2	Region 3	
84 - 86	FIXED		
	MOBILE	· · ·	
	BROADCASTING		
	BROADCASTING-SATELLITE		
	3815I		
86 - 92	EARTH EXPLORATION-SATELLITE (Passive)		
	RADIO ASTRONOMY SPACE RESEARCH (Passive) 3815/412J		
92 - 95	FIXED		
	FIXED-SATELLITE (Earth-to-space)		
	MOBILE		
	RADIOLOCATION		
	3815J		

- MOD 3815/412J In the bands 51.4 54.25 GHz, 58.2 59 GHz, 64 65 GHz, 86 - 92 GHz, / 105 - 116 GHz and 217 - 231 GHz / all emissions are prohibited. In these bands the use of passive sensors by other services is also authorized.
- ADD 38151 In the band 84 86 GHz, the stations in the fixed, mobile and broadcasting services shall not cause harmful interference to the broadcasting-satellite stations operating in accordance with the decisions of the appropriate frequency assignment planning conference for the broadcastingsatellite service.
- ADD 3815J The band 93.07 93.27 GHz is also used by the radio astronomy service for spectral line observations. In making assignments to stations of other services to which this band is allocated, Administrations are urged to take all practicable steps in the band to protect radio astronomy observations from harmful interference. Emissions from space and airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 3280/116 and 3281/116A and Article N / /).

Annex to Document No. 448-E Page 3

GHz 95 - 100

Region 1	Region 2	Region 3
95 - 100	MOBILE	
	MOBILE-SATELLITE 3815E	
	RADIONAVIGATION	
	RADIONAVIGATION-SATELLITE	3815E
	Radiolocation	
	3815в	

- ADD 3815E In the bands 43.5 47 GHz, 66 71 GHz, 95 100 GHz, / 134 - 142 GHz, 190 - 200 GHz and 252 - 265 GHz, / satellite links connecting land stations at specified fixed points are also authorized when used in conjunction with the mobile-satellite service or the radionavigation-satellite service.
- ADD 3815B The bands 48.94 49-04 GHz and 97.88 98.08 GHz are also allocated to the radio astronomy service on a primary basis for spectral line observations. In making assignments to stations of other services to which these bands are allocated, Administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 3280/116 and 3281/116A and Article N $\frac{7}{2}$).

GHz 100 - 105

100 - 102	EARTH EXPLORATION-SATELLITE (Passive)
	FIXED
	MOBILE
	SPACE RESEARCH (Passive)
	3679A

GHz 100 - 105 (cont.)

Region 1	Region 2	Region 3	
102 - 105	FIXED		
	FIXED-SATELLITE (Space-to-Earth)		
	MOBILE		
	3679A		

ADD

3679A In the bands / 1 400 - 1 727 MHz, / 101 - 105 / 120 / GHz, / and 197 - 220 GHz /, passive research is being conducted by some countries in a programme for the search for intentional emissions of extra-terrestrial origin.

(Geneva, 1979)

Corrigendum No. 1 to Document No. 449(Rev.1)-E 10 November 1979 Original : English

COMMITTEE 5

FOURTH REPORT OF WORKING GROUP 5E TO COMMITTEE 5

1. On Page 2

- in the boxes 116 - 126 GHz and 126 - 134 GHz, after MOBILE :

a) delete "except aeronautical mobile" and

b) add 3815BA;

- Add the following footnote :

ADD 3815BA In the bands 54.25 - 58.2 GHz, 59 - 64 GHz, 116 - 134 GHz, 170 - 182 GHz and 185 - 190 GHz, the use of stations in the aeronautical mobile service is subject to not causing harmful interference to the inter-satellite service (see No. 3442/148).

- Replace footnote 3815C, by the following :

ADD 3815C In the bands 59 - 64 GHz and 126 - 134 GHz, the use of airborne radars in the radiolocation service is subject to not causing harmful interference to the inter-satellite service (see No. 3442/148).

2. <u>On Page 3</u>

<u>Add</u>: in the box 134 - 142 GHz : <u>3814CA</u> against MOBILE and at the bottom of the page, the following footnote :

ADD 3814CA In the bands 43.5 - 47 GHz, 66 - 71 GHz, 95 - 100 GHz, 134 - 142 GHz, 190 - 200 GHz and 252 - 265 GHz, the use of stations in the land mobile service is subject to not causing harmful interference to the satellite services to which these bands are allocated (see No. 3442/148).

> A.W. ADEY Chairman of Working Group 5E



(Geneva, 1979)

Document No. 449(Rev.1)-E 9 November 1979 Original : English

COMMITTEE 5

FOURTH REPORT FROM WORKING GROUP 5E TO COMMITTEE 5

(ALLOCATIONS)

 $\underline{Subject}$: Band of frequencies between 105 and 149 GHz

1. The Working Group examined all of the proposals for this band of frequencies and decided <u>unanimously</u> to recommend the adoption of the Table of Allocations as shown in the Annex.

2. The Working Group agreed to designate frequency 122 GHz to be used for ISM applications and has used standard text No. 6.2 of Document No. 239(Rev.2) for this purpose.

3. On the subject of sharing between the inter-satellite service and other services in the bands 116 - 126 GHz and 126 - 134 GHz, see the draft Recommendations in Document No. / DT/194(Rev.1)_7

A.W. ADEY Chairman of Working Group 5E

Annex : 1



ANNEX

GHz 105 - 126

Region 1Region 2Region 3105 - 116EARTH EXPLORATION-SATELLITE (Passive) RADIO ASTRONOMY	
105 - 116 EARTH EXPLORATION-SATELLITE (Passive) RADIO ASTRONOMY	
RADIO ASTRONOMY	
SPACE RESEARCH (Passive)	
3679A 3815/412J	
116 - 126 EARTH EXPLORATION-SATELLITE (Passive)	
FIXED	
INTER-SATELLITE	
MOBILE except aeronautical mobile	
SPACE RESEARCH (Passive)	
3679A 3816A 3816B	
3816/412K	<u> </u>
3679A In the bands / 1 400 - 1 727 MHz, 7 101 - 120 GHz 197 - 220 GHz, passive research is being conducted by some countries in programme for the search for intentional emissions of extra-terrestria	, and n a 1 origin.
3815/412J In the bands 51.4 - 54.25 GHz, 58.2 - 59 GHz, 64 - 86 - 92 GHz, 105 - 116 GHz, and 217 - 231 GHz all emissions are prohibe In these bands the use of passive sensors by other services is also aut	- 65 GHz, ited. thorized.
3816A The band 122 - 123 GHz is designated for industrial scientific and medical (ISM) applications (centre frequency 122.5 GHz) use of this frequency band for ISM applications shall be subject to spe authorization by the Administration concerned in agreement with other Administrations whose radiocommunication services might be affected. If applying this provision Administrations shall have due regard to the la CCIR Recommendations.	1, The cial In test
3816B The band 119.98 - 120.02 GHz is also allocated to amateur service on a secondary basis.	the
GHz 126 - 134	
126 - 134 FIXED	
INTER-SATELLITE	
MOBILE except aeronautical mobile	• •
RADIOLOCATION 3815C	

SUP

ADD

MOD

ADD

ADD

ADD 38150

In the bands 59 - 64 GHz and 126 - 134 GHz the use of airborne radars is prohibited.

GHz 134 - 149

Region 1 Region 2 Region 3 134 - 142 MOBILE MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE Radiolocation 3814C 3816C 3816D 142 - 144 AMATEUR AMATEUR-SATELLITE 144 - 149 RADIOLOCATION Amateur Amateur-satellite 3816C

ADD

ADD

3814C

3816C

134 - 142 GHz, 190 - 200 GHz, and 252 - 265 GHz, satellite links connecting land stations at specified fixed points are also authorized when used in conjunction with the mobile-satellite service or the radionavigation-satellite service.

In the bands 43.5 - 47 GHz, 66 - 71 GHz, 95 - 100 GHz,

The bands 140.69 - 140.98 GHz, 144.68 - 144.98 GHz, 145.45 - 145.75 GHz and 146.82 - 147.12 GHz are also allocated to the radio astronomy service on a primary basis for spectral line observations. In making assignments stations of other services to which the bands are allocated Administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service. (See Nos. 3280/116 and 3281/116A and Article N33A.)

3816D ADD

In the band 140.69 - 140.98 GHz all emissions from airborne stations, and from space stations in the space-to-Earth direction, are prohibited.

(Geneva, 1979)

Document No. 449-E 3 November 1979 Original : English

COMMITTEE 5

FOURTH REPORT FROM WORKING GROUP 5E TO COMMITTEE 5

(ALLOCATIONS)

Subject : Band of frequencies between 105 and 149 GHz

1. The Working Group examined all of the proposals for this band of frequencies and decided <u>unanimously</u> to recommend to Committee 5 the Table of Allocations shown in the Annex.

2. The Working Group recommended that Committee 5 refer to Committee 4 for study of the question of the necessity to include "except aeronautical mobile" in the mobile service in the band 116 - 126 GHz, 126 - 134 GHz shared with the inter-satellite service. A related issue is that of sharing between the inter-satellite service and airborne radars in the radiolocation service in the band 126 - 134 GHz. Reference Document No. 379.

3. The Working Group agreed with the Recommendation of the Working Group 5/ad hoc 3 (Document No. 374(Rev.1) regarding the designation of ISM in the band 122 - 123 GHz. It was noted that the document had not yet been approved by Committee 5. The footnote is in square brackets pending a decision in Committee 5 on both the frequency and the standard text.

	Α.	.W.	ADEY		
Chairman	•of	Wo	rking	Group	5E

Annex : 1



ANNEX

GHz

105 - 126

Region 1	Region 2	Region 3
105 - 116	EARTH EXPLORATION-SATELLITE (Passive)	
	RADIO ASTRONOMY	
	SPACE RESEARCH (Passive)	
	3679A 3815/412J	
116 - 126	EARTH EXPLORATION-SATELLI	IE (Passive)
•	FIXED	· <i>t</i> ,
	INTER-SATELLITE	
	MOBILE / except aeronauti	cal mobile_7
	SPACE RESEARCH (Passive)	
	3679a / 3816a 7 3816b	

SUP 3816/412K

ADD 3679A In the bands / 1 400 - 1 727 MHz, 7 101 - 120 GHz / and 197 - 220 GHz 7, passive research is being conducted by some countries in a programme for the search for intentional emissions of extra-terrestrial origin. MOD 3815/412J In the bands 51.4 - 54.25 GHz, 58.2 - 59 GHz, 64 - 65 GHz,

86 - 92 GHz, 105 - 116 GHz / and 217 - 231 GHz / all emissions are prohibited. In these bands the use of passive sensors by other services is also authorized. / ADD 3816A The band 122 - 123 GHz is designated for industrial,

> scientific and medical applications (centre frequency 122.5 GHz) ISM equipment operating in this band shall not cause harmful interference to radio services operating inside or outside this band in accordance with the provisions of these Regulations. In applying this provision Administrations shall have due regard to the latest relevant CCIR Recommendations. 7

ADD 3816B

Additional allocation : The band 119.98 - 120.02 GHz is also allocated to the amateur service on a secondary basis.

C	Ηz	Z
126	_	131

126 - 134 INTER-SATELLITE MOBILE / except aeronautical mobile_7 RADIOLOCATION / 3815F_7 / ADD 3815F

In the bands 59 - 64 GHz and 126 - 134 GHz the use of airborne radars is prohibited.

C	Ηz	Z	
134	-	149	

Region 1	Region 2	Region 3
134 - 142	MOBILE	
· .	MOBILE-SATELLITE 3815E	
	RADIONAVIGATION	
	RADIONAVIGATION-SATELLITE	3815E
	Radiolocation	
	3816C 3816D	
142 - 144	AMATEUR	
	AMATEUR-SATELLITE	
144 - 149	RADIOLOCATION	
	Amateur	•
	Amateur-satellite	
	3816C	

ADD 3815E

3816C

3816D

In the bands 43.5 - 47 GHz, 66 - 71 GHz, 95 - 100 GHz, 134 - 142 GHz / 190 - 200 GHz and 252 - 265 GHz /, satellite links connecting land stations at specified fixed points are also authorized when used in conjunction with the mobile-satellite service or the radionavigation-satellite service.

The bands 140.69 - 140.98 GHz, 144.68 - 144.98 GHz, 145.45 - 145.75 GHz and 146.82 - 147.12 GHz are also allocated to the radio astronomy service on a primary basis for spectral line observations. In making assignments stations of other services to which the bands are allocated Administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service. (See Nos. 3280/116 and 3281/116A and Article N / /.)

In the band 140.69 - 140.98 GHz all emissions from airborne stations, and from space stations in the space-to-Earth direction, are prohibited.

ADD

ADD

INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

Corrigendum No. 1 to Document No. 450(Rev.1)-E 10 November 1979 Original : English

(Geneva, 1979)

COMMITTEE 5

FIFTH REPORT OF WORKING GROUP 5E TO COMMITTEE 5

1. On Page 3

- in the boxes 170 - 174.5 GHz, 174.5 - 176.5 GHz, 176.5 - 182 GHz and

on Page 4

- in the box 185 190 GHz, after MOBILE :
- a) <u>delete</u> "except aeronautical mobile" and
- b) add 3815BA

2. <u>On Page 3</u>, add the following footnote :

ADD 3815BA In the bands 54.25 - 58.2 GHz, 59 - 64 GHz, 116 - 134 GHz, 170 - 182 GHz and 185 - 190 GHz, the use of stations in the aeronautical mobile service is subject to not causing harmful interference to the inter-satellite service (see No. 3442/148).

3. <u>On Page 4</u>, add in the box 190 - 200 GHz : <u>3814CA</u> against MOBILE at the bottom of the page, the following footnote :

ADD 3814CA

In the bands 43.5 - 47 GHz, 66 - 71 GHz, 95 - 100 GHz, 134 - 142 GHz, 190 - 200 GHz and 252 - 265 GHz, the use of stations in the land mobile service is subject to not causing harmful interference to the satellite services to which these bands are allocated (see No. 3442/148).

> A.W. ADEY Chairman of Working Group 5E



(Geneva, 1979)

Document No. 450(Rev.1)-E 9 November 1979 Original : English

COMMITTEE 5

FIFTH REPORT OF WORKING GROUP 5E TO COMMITTEE 5

(ALLOCATIONS)

Subject : Frequency band between 149 and 217 GHz

1. All proposals relating to this band were considered and the Working Group <u>decided</u> <u>unanimously</u> to recommend the adoption of the Table of Allocations as shown in the Annex.

2. On the subject of sharing between the inter-satellite service and other services in the bands 168 - 170 GHz, 170 - 174.5 GHz, 174.5 - 176.5 GHz, 176.5 - 182 GHz and 185 - 190 GHz, see the draft Recommendations in Document No. / DT/194(Rev.1)/.

A.W. ADEY Chairman of Working Group 5E

Annex : 1



ANNEX

(3H2	Z
149	-	170

.

Region 1	Region 2	Region 3
149 - 150	FIXED	
	FIXED-SATELLITE (Space-to-Earth)	
· · · · · · · · · · · · · · · · · · ·	MOBILE	
150 - 151	EARTH EXPLORATION-SATELLITE (Passive)	
	FIXED	
	FIXED-SATELLITE (Space-to	-Earth)
	MOBILE	,
	SPACE RESEARCH (Passive)	
	3816E	
151 - 164	FIXED	
	FIXED-SATELLITE (Space-to	-Earth)
	MOBILE	
164 - 168	EARTH EXPLORATION-SATELLI	TE (Passive)
	RADIO ASTRONOMY	
	SPACE RESEARCH (Passive)	
168 - 170	FIXED	
	MOBILE	

C	Ηz	2
170	$\overline{\nabla}$	182

Region 1	Region 2	Region 3
170 - 174.5	FIXED	
	INTER-SATELLITE	
	MOBILE except aeronautica	l mobile
	3816E	
174.5 - 176.5	EARTH EXPLORATION-SATELLITE (Passive)	
	FIXED	
	INTER-SATELLITE	
	MOBILE except aeronautica	al mobile
	SPACE RESEARCH (Passive)	
	3816E	
176.5 - 182	FIXED	
	INTER-SATELLITE	
	MOBILE except aeronautics	al mobile .
	3816E	

ADD

The bands 150 - 151 GHz, 174.42 - 175.02 GHz, 177 - 177.4 GHz, 178.2 - 178.6 GHz, 181 - 181.46 GHz and 186.2 - 186.6 GHz are also allocated to the radio astronomy service on a secondary basis for spectral line observations. In making assignments to stations of other services to which these bands are allocated, Administrations are urged to take all practicable steps in these bands to protect radio astronomy service from harmful interference. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service. (See Nos. 3280/116 and 3281/116A and Article N33A.)

Annex to Document No. 450(Rev.1)-E Page 4

Region 1 Region 2 Region 3 182 - 185 EARTH EXPLORATION-SATELLITE (Passive) RADIO ASTRONOMY SPACE RESEARCH (Passive) 3816F 3816G 185 - 190 FIXED INTER-SATELLITE MOBILE except aeronautical mobile 3816E 190 - 200 MOBILE MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 3679A 3814C 200 - 202 EARTH EXPLORATION-SATELLITE (Passive) FIXED MOBILE SPACE RESEARCH (Passive) 3679A

(GΗ2	Z
182	÷	202

ADD	3679A	In the bands $/1400 - 1727$ MHz, $/101 - 120$ GHz, and 197 - 220 GHz, passive research is being conducted by some countries in a programme for the search for intentional emissions of extra-terrestrial origin:
ADD	3814C	In the bands 43.5 - 47 GHz, 66 - 71 GHz, 95 - 100 GHz, 134 - 142 GHz, 190 - 200 GHz and 252 - 265 GHz satellite links connecting land stations at specified fixed points are also authorized when used in conjunction with the mobile-satellite service or the radionavigation-satellite service.
ADD	3816F	Additional Allocation : in the United Kingdom the band 182 - 185 GHz is also allocated to the fixed and mobile services on a primary basis.
ADD	3816G	In the band 182 - 185 GHz all emissions are prohibited except for those under the provisions of No. 3816F. The use of passive sensors by other services is also authorized.
GHz 202.- 217

Region 1	Region 2	Region 3
202 - 217	FIXED	
	FIXED-SATELLITE (Earth-to	o-space)
	MOBILE	
! 	3679A	

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 450-E 3 November 1979 Original : English

COMMITTEE 5

FIFTH REPORT OF WORKING GROUP 5E TO COMMITTEE 5 (ALLOCATIONS)

Subject : Frequency band between 149 - 217 GHz

1. All proposals relating to this band were considered and the Working Group decided unanimously to recommend the adoption of the Table shown in the Annex.

2. In a review by Working Group 5E of proposals for allocations in the bands 170 - 182 GHz and 185 - 190 GHz, sharing in each band between the intersatellite and the mobile service was proposed. The question of the necessity to include "except aeronautical mobile" in the mobile service for protection of the intersatellite service was raised. It was decided to request the Chairman of Committee 5 to refer the question to Committee 4 for further study. Reference Document No. 379.

3. Consideration of the proposal for the Earth Exploration (passive) service in the band 182 - 185 GHz, was deferred until the definition for this service is decided on in Working Group 5A. An early decision on this point would aid Working Group 5E in finalizing its work.

> A.W. ADEY Chairman of Working Group 5E

Annex : 1



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ANNEX

GHz 149 - 170

Region 1	Region 2	Region 3	
149 - 164	FIXED		
	FIXED-SATELLITE (Space-to-Earth)		
	MOBILE		
	3816E		
164 - 168	EARTH EXPLORATION-SATELLITE (Passive)		
RADIO ASTRONOMY			
	SPACE RESEARCH (Passive)		
168 - 170	FIXED		
	MOBILE	.:	
/ INTER-SATELLITE 7*)			

*) This service will be maintained in the Table only if Committee 4 indicates that the sharing with aeronautical mobile is possible (See paragraph 2 of the attached report).

Perion 1	Region 2	Region 3
Negion 1	Ivegion z	Negron 2
170 - 174.5	FIXED	
	INTER-SATELLITE	
	MOBILE / except aeronautica	al mobile /
	3816E	
174.5 - 176.5	EARTH EXPLORATION-SATELLITY	E (Passive)
	FIXED	
	INTER-SATELLITE	
	MOBILE / except aeronautica	al mobile_7
	SPACE RESEARCH (Passive)	
an ang Ban Ang Pangalan	3816E	
176.5 - 182	FIXED	
	INTER-SATELLITE	
	MOBILE / except aeronautica	al mobile_7
	3816E	

GHz 170 - 182

ADD 3816E

The bands 150 - 151 GHz, 174.42 - 175.02 GHz, 177 - 177.4 GHz, 178.2 - 178.6 GHz, 181 - 181.46 GHz and 186.2 - 186.6 GHz are also allocated to the radio astronomy service on a secondary basis for spectral line observations. In making assignments to stations of other services to which the bands are allocated, Administrations are urged to take all practicable steps in these bands to protect radio astronomy service from harmful interference. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service. (See Nos. 3280/116 and 3281/116A and Article N / _____7.)

Annex to Document No. 450-E Page 4

GHz 182 - 202

		Region 1 Region 2 Region 3
		182 - 185 EARTH EXPLORATION-SATELLITE (Passive)
	,	RADIO ASTRONOMY
		SPACE RESEARCH (Passive)
	- - -	3816F 3816G
		185 - 190 FIXED
		INTER-SATELLITE
		MOBILE / except aeronautical mobile 7
		3816E
		190 - 200 MOBILE
		MOBILE-SATELLITE
		RADIONAVIGATION
		RADIONAVIGATION-SATELLITE
		3679A 3815E
		200 - 202 EARTH EXPLORATION-SATELLITE (Passive)
		FIXED
		MOBILE
		SPACE.RESEARCH (Passive)
		3679A
ADD	3816F	Additional Allocation : in the United Kingdom the band 182 - 185 GHz is also allocated to the fixed and mobile services on a primary basis.
ADD	3816G	In the band $182 - 185$ GHz all emissions are prohibited except for those under the provisions of No. $3816F$. The use of passive sensors by other services is also authorized.
ADD	3679A	In the bands $/1400 - 1727$ MHz, $/101 - 120$ GHz, and 197 - 217 / 220 J GHz, passive research is being conducted by some countries in programme for the search for intentional emissions of extra-terrestrial origin.
ADD	3815E	In the bands 43.5 - 47 GHz, 66 - 71 GHz, 95 - 100 GHz, 134 - 142 GHz and 190 - 200 GHz satellite links connecting land stations at specified fixed points are also authorized when used in conjunction with the mabile satellite convice on the radionavigation-satellite service.

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G	Ηz	2
202.	÷	217

Region 1	Region 2	Region 3
202 - 217	FIXED	
	FIXED-SATELLITE (Earth-to-space)	
	MOBILE	
	3679A	

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WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 451-E 1 November 1979 Original : English

COMMITTEE 5

New Zealand

PROPOSALS FOR THE WORK OF THE CONFERENCE

MHz 87 - 108

		Allocation to Services		
		Region 1	Region 2	Region 3
	MOD	in an		87 - 100
				BROADCASTING
				Fixed
				Mobile
				3566 3566x
NZL/451/174	MOD	100 - 108	BROADCASTING	an a
			3566A 3566	
NZL/451/175	MOD	3566 Alte	rnative allocation · In	New Zeeland the

bands 87 - 88 MHz and 100 - 108 MHz are allocated to the land mobile service on a primary basis.

NZL/451/176 ADD 3566X Different category of service : In New Zealand, the allocation of the band 88 - 100 MHz to the fixed and mobile service is on a primary basis (see No. 3432/141).

NZL/451/177 ADD 3566A Different category of service : In New Zealand, the allocation of the band 100 - 108 MHz to the broadcasting service is on a secondary basis (see No. 3431/140).



WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 452-E 1 November 1979 Original : English

COMMITTEE 4

FOURTH REPORT OF WORKING GROUP 4A TO COMMITTEE 4

Working Group 4A has examined the proposals submitted by Administrations for several terms in Section VI of Article N1.

For the following terms, texts have been drafted as shown in the Annex : Protection Ratio = ADD Frequency Tolerance = 3137 Characteristic Frequency = 3135 Reference Frequency = 3136 Effective Radiated Power = 3147 Effective Monopole-Radiated Power = ADD Equivalent Isotropically Radiated Power = 3148 Direct Polarization = ADD Indirect Polarization = ADD Antenna Directivity Diagram = 3153 Equivalent Satellite Link Noise Temperature = 3154

On the other hand, the following additional terms did \underline{not} receive sufficient support for inclusion in Article Nl :

Field Intensity	(Reference) Carrier Frequency
Usable Field Strength	Antenna
Guard Band	Beamwidth
Carrier	Beam Area
Carrier Wave	Nominal Orbital Position
Carrier Frequency	Modulation
	Earth Satellite (but see No. 3125)



A.R. BASTIKAR Chairman of Working Group 4A

For reasons of economy, this document is printed in a limited number. Participants are therefore kindly asked to bring their copies to the conference since only a few additional copies can be made available.

Page 2

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ADD

ADD

ADD

MOD

Rapport de protection (R.F.) : Valeur minimale généralement exprimée en décibels du rapport signal utile/signal indésirable à l'entrée d'un récepteur, déterminé dans des conditions spécifiées, permettant d'obtenir une qualité de réception donnée du signal utile à la sortie du récepteur.

Protection Ratio : The minimum value of the wanted-to-unwanted signal ratio usually expressed in decibels, at the receiver input determined under specified conditions such that a specified reception quality of the wanted signal is achieved at the receiver output.

Relación de protección : Valor mínimo generalmente espresado en decibelios de la relación entre la señal deseada y la no deseada a la entrada del receptor, determinada bajo condiciones especificadas, tal que se obtenga una calidad de recepción especificada de la señal deseada à la salida del receptor.

(MOD) **3137/88**

Tolérance de fréquence: Ecart maxim al admissible entre la fréquence assignée et la fréquence située au centre de la bande occupée par une émission, ou entre la fréquence de référence et la fréquence caractéristique d'une émission. La tolérance de fréquence est exprimée en millionièmes ou en hertz.

3137/88 Frequency Tolerance : The maximum permissible departure by the centre frequency of the frequency band occupied by an emission from the assigned frequency or, by the characteristic frequency of an emission from the reference frequency. The frequency tolerance is expressed in parts in 10⁶ or in eycles-per-second hertz.

MOD 3137/88

Tolerancia de frecuencia : Desviación máxima admisible entre la frecuencia asignada y la situada en el centro de la banda de frecuencias ocupada por una emisión, o entre la frecuencia de referencia y la frecuencia característica. La tolerancia de frecuencia se expresa en millonésimas o en eieles <u>hertzios</u> por segundo.

Mod	3135/86	Fréquence caractéristique 1 : Fréquence aisément identifiable et mesurable dans une émission donnée.
ADD	3135.1	Une fréquence porteuse peut, par exemple, être désignée comme fréquence caractéristique.
MOD	3135/86	Characteristic Frequency $\frac{1}{2}$: A frequency which can be easily identified and measured in a given emission.
ADD	3135.1	A carrier frequency may, for example, be designated as the characteristic frequency.
MOD	3135/86	Frecuencia característica ¹ : Frecuencia que puede identificarse y medirse fácilmente en una emisión determinada.
ADD	3135.1	La frecuencia portadora puede designarse, por ejemplo, como la frecuencia característica.
NOC	3136/87	Fréquence de référence: Fréquence ayant une position fixe et bien déterminée par rapport à la fréquence assignée. Le décalage de cette fréquence par rapport à la fréquence assignée est, en grandeur et en signe, le même que celui de la fréquence caractéristique par rapport au centre de la bande de fréquences occupée par l'émission.
NOC	3136/87	Reference Frequency: A frequency having a fixed and specified position with respect to the assigned frequency. The displacement of this frequency with respect to the assigned frequency has the same absolute value and sign that the displacement of the characteristic frequency has with respect to the centre of the frequency band occupied by the emission.
NOC	3136/87	Frecuencia de referencia: Frecuencia que ocupa una posición fija y bien determinada con relación a la frecuencia asignada. La desviación de esta frecuencia en relación con la frecuencia asignada es, en magnitud y signo, la misma que la de la frecuencia característica con relación al centro de la banda de frecuencias ocupada por la emisión.
MOD	3147/98	Puissance apparente rayonnée (p.a.r.) (<u>dans une</u> <u>direction donnée</u>) : <u>Produit de la puissance fournie à l'antenne</u> multipliée-par-le-gain-relatif-de-l'antenne <u>par son</u> gain par rapport à un doublet demi-onde dans une direction donnée.
MOD	3147/98	Effective Radiated Power (e.r.p.) (in a given direction) : The product of the power supplied to the antenna multiplied-by-the-relative-gain-of-the-antenna and its gain relative to a half-wave dipole in a given direction.
MOD	3147/98	Potencia radiada aparente <u>(p.r.a.) (en una</u> <u>dirección dada)</u> : <u>El producto de la potencia suministrada a la</u> antena multiplicada-por-la-ganancia-relativa-de-la-antena por su ganancia con relación a un dipolo de media onda en una dirección dada.

Annexe au Document N^O 452-F/E/S Page 4

Puissance apparente rayonnée sur antenne 3147A ADD verticale courte (p.a.r.v.) (dans une direction donnée) : Produit de la puissance fournie à l'antenne par son gain par rapport à une antenne verticale courte dans une direction donnée. Equivalent Monopole Radiated Power (e.m.r.p.) 3147A ADD (in a given direction) : The product of the power supplied to the antenna and its gain relative to a short vertical antenna in a given direction. Potencia radiada aparente referida a una antena 3147A ADD vertical corta (p.r.a.v.) (en una dirección dada) : El producto de la potencia suministrada a la antena por su ganancia con relación a una antena vertical corta en una dirección dada. 3148 Puissance isotrope rayonnée équivalente MOD (p.i.r.e.) : Produit de la puissance fournie à l'antenne par son gain isotrope dans une direction donnée. Equivalent isotropically radiated power MOD 3148 (e.i.r.p.) : The product of the power supplied to the antenna and the isotropic gain in a given direction. 3148 Potencia isótropa radiala equivalente MOD (p.i.r.e.) : Producto de la potencia suministrada a la antena por la ganancia isótropa de la antena en una dirección dada.

Annexe au Document N^O 452-F/E/S Page 5

ADD 3153C

<u>Polarisation directe</u> (sens direct ou dextrogyre (sens des aiguilles d'une montre)) : Onde

polarisée elliptiquement, ou circulairement, dont, pour un observateur regardant dans le sens de la propagation, le vecteur champ électrique tourne en fonction du temps, dans un plan fixe quelconque normal à la direction de propagation, dans le sens dextrorsum, c'est-à-dire dans le sens des aiguilles d'une montre.

<u>Note</u> : Dans le cas d'ondes planes polarisées circulairement dextrorsum, les extrémités des vecteurs attachés aux différents points d'une droite quelconque normale aux plans constituant les surfaces d'onde forment, à un instant donné quelconque, une hélice senestrorsum.

ADD 3153C

<u>Direct Polarization</u> (Right-hand or Clockwise Polarization) : An elliptically or circularly-polarized wave, in which the electric field intensity vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in a right-hand or clockwise direction.

<u>Note</u>: For circularly-polarized plane waves the ends of the electric vectors drawn from any points along a straight line normal to the plane of the wave front, form, at any instant, a left-hand helix.

ADD 3153C

Polarización directa (polarización dextrógira o en el sentido de las agujas del reloj) : Onda polarizada, elíptica o circularmente, en la que, para un observador que mira en el sentido de la propagación, el vector campo eléctrico gira en función del tiempo, en un plano fijo cualquiera normal a la dirección de propagación, en el sentido dextrógiro, es decir, en el mismo sentido que las agujas de un reloj.

<u>Nota</u> : 'En el caso de ondas planas polarizadas circularmente, dextrórsum, los extremos de los vectores unidos a los diferentes puntos de una recta cualquiera normal a los planos que constituyen las superficies de ondas forman, en un instante dado cualquiera, una hélice levógira. ADD 3153D

Polarisation indirecte (sens indirect ou lévogyre (sens inverse des aiguilles d'une montre)) : Onde (électromagnétique) polarisée elliptiquement, ou circulairement, dont, pour un observateur regardant dans le sens de la propagation, le vecteur champ électrique tourne en fonction du temps, dans un plan fixe quelconque normal à la direction de propagation, dans le sens senestrorsum, c'est-à-dire dans le sens contraire à celui des aiguilles d'une montre.

<u>Note</u> : Dans le cas d'ondes planes polarisées circulairement, senestrorsum, les extrémités des vecteurs attachés aux différents points d'une droite quelconque normale aux plans constituant les surfaces d'ondes forment, à un instant donné quelconque, une hélice dextrorsum.

ADD 3153D

Indirect Polarization (Left-hand or Anti-clockwise Polarization) : An elliptically or circularlypolarized wave, in which the electric field-intensity vector, observed in the fixed plane, normal to the direction of propagation whilst looking in the direction of propagation rotates with time in a left-hand or anti-clockwise direction.

<u>Note</u>: For circularly-polarized plane waves, the ends of the electric vectors drawn from any points along a straight line normal to the plane of the wave front, form, at any instant, a right-hand helix.

ADD 3153D

<u>Polarización indirecta</u> (polarización levógira o en el sentido contrario al de las agujas del reloj) : Onda polarizada, elíptica o circularmente, en la que, para un observador que mira en el sentido de la propagación, el vector campo eléctrico gira en función del tiempo, en un plano fijo cualquiera normal a la dirección de propagación en el sentido levógiro, es decir, en sentido contrario al de las agujas de un reloj.

<u>Nota</u> : En el caso de ondas planas polarizadas circularmente, sinistrórsum, los extremos de los vectores unidos a los diferentes puntos de una recta cualquiera normal a los planos que constituyen las superficies de onda forman, en un instante dado cualquiera, una hélice dextrógira.

Annexe au Document N° 452-F/E/S Page 7

NOC 3153/103

Diagramme de directivité d'une antenne : Courbe représentant, en coordonnées polaires ou en coordonnées cartésiennes, une quantité proportionnelle au gain d'une antenne dans les diverses directions d'un plan ou d'un cône.

NOC 3153/103

3153/103

3154/103A

Antenna Directivity Diagram : A curve representing, in polar or cartesian coordinates, a quantity proportional to the gain of an antenna in the various directions in a particular plane or cone.

Diagrama de directividad de una antena : Curva que representa, en coordenadas polares o cartesianas, una cantidad proporcional a la ganancia de una antena en las diversas direcciones de un plano o de un cono determinados.

Température de bruit équivalente d'une liaison par satellite : température de bruit / à-l'entrée la sortie de l'antenne de réception / de la station terrienne / du-récepteur / correspondant à la puissance de bruit radioélectrique qui produit le bruit total observé à la sortie de la liaison par satellite, compte non tenu du bruit dû aux brouillages causés par des liaisons par satellite utilisant d'autres satellites et par des systèmes de Terre.

MOD

NOC

MOD

3154/103A

Equivalent Satellite Link Noise Temperature : The noise temperature at the / input output of the receiving antenna / of the earth station / receiver / corresponding to the radio-frequency noise power which produces the total observed noise at the output of the satellite link excluding noise due to interference coming from satellite links using other satellites and terrestrial systems.

3154/103A MOD

Temperatura de ruido equivalente de un enlace por satélite : Temperatura de ruido en la / entrada-del-receptor salida de la antena receptora 7 de la estación terrena que corresponde a la potencia de ruido de radiofrecuencia que produce el ruido total observado en la salída del enlace por satélite, con exclusión del ruido debido a las interferencias provocadas por los enlaces por satélite que utilizan otros satélites y por los sistemas terrenales.

INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 453-E 1 November 1979 Original : English

COMMITTEE 4

FIFTH REPORT OF WORKING GROUP 4A TO COMMITTEE 4

Working Group 4A has examined the proposals submitted by the Administrations to the Conference for Article N2 :

Nomenclature of the Frequency and Wavelength Bands Used in Radiocommunication

(provisions MOD 3183/112 and ADD 3183 A).

Working Group 4A submits to Committee 4 the text as shown in the Annex.

A.R. BASTIKAR Chairman of Working Group 4A

Annex : 1



3183/112

3183A

ADD

ANNEX

ARTICLE N2

Nomenclature of the Frequency and Wavelength Bands Used in Radiocommunication

MOD

The radio spectrum shall be subdivided into twelve frequency bands, which shall be designated by progressive whole numbers in accordance with the following Table. As the unit of frequency is the hertz (Hz), frequencies shall be expressed :

in kilohertz (kHz) up to and including 3 000 kHz

in megahertz (MHz) thereafter up to and including 3 000 MHz

in gigahertz (GHz) thereafter up to and including 3 000 GHz

in terahertz (THz) thereafter up to and including 3 000 THz.

However, where adherence to these provisions would introduce serious difficulties, for example in connection with the notification and registration of frequencies, the lists of frequencies and related matters, reasonable departures may be made.

Band Number	Symbols	Frequency range (lower limit exclusive, upper limit inclusive)	Corresponding metric subdivision	Metric Abbrevia- tions
4 5 6 7 8 9 10 11 12 13 14 15	VLF LF MF HF VHF UHF SHF EHF	3 to 30 kHz 30 to 300 kHz 300 to 3 000 kHz 300 to 3 000 kHz 3 to 30 MHz 30 to 300 MHz 300 to 3 000 GHz 300 to 3 000 GHz 300 to 3 000 GHz 300 to 3 000 THz 300 to 3 000 THz	myriametric waves kilometric waves hectometric waves decametric waves metric waves decimetric waves centimetric waves decimillimetric waves centimillimetric waves micrometric waves decimicrometric waves	O.Mam O.km O.hm O.dam O.m O.dm O.cm O.mm

<u>Note 1</u>: "Band number N" (N = band number) extends from 0.3 x 10^{N} Hz to 3 x 10^{N} Hz. <u>Note 2</u>: Prefix : $k = kilo (10^3)$, $M = mega (10^6)$, $G = giga (10^9)$, $T = tera (10^{12})$

> In communications between Administrations and the ITU no names, symbols or abbreviations should be used for the various frequency bands other than those specified in 3183/112.

INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 454-E 1 November 1979 Original : English

COMMITTEE 7

Note by the Secretary-General

RELEASE OF CALL SIGN SERIES

I have received the following communication from the Administration of the Federal Republic of Germany :

"With reference to WARC-79 Document No. 157, paragraph 5.7, calling for the release of non-indispensable call sign series which should be placed at the disposal of the ITU for re-allocation I have the honour to inform you that with regard to call signs administered in the future by the Federal Republic of Germany this Administration does not have the intention to use the series DSA to DTZ, but would require the use of the complete series DAA to DRZ."

In the light of the above, and for the purposes of the Table of Allocation of International Call Sign Series (New Appendix C) to be incorporated in the 1979 Radio Regulations, the Conference would need to modify the Table adopted in 1959 to take account of :

- a) the call sign series DAA-DRZ which would be administered by the Federal Republic of Germany;
- b) two series, DSA-DSZ and DTA-DTZ, which should revert to unallocated status.

Document No. 136(Rev.1) from the German Democratic Republic is also relevant.

The attention of the Conference is again invited to paragraph 5.7 of Document No. 157 calling for the release, where possible, of existing allocations.

M. MILI

Secretary-General



WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Corrigendum No. 1 to Document No. 455-E 10 November 1979 Original : English

COMMITTEE 5

SUMMARY RECORD

OF THE

SIXTH MEETING OF COMMITTEE 5

Please correct the above record as follows :

"11.6 The <u>delegate of the USSR</u> fix the date of the conference.

With regard to the expansion of the HF broadcasting bands, he was in favour of maintaining the status quo, since his country Table of Frequency Allocations.

11.7 The <u>delegate of Brazil</u> said that his delegation also believed that the use of HF bands for broadcasting services could be improved through planning. On the other hand, Brazil of the existing HF bands : like many other countries, Brazil considered fixed services."



WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 455-E 1 November 1979 Original : English

COMMITTEE 5

SUMMARY RECORD

OF THE

SIXTH MEETING OF COMMITTEE 5 (FREQUENCY ALLOCATIONS)

Saturday, 20 October 1979, at 0900 hrs

Chairman : Mr. M. HARBI (Algeria)

Subj	ects discussed	Document No.
1.	Approval of the Summary Record of the fourth meeting of Committee 5	283
2.	Note from the Vice-Chairman of Committee 7	233
3.	Note from the Chaürman of Committee 5 relating to some definitions	282, 285
4.	Draft note from the Chairman of Committee 5 to the Chairman of Committee 6	DT/83(Rev.1)
5.	Verbal progress reports of Working Groups 5 ad hoc 3 and 5E	-
6.	Report of Working Group 5 ad hoc l	249(Rev.1)
7.	Third and Fourth Reports of Working Group 5A	284, 295
8.	Verbal progress reports of Sub-Groups 5BA and 5BB	<u> </u>
9.	Second Report of Working Group 50	235
10.	First and Third Reports of Working Group 5D	260, 263 + Corr.1
11.	General discussion on HF broadcasting	DL/103



1. Approval of the Summary Record of the fourth meeting of Committee 5 (Document No. 283)

The <u>delegate of India</u> said that the reference he had made to the problems concerning Working Group 5B should be inserted in paragraph 9.2.

It was so agreed (see Corrigendum No. 1 to Document No. 283).

Document No. 283 was approved, as amended.

2. Note from the Vice-Chairman of Committee 2 (Document No. 233)

The Committee noted the contents of Document No. 233.

3. <u>Note from the Chairman of Committee 5 relating to some definitions</u> (Documents Nos. 282, 285)

The Chairman observed that Document No. 285 was for information only.

3.1 The <u>delegate of France</u> said that Document No. 57A, Add.1, should be added to the list of documents contained in Document No. 285, since it contained additional proposals concerning Nos. 859, 860 and 861.

It was so agreed.

3.2 The <u>Chairman</u> reminded the Committee that it had decided to refer the problem concerning certain definitions to Committee 7, but that after discussion with the Vice-Chairman of Committee 7 and the Chairman of Working Group 4A it had been noted that the problems fell within the competence of Committee 5. If the Committee agreed to deal with the matter in principle, he therefore proposed that it should be referred to Working Group 5A.

The Committee <u>agreed</u> to cancel note No. 186 and to refer consideration of the definitions involved to Working Group 5A.

4. <u>Draft note from the Chairman of Committee 5 to the Chairman of Committee 6</u> (Document No. DT/83(Rev.1))

4.1 The <u>Chairman of Working Group 5BB</u> said that his Working Group had agreed to request Committee 6 to draw up procedures for the transfer to other bands of the services currently operating in bands to be reallocated, without reducing the operational possibilities of the transferred services or of services in the reallocated bands. Committee 5 should determine the dates for the beginning and end of such transfers.

The Committee <u>approved</u> Document No. DT/83(Rev.1), subject to the inclusion of a reference concerning dates.

5. Verbal progress reports of Working Groups 5 ad hoc 3 and 5E

5.1 The <u>Chairman of Working Group 5 ad hoc 3</u> said that his Group had held two meetings during the week to discuss in the first instance the competence of the Conference, of Committee 5 and of the Working Group to consider ISM question and then general principles concerning frequency designations. The Group had considered that that competence was undeniable. Secondly, it had been considered after some discussion that it might be necessary to set radiation limits for ISM equipment. Additional harmonically related frequencies not presently appearing in the Frequency Allocation Table for ISM might also have to be selected. The Group had started to study the number of frequencies for ISM applications and two meetings had been scheduled for the following week, during which time the Group hopes to submit its initial report to the Committee.

The Committee took note of the oral report presented.

5.2 The <u>Chairman of Working Group 5E</u> said that his Group had held five meetings, and had discussed proposals for the range 37.5 - 52 GHz. Recommendations on allocations were being forwarded to the Chairman of Working Group 5D since some proposals covered either side of the boundary of 40 GHz. Proposals for the bands 52 - 84, 84 - 105 and 105 - 152 GHz had been covered by three sub-working groups, and their reports would be reviewed by Working Group 5E at its next meeting. The question of the spectrum for up-links for broadcasting-satellites was still being reviewed and it was hoped that a conclusion would shortly be reached.

Proposals for ISM and certain areas relating to Earth exploration had been reviewed but the results were considered to be tentative until such time as the report of the ad hoc Committee on ISM and definitions in the area of Earth exploration were available.

Issues relating to proposals for passive services above 275 GHz had been reviewed by a sub-working group and much of the basic groundwork had been laid for a later review of proposals for the bands above 275 GHz.

Proposals for approximately 65 % of the bands and approximately 50 % of the spectrum between 40 and 275 GHz had been covered. The Group expected to complete its work within the allotted time.

The Committee took note of the oral report presented.

6. <u>Report of Working Group 5 ad hoc 1</u> (Document No. 249(Rev.1))

6.1 The <u>delegate of Nigeria</u>, speaking on behalf of the Chairman of Working Group 5 ad hoc 1, said that in view of the dissatisfaction expressed during the second meeting of Committee 5 concerning the present ITU regional division, particularly on the part of the African Group, and also the fact that the delineation of the present Regions did not appear to have been based on any technical criteria, it had been decided to set up an ad hoc working group comprising the USSR, Qatar, the Netherlands, Morocco, Botswana, Kenya, Cameroon and Senegal, convened by the delegate of Nigeria, to look into the problem. The Working Group's conclusions appeared on the first page of Document No. 249(Rev.1). The document also contained a draft resolution calling on the CCIR to prepare the necessary technical criteria for the possible revision of the existing regional division. Working Group 5 ad hoc had also considered it necessary to request Committee 6 to consider the possibility of improving the provisions of Articles N11, N12 and N13 to ensure that the principle of equal rights could be applied by all Members of the Union and the IFRB in meeting present and future frequency requirements.

The report of the Working Group was approved.

6.2 The <u>delegate of the People's Revolutionary Republic of Guinea</u> made the following statement with respect to the division of the world into regions :

"Guinea is satisfied at the creation of Group 5 ad hoc 1 and thanks those delegations which raised the problem of regional division.

The African delegations attending the Conference and which took part in the Nairobi Seminar are well aware of Guinea's position in the matter, since it was the Guinean delegation which pressed for the inclusion of this item in the conclusions of the preparatory Seminar.

In Nairobi, the Guinean delegation denounced the present regional distribution which could only be justified by the political realities of 1947. Since then, considerable changes have taken place.

The Guinean Administration, through the Pan African Telecommunication Union and the OAU, sent to the preparatory meeting of the African Group, held in Geneva on 12-13 September 1979, a document setting forth its views and suggesting that the CCIR should carry out studies for a better regional distribution, and that its conclusions should be considered at a World Administrative Conference or at a Plenary Assembly of the CCIR.

We proposed that African countries should take an active part in those studies.

It should be emphasized that our conclusions were fully consistent with those reached here by the ad hoc Group. We are pleased, therefore, that the delay in the transmission of our document to the meeting of the African Group has not affected the higher interests of the African Continent, thanks to the efforts of countries such as Kenya and Cameroon among others. We therefore fully support the conclusions of the ad hoc Group."

6.3 The <u>delegate of Turkey</u> proposed that the words "for the allocation of frequencies" should be added to the title to avoid misunderstandings.

It was so agreed.

6.4 The <u>delegate of the United Kingdom</u>, referring to the preambular paragraph starting with the word "recognizing" proposed that the word "revision" should be replaced by "review" in order to make the entire Resolution consistent.

6.5 The <u>delegate of France</u> said that while the French word "révision" was acceptable in the text, he felt there was a certain contradiction between the preambular paragraph starting "Being aware" and the following paragraph. The ad hoc Working Group appeared to be requesting a study on the bases for division, the study itself being the main issue.

6.6 The <u>delegate of Cameroon</u> said that it was the revision of the existing regional division that had been considered the real objective.

6.7 The <u>delegate of India</u> proposed that the preambular paragraph starting with the word "recognizing" should read : "recognizing that it is not possible to carry out the review and the required revision ...".

6.8 The <u>delegate of Kenya</u>, supported by the <u>delegate of Nigeria</u>, said that he felt that the United Kingdom proposal to change the word "revision" to "review" would change the substance of the draft resolution; he therefore strongly opposed that proposal.

6.9 The <u>Chairman</u> asked whether the <u>United Kingdom delegation</u> could withdraw its proposal and leave the text to the drafting group.

It was so agreed.

6.10 The <u>delegate of Kenya</u> suggested that the word "reviewed" in the preambular paragraph starting "resolves" should be replaced by the word "revised" in the interests of consistency.

6.11 The <u>delegates of Cameroon and Nigeria</u> fully supported that proposal.

6.12 The <u>delegate of Algeria</u> was of the opinion that the present wording should be retained to allow the CCIR sufficient latitude to carry out its work in the appropriate fashion and he reminded the Committee that the text had been drafted after very lengthy discussion in the Working Group.

6.13 The <u>delegate of Norway</u>, supported by the <u>delegate of Syria</u>, said that if the word "reviewed" were replaced by "revised" the Committee would in fact be forcing a decision before the matter had been studied. By retaining the word "reviewed" in the text, the aim of the Resolution, namely to ask that CCIR studies on a possible redivision be undertaken, was satisfied. He was therefore in favour of keeping the text as it stood.

6.14 The <u>delegate of Portugal</u> referring to the second operative paragraph of the draft Resolution, asked whether the CCIR was in a position to study the state of economic as well as technical development.

6.15 The <u>Chairman</u> replied that since the Resolution had been discussed in the presence of the Deputy Secretary-General and the Director of the CCIR, there did not appear to be any problems in that connection.

After a brief discussion it was decided that the word "reviewed" should be retained.

6.16 The <u>Chairman</u>, replying to a point raised by the <u>delegate of Iran</u>, explained that if the study to be undertaken would not be completed before the next Plenary Assembly of the CCIR, a report should be submitted to that Assembly. That point appeared in fact under "decides".

The draft Resolution was <u>approved</u> without any change in the text and with the modification of the title.

7. Third and Fourth Reports of Working Group 5A (Documents Nos. 284, 295)

7.1 The <u>Chairman of Working Group 5A</u>, introducing the Third Report (Document No. 284) said that square brackets would have to remain in the title of the Annex until the competent working groups had indicated the limits. Similarly, the word "agreements" had been left in square brackets in 3426/136 until it had been decided whether "agreements" or "arrangements" would be used. On page 4 of the Report, the term "African broadcasting area" had been taken from a footnote, and placed at the beginning of the Article, and consequently the footnote 330.1 would have to be deleted. Certain typographical changes had also been made in the presentation of the allocations in the Table. The Working Group was waiting for the results of Committee 4's work on the terms included in 3430 and 3432 and the square brackets would have to remain until those results were made available.

7.2 The Chairman invited the Committee to consider Document No. 284.

7.3 The <u>delegate of Iraq</u> said that the chart appearing under MOD 3415 appeared to divide his country into two parts. For the sake of clarity, therefore, he felt that the territory of Iraq should be mentioned in 3416/126 as being in Region 1. It should similarly be mentioned in 3418/128.

The <u>Chairman</u> assured the delegate of Iraq that, having checked on a large scale map, his country was an integral part of Region 1 and that there was no need to modify the provisions in question.

7.4 The <u>delegate of the Netherlands</u> felt that it might be a mistake to include the map under 3415, without mentioning the connection with the following articles. He therefore suggested that the words "and described in subsequent articles" be added to the end of that paragraph.

It was so agreed.

7.5 The <u>delegate of Saudi Arabia</u> said that his delegation reserved the right to discuss 3423/133 at a later stage.

The <u>delegate of Algeria</u> said that his delegation would prefer to see the word "territories" in 3423 replaced by the word "countries" in order to define more accurately what was meant by "territories bordering the Mediterranean". The matter might be referred back to Working Group 5A to avoid a long discussion in the Committee.

The <u>delegate of Jordan</u> said that the words "Arabia and Saudi Arabia" were not sufficiently precise; he would prefer "Arabian Peninsula".

The <u>Chairman</u> proposed that 3423/133 be left in square brackets and referred back to the Working Group 5A.

It was so agreed.

7.6 The <u>delegate of the Netherlands</u>, referring to 3430, felt that there was a certain inconsistency in sub-paragraphs a), b) and c).

The Chairman said that the drafting group could bring those sub-paragraphs into line.

7.7 The <u>delegate of Finland</u>, referring to No. 3434/142, felt that the definition of the term "additional allocation" should be modified, or else the relevant footnotes reworded in the interests of clarification.

The <u>Chairman of Working Group 5A</u> replied that the text of 3434/142 was as it appeared in the Radio Regulations with the exception of the replacement of the word "service" by "allocation".

The <u>representative of the IFRB</u> said that a text modified along the lines of the Finnish suggestion would present no problem to the IFRB.

The <u>delegate of Finland</u> suggested that sub-bands be treated in a manner other than in a footnote.

The Chairman proposed that 3434 be referred back to Working Group 5A.

It was so agreed.

7.8 The <u>delegate of Turkey</u>, referring to $3^{1}35/1^{1}3$, said that he did not feel it was necessary to state in a footnote that an additional allocation was a primary service, although all the footnotes submitted to the Committee indicated primary services. It might therefore be possible to delete either the provision or delete reference to primary status in the footnote.

The <u>Chairman</u> suggested that working groups dealing with frequency allocations should look into the matter to have clear texts of footnotes and that the text of 3435/143 should be left as it stood for the time being.

7.9 The <u>delegate of France</u>, speaking as Chairman of the Drafting Group of Committee 5, said that standardized footnotes and their application caused certain difficulties to the Drafting Group. Problems such as those indicated by the delegate of Finland frequently arose and it had been concluded that at the risk of complicating the Table, it was essential to separate the notes into two for the sake of clarity. It was up to the Committee and working groups to consider whether the notes were necessary, but he emphasized that the Drafting Group could not always substitute the notes in the proper manner because of difficulties of assessment of the decisions taken in the working groups. He would therefore like some guidance from the Committee for the Secretariat in order to avoid ambiguity.

7.10 The <u>Chairman</u> replied that he had given to the Coordination Group of Committee 5 very clear instructions to avoid ambiguity in the notes.

7.11 Referring to ADD 3446A, the <u>Chairman</u> confirmed that the word "type" should be replaced by the word "nature" in the French text.

In the same provision, the <u>delegate of Kenya</u> queried the phrase "parenthetical attachment"; the <u>delegate of Canada</u> said that it referred, for example, to direction indicators of a fixed-satellite service, and was not the same as "parenthesis".

7.12 The <u>Vice-Chairman of Committee 7</u> proposed that paragraph 3.5 of the Report would be deleted.

It was so agreed.

The Third Report of Working Group 5A was approved.

7.13 The <u>Chairman</u> invited the Committee to consider the Fourth Report of Working Group 5A (Document No. 295) which requested Committee 7 to define the terms listed.

The Committee took note of the document.

7.14 The <u>Chairman of Working Group 5A</u> said that a Sub-Group, 5A2, had been created within his Working Group to consider the aeronautical mobile service and proposed that Mr. Müller of the Federal Republic of Germany should be its Chairman.

7.15 The <u>delegate of France</u> supported that proposal.

It was so agreed.

8. Verbal progress reports of Sub-Groups 5BA and 5BB

8.1 The <u>Chairman of Sub-Group 5BA</u> said that the Sub-Group had studied all the relevant proposals up to 490 kHz for Regions 2 and 3 and had reached final solutions. Some difficulties had been encountered, however, with regard to the 130 - 490 kHz band for Region 1, because the proposals were interconnected; it was hoped to settle these problems early the following week when final decisions would be taken on all the bands up to 490 kHz. 8.2 The <u>delegate of Argentina</u> read out some figures which showed that the discussions on certain bands in the Sub-Group had taken up to 17 times longer for Region 1 than for Regions 2 and 3. While appreciating the complexity of the subject and the fact that the bands in question were of particular concern to Region 1, he would submit that attempts should be made to reach preliminary decisions on a regional basis before engaging upon discussions in Sub-Group meetings.

8.3 The <u>Chairman of Sub-Group 5BB</u> said that the Sub-Group had held three meetings. At the first meeting it had discussed the need for a procedure on the transfer of services and the bands allocated exclusively to the aeronautical mobile (R) service, for which very few changes were required. The question of standard frequency service bands had been largely settled, the outstanding point being bands for the radio astronomy service. At the second and third meetings the Sub-Group had begun to consider the bands above 6 000 kHz for the maritime mobile service and other bands for the aeronautical mobile (R) service.

The Committee took note of these verbal reports.

9. Second Report of Working Group 5C (Document No. 235)

9.1 The <u>Chairman of Working Group 5C</u>, introducing the Report, said that the Working Group recommended maintenance of the square brackets round provision 3533 pending the decision of Working Group 5 ad hoc 3. It proposed that the wording of provision 3531A should be that of paragraph 7.2 of Document No. 239 and that the term "additional allocation" be deleted from provision 3532, to take into account the Finnish delegate's remarks in connection with provision 3434.

9.2 The <u>delegate of France</u> observed that the last-named deletion would be unnecessary if agreement were reached on the provision referred back to Working Group 5A in the light of the Finnish delegate's comments.

9.3 The delegate of Iran asked that his country's name be inserted in provision 3538A.

Document No. 235, as amended, was approved.

10. First and Third Reports of Working Group 5D (Documents Nos. 260, 263 + Corr.1)

10.1 The <u>Chairman of Working Group 5D</u> said that his Group had held five and a half meetings since the last meeting of Committee 5 and had discussed generally various proposals for the fixed and broadcasting-satellite services. It had concluded that Sub-Group 5Dl should consider in greater detail these proposals on which consensus could be reached most easily.

Considerable progress had been made in the examination of frequency bands, 58 of which had been considered and 54 cleared. The results appeared in about a dozen DT documents.

Document No. 260 (First Report of Working Group 5D)

Approved.

10.2 Document No. 263 + Corr.1

The <u>delegate of Uruguay</u> asked that his country's name be deleted from provision 3765/392 G-2 and included in provision 3765/392 G-1.

10.3 The <u>delegates of Uganda</u>, <u>Botswana</u>, <u>Cameroon</u>, <u>Ghana</u>, <u>Oman</u> and the <u>Yemen Arab Republic</u> asked that their countries' names be included in provision 3765/392 G-1.

10.4 The <u>delegate of Switzerland</u> proposed that the square brackets be removed from the words "FIXED" and "MOBILE" in the table in Annex 1, that the reference to "MOD 3765/392 G-1" be deleted, but that provisions 3765/392 G-2 and 3764B be retained, on the understanding that provision 3765/392 G-2 should relate to an alternative, not an additional, allocation.

10.5 The <u>delegate of the United States</u> supported the Swiss proposal and further proposed the inclusion in provision 3764B of an indication that the 7 250 - 7 375 MHz band was used in the space-to-Earth direction and the 7 900 - 8025 MHz band in the Earth-to-space direction. It would also be appropriate to use the standard text that had been developed and to defer to the new procedure approved in Committee 6 for coordination between Administrations concerned and affected.

Finally, he asked that his country's name be included in provision 3765/392 G-2.

10.6 The <u>delegates of the United Kingdom</u>, <u>Norway</u>, <u>Italy</u> and <u>Venezuela</u> supported the Swiss proposal as amended by the United States.

The Swiss proposal, as amended, was approved.

10.7 In reply to a question by the <u>delegate of Italy</u>, the <u>Member of the IFRB</u> explained that now that the frequencies concerned had been allocated to the fixed and mobile services on a primary basis, the allocation in provision 3765/392 G-2 was no longer additional. Accordingly, for countries which wished to use the allocation on a secondary basis, a different category of service would be involved.

10.8 The <u>delegates of Brazil</u>, <u>Belgium</u>, <u>France</u> and <u>Ireland</u> asked that their countries' names be deleted from provision 3765/392 G-2.

10.9 The <u>delegate of Canada</u> asked that his country's name be included in that provision.

10.10 The <u>delegate of Australia</u> drew attention to the interconnection between Annex 2 and provision 3765/392 G-2 and asked that his country's name be added to that provision.

10.11 The <u>delegate of India</u> said that the recommendation in paragraph 2 of the document did not fully correspond to the existing text of provision 3764B. The attention of Committees 4 and 6 should be drawn to the need for technical bases and procedures meeting the special requirements of coordination between airborne Earth stations of the mobile-satellite and terrestrial services.

10.12 The <u>Chairman</u> suggested that the coordination procedures referred to by the delegates of the United States and India should be indicated in provision 3764B.

As the Australian delegate had pointed out, Annex 2 could be deleted, in the light of the decisions taken.

10.13 The <u>delegate of the Federal Republic of Germany</u> said that, in that case, his country's name should be added to provision 3765/392 G-2.

10.14 The <u>Chairman</u> said that delegations of countries listed in Annex 2 should inform the Secretariat if they wished their names to be added in provision 3765/392 G-2.

10.15 The <u>delegate of the Netherlands</u> objected to that procedure on principle, since footnotes were an integral part of the Table and changes in them should be made before the Committee, not merely notified to the Secretariat.

10.16 The <u>Chairman</u>, supported by the <u>delegate of the USSR</u>, pointed out that the principle did not apply in the case at issue, since a world-wide allocation on a primary basis was involved and the footnote referred to a secondary allocation.

Document No. 263 and Corr.1 (Third Report of Working Group 5D) was <u>approved</u>, subject to further review of the text by Working Group 5D in the light of the comments made.

11. <u>General discussion on HF broadcasting</u> (Document No. DL/103)

11.1 The <u>Chairman</u> invited the Committee to hold a brief discussion on general matters relating to HF broadcasting. Such a debate would be useful in view of the many proposals submitted to the Conference in connection with the extension and planning of the bands concerned.

11.2 The <u>delegate of Sweden</u> said that his delegation was in favour of drafting a Resolution of WARC-79 on the convening of an HF broadcasting conference at an early date. It believed, however, that a necessary condition for a meaningful conference was to agree at WARC-79 on a substantial extension of the HF broadcasting bands. The basic purpose of the HF broadcasting conference, or at least of its first session, should be to agree on regulatory and technical methods for guaranteeing equitable access by all countries to the HF bands while ensuring efficient spectrum utilization; that would require flexible terms of reference, including the revision of Article N15/10, and although a plan might result, it would be excessively restrictive and premature to make it mandatory for the conference to draw up such a plan. 11.3 Those remarks were supported by the <u>delegate of Pakistan</u> and also by the <u>delegate of</u> <u>the United States</u>, who stressed that a prerequisite for a successful effort must be adequate allocations to the HF broadcasting service in Working Group 5BB.

11.4 The <u>delegate of Yugoslavia</u> said there was no doubt concerning the need to improve the allocation of bands for HF broadcasting. That was the reason for the many proposals submitted to WARC-79 on such matters as allotment or assignment plans, the introduction of new modulation techniques, restrictions on the number of frequencies per programme used in the same band, transmitter power limitations and so forth. The convening of an HF broadcasting conference, to be considered in Committee 7, was certainly necessary, particularly since Article N15/10 fell outside the terms of reference of WARC-79. The question also had to be examined in Committee 5 because the final decision on the allocation of bands to various services depended on whether or not the use of those bands would be improved. In his delegation's view, all services should be planned for their better and more equitable use and the first step towards such improvement for the HF broadcasting service would be to provide in the Resolution for the preparation of a long-term allotment plan.

11.5 The <u>delegate of India</u> said that his delegation's proposals on the matter included a modest expansion of allocations for the HF broadcasting service, together with a proposal that that expansion and the existing allocations should be the subject of a planning conference. India agreed with the Swedish delegate's remarks, with one important difference : in its view, considering the requirements of the HF broadcasting service and the limited spectrum space available in the foreseeable future, there was no alternative to preparing an assignment plan. WARC-79 should therefore take a specific decision on that matter, in order to give the preparatory session of the proposed HF broadcasting conference more precise terms of reference for preparing the technical bases.

11.6 The <u>delegate of the USSR</u> said that his delegation's views coincided with those expressed by the preceding speaker. It was clearly impossible for WARC-79 to prepare a plan for lack of the necessary principles and technical bases; those must be prepared for the proposed HF broadcasting conference, and the Resolution to be adopted should instruct the CCIR to undertake that task, on the basis of which the ITU Administrative Council could fix the date of the conference.

With regard to the expansion of the HF broadcasting bands, he agreed with the Indian delegation that the status quo should be maintained, since his country used those bands extensively for its fixed services, in accordance with the existing Table of Frequency Allocations.

11.7 <u>The delegate of Brazil</u> said that his delegation also believed that the use of HF bands for broadcasting services created a problem and that planning of the bands might present the best solution. On the other hand, Brazil would have difficulties in accepting the Swedish delegation's idea of a direct relationship between the planning of bands for the HF broadcasting service and the expansion of the existing HF bands : like many other Latin American countries, Brazil considered that the two concepts were separate and that acceptance of the planning of HF bands for broadcasting and of the draft terms of reference for the working group that would probably be set up should not be tied to acceptance of the need to expand the existing HF broadcasting bands, since that could create problems for Brazil's fixed services.

11.8 The <u>delegate of Kenya</u> said that the question of HF broadcasting was of considerable importance to developing countries, especially large ones whose telecommunication infrastructure was relatively underdeveloped and where broadcasting was often the only way of reaching the masses. In those countries, congestion in certain bands, especially those used for broadcasting, sometimes reached 200 or 300 %. He therefore strongly supported the idea of setting up an ad hoc group to examine that important question.

11.9 The <u>Chairman</u> invited the Committee to decide on the establishment of an ad hoc working group to examine the question of HF broadcasting in detail.

It was decided to set up the ad hoc working group.

11.10 The <u>Chairman</u> drew the Committee's attention to the draft terms of reference of the ad hoc Working Group set out in Document No. DL/103.

11.11 The <u>delegate of India</u>, supported by the <u>delegate of China</u>, said he preferred the term "approaches to the " to "possibilities of" in paragraph 2.1.

11.12 The <u>delegate of the USSR</u> suggested that the opening words of that paragraph should read "the approaches to and the possibilities of ...".

It was so <u>agreed</u>.

11.13 The <u>delegate of Mexico</u>, supported by the <u>delegates of Brazil</u> and <u>Argentina</u>, said that the insertion of planning concepts to reflect a country's options for protection <u>purposes</u> was not well reflected in the terms of reference. Many countries, including his own, used HF bands for their national broadcasting services.

11.14 The <u>Chairman</u> observed that that point was covered by paragraph 2.3 of the terms of reference under the principles to be defined.

He suggested that the words in square brackets in paragraph 3 should be deleted to avoid controversy.

11.15 The <u>delegate of Algeria</u> supported that suggestion.

The draft terms of reference in Document No. DL/103, as amended, were approved.

11.16 The <u>Chairman</u> suggested that the ad hoc Working Group should be composed of 3 representatives of the Americas, 3 of Western Europe, 2 of Eastern Europe, 4 of Africa, 3 of Asia and 1 of the Middle East and that the Group should be authorized to appoint its own Chairman.

It was so decided.

The meeting rose at 1245 hours.

The Secretary :

M. SANT

The Chairman :

M. HARBI

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 456-E l November 1979 Original : French English Spanish

COMMITTEE 5

SEVENTH REPORT OF WORKING GROUP 5A TO COMMITTEE 5

1. At its sixth meeting, the Committee 5 examined the third report of the Working Group 5A, contained in Document No. 284, and decided that the Working Group should re-examine the text of No. 3434/142 (page 7 of Document No. 284). This re-examination was considered necessary in view of the fact that sometimes a footnote in the Table of Frequency Allocation indicates an "additional allocation" on a world-wide basis. The example given in Committee 5, in this respect, was of the band 38.25 - 44 MHz and the footnote No. 3532/235.

The Working Group has re-examined the matter and has decided to maintain the present text of RR 3434/142, presented in its third report (Document No. 284, page 7). The Working Group decided to recommend that "additional allocations" on world-wide or Regional bases be shown in boxes of the Table of Frequency Allocations instead of in footnotes. Annex 1 shows, as an example, the manner in which the Table for 38.25 - 44 MHz may be constituted (Document No. 235 refers).

2. After the examination of proposal I/135/26 concerning the inclusion of the new term "non-professional personal service", the Working Group decided to seek the advice of Working Groups 5BB and 5C on the necessity of such a term. In the view of the delegate of the Federal Republic of Germany, the harmonization of such applications should be considered more important than establishing the term "non-professional personal service". The delegation, therefore, reserved the right to come back on this matter in Committee 5.

3. Further text of definitions for inclusion in Article N1, <u>unanimously adopted</u> by Working Group 5A, are enclosed as Annex 2 for approval of Committee 5.

V. QUINTAS Chairman of Working Group 5A

Annexes : 2



ANNEX 1

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38.25		44

1997 - Star (* 1998) 1997 - Star (* 1998)

Allocation to Services				
Region 1	Region 2	Region 3		
38.25 - 39.986	FIXED			
	MOBILE			
39.986 - 40.02	FIXED			
	MOBILE			
	Space research			
40.02 - 40.98	FIXED			
	MOBILE			
	<u>/</u> 3533/236_7			
40.98 - 41.015	FIXED	and the second sec		
	MOBILE			
	Space research	• • •		
	3536/238 3538/240	3538A		
41.015 - 44	FIXED			
	MOBILE			
	3536/238 3538/240	3538A		

T.U.

ANNEX 2

NOC	3082	39A	On-Board Communication Station: A low-powered mobile station in the maritime mobile service intended for use for internal communications on board a ship, or between a ship and its lifeboats and life-rafts during lifeboat drills or operations, or for communication within a group of vessels being towed or pushed, as well as for line handling and mooring instructions.
NOC	3083	40	Ship's Emergency Transmitter: A ship's transmitter to be used exclusively on a distress frequency for distress, urgency or safety purposes.
NOC .	3084	37	Port Operations Service: A maritime mobile service in or near a port, between coast stations and ship stations, or between ship stations, in which messages are restricted to those relating to the operational handling, the movement and the safety of ships and, in emergency, to the safety of persons. Messages which are of a public correspondence nature shall be excluded from this service.
NOC	3085	38A	Port Station: A coast station in the port operations service.
NOC	3086	37A	Ship Movement Service: A maritime mobile safety service, other than a port operations service, between coast stations and ship stations, or between ship stations, in which messages are restricted to those relating to the movement of ships. Messages which are of a public correspondence nature shall be excluded from this service.
NOC	3087	42	Land Mobile Service: A mobile service between base stations and land mobile stations, or between land mobile stations.
MOD	3088	43	Base Station: A land station in the land mobile service.
NOC	3089	44	Land Mobile Station: A mobile station in the land mobile service capable of surface movement within the geographical limits of a country or continent.

WORLD ADMINISTRATIVE **RADIO CONFERENCE**

(Geneva, 1979)

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Document No. 457 1 November 1979

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PLENARY MEETING

4th SERIES OF TEXTS SUBMITTED BY THE EDITORIAL COMMITTEE TO THE PLENARY MEETING

The following texts are submitted to the Plenary Meeting for first reading:

Source Document No.

C.8

377 + 378 (DT 93)

Art. 51 to 57

Title

P. BASSOLE Chairman of the Editorial Committee

Annex: 63 pages



B.4-1

CHAPTER NXI

NOC

Maritime Mobile Service and Maritime Mobile-Satellite Service

ARTICLE N51

NOC Authority of the Master MOD 7663 845 **§** 1. The service of a ship station is placed under the supreme authority of the master or of the person responsible for the ship or other vessel carrying the station. 7664 846 MOD 8 2. The person holding this authority shall require that each operator comply with these Regulations and that the ship station for which the operator is responsible is used, at all times, in accordance with these Regulations. NOC 7665 847 § 3. The master or the person responsible, as well as all persons who may have knowledge of the text or even of the existence of a radiotelegram, or of any information whatever obtained by means of the radiocommunication service, are placed under the obligation of observing and ensuring the secrecy of correspondence. MOD 7666 847A § 4. The provisions of Nos. 7663/845, 7664/846 and 7665/847 shall also apply to personnel of Mar2 ship earth stations. 7667 NOT allocated. to 7691

ARTICLE N52

MOD

NOC

MOD

MOD

Operators' Certificates for Ship Stations and Ship Earth Stations

Section I. General Provisions

MOD 7692

848

§ 1. (1) The service of every ship radiotelegraph station shall be performed by an operator holding a certificate issued or recognized by the government to which the station is subject.

7693 849 (2) The service of every ship radiotelephone station shall be controlled by an operator holding a certificate issued or recognized by the government to which the station is subject. Provided the station is so controlled, other persons besides the holder of the certificate may use the radiotelephone equipment.

7694 849A (3) The service of every ship earth station shall Mar2 be controlled by a person holding a certificate issued or recognized by the government to which the station is subject. Provided the station is so controlled, other persons besides the holder of the certificate may use the equipment.

MOD 7695 850 (4) The service of automatic communication devices 1 installed in ship stations shall be controlled by an operator holding a certificate issued or recognized by the government to which the station is subject. Provided the devices are so controlled, they may be used by other persons. If such devices require for their basic function the use of Morse code signals specified in the Instructions for the Operation of the International Public Telegram Service, the service shall be performed by an operator holding a radiotelegraph certificate. However, this latter requirement does not apply to automatic devices which may use Morse code signals solely for identification purposes.

NOC 7695.1 850.1 l The term "automatic communication devices" is intended to include such equipment as teleprinters, data transfer systems, etc.

B.4-2

stations operating solely on frequencies above 30 MHz, each government shall decide for itself whether a certificate is necessary and, if so, shall define the conditions for obtaining it. MOD 7697 852 (6) The provisions of No. 7696/851 shall not, however, apply to any ship station working on frequencies assigned for international use. 7698 853 MOD § 2. (1) In the case of complete unavailability of the operator in the course of a sea passage and solely as a temporary measure, the master or the person responsible for the station may authorize an operator holding a certificate issued by the government of another Member of the Union to perform the radiocommunication service. MOD 7699 854 (2) When it is necessary to employ a person without a certificate or an operator not holding an adequate certificate as a temporary operator, his performance as such must be limited solely to signals of distress, urgency and safety, messages relating thereto, messages relating directly to the safety of life and urgent messages relating to the movement of the ship. Persons employed in these cases are bound by the provisions of No. 7705/858 regarding the secrecy of correspondence. NOC 7700 855 (3) In all cases, such temporary operators must be replaced as soon as possible by operators holding the certificate prescribed in § 1 of this Article. NOC 7701 856 (1) Each administration shall take the § 3. necessary steps to prevent, to the maximum extent possible, the fraudulent use of certificates. For this purpose, such certificates shall bear the holder's signature and shall be authenticated by the issuing administration. Administrations may employ, if they wish, other means of identification such as photographs, fingerprints, etc. 7702 856A MOD (2) In the maritime mobile service the certificates Mar2 issued after 1 January 1978 shall bear the photograph of the holder and the holder's date of birth. NOC 7703 857 (3) To facilitate verification of certificates, these may carry, if necessary, in addition to the text in the national language, a translation of this text in a working language of the Union.

(5) Nevertheless, in the service of radiotelephone

NOC

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In the maritime mobile service all certificates MOD 7704 857A (4) not in one of the working languages of the Mar2 Union and issued after 1 January 1978 shall carry at least the following information in one of these working languages: the name and date of birth of the holder: the title of the certificate and its date of issue; if applicable, the number and period of validity of the certificate; the issuing administration. NOC 7705 858 § 4. Each administration shall take the necessary steps to place operators under the obligation to preserve the secrecy of correspondence as provided for in No. 5224/728. NOC Section II. Categories of Certificates for Ship Station Operators 7706 § 5. (1) There are four categories of NOC 866A Mar2 certificates for radiotelegraph operators, 1 namely: the radiocommunication operator's general certificate; the first-class radiotelegraph operator's certificate; the second-class radiotelegraph operator's certificate; the radiotelegraph operator's special certificate. 7706.1 866A.1 1 As regards the employment of operators NOC Mar2 holding the different certificates, see Article N53/24. 866B NOC 7707 (2) There are two categories of radiotelephone operators' ² certificates, general and Mar2 restricted. 7707.1 866B.1 NOC 2 As regards the employment of operators holding the different certificates, see Mar2 Article N53/24.
NOC	7708	866C Mar2	§ 6. (1) The holder of a radiocommunication operator's general certificate, or of a first-class or second-class radiotelegraph operator's certificate, may carry out the radiotelegraph or radiotelephone service of any ship station.
NOC	7709	866D Mar2	(2) The holder of a radiotelephone operator's general certificate may carry out the radiotelephone service of any ship station.
ЮĊ	7710	866E Mar2	(3) The holder of a radiotelephone operator's restricted certificate may carry out the radiotelephone service of any ship station, provided that the operation of the transmitter requires only the use of simple external controls, and excludes all manual adjustment of frequency determining elements, with the stability of the frequencies maintained by the transmitter itself within the limits of tolerance specified by
			Appendiz 3, and the peak envelope power of the transmitter does not exceed 1.5 kilowatt.
NOC	7711	866F Mar2	(4) The radiotelephone operator's restricted certificate may be limited exclusively to one or more of the maritime mobile frequency bands. In such cases the certificate shall be suitably endorsed.
NOC	7712	866G Mar2	(5) The radiotelegraph service of ships for which a radiotelegraph installation is not made compulsory by international agreements, as well as the radiotelephone service of ship stations for which only a radiotelephone operator's restricted certificate is required, may be carried out by the holder of a radiotelegraph operator's special certificate.
NOC	7713	866H Mar2	(6) However, where the conditions specified in No. 7758/893A are satisfied, the radiotelegraph service of ships for which a radiotelegraph installation is not made compulsory by international agreements, as well as the radiotelephone service of any ship station, may be carried out by the holder of a radiotelegraph operator's special certificate.
NOC	7714	8661 Mar2	§ 7. Exceptionally, the second-class radiotelegraph operator's certificate as well as the radiotelegraph operator's special certificate may be limited exclusively to the radiotelegraph service. In such cases the certificate shall be suitably endorsed.

NOC	C Section III.		Conditions for the Issue of Operators' Certificates				
NOC	7715		A. General				
NOC	7716	867	§ 8. (1) The conditions to be imposed for obtaining the various certificates are contained in the following paragraphs and represent the minimum requirements.				
NOC	7717	868	(2) Each administration is free to fix the number of examinations necessary to obtain each certificate.				
MOD	7718	869	§ 9. (1) The administration which issues a certificate may, before authorizing an operator to carry out the service on board a ship, require the fulfilment of other conditions (for example: experience with automatic communication devices; further technical and professional knowledge relating particularly to navigation; physical fitness, etc.).				
NOC	7719	870	(2) Administrations should take whatever steps they consider necessary to ensure the continued proficiency of operators after prolonged absences from operational duties.				
NOC	7720	870A Mar2	(3) However, with respect to the maritime mobile service, administrations should also take whatever steps they consider necessary to ensure the continued proficiency of operators while in service.				
NOC	7721	<u>B.</u>	Radiocommunication Operator's General Certificate for the Maritime Mobile Service				
NOC	7722	870B Mar2	§ 10. The radiocommunication operator's general certificate for the maritime mobile service is issued to candidates who have given proof of the technical and professional knowledge and qualifications enumerated below:				
NOC	7723	870C Mar2	 a) knowledge of the principles of electricity and the theory of radio and of electronics sufficient to meet the requirements specified in Nos. 7724/870D, 7725/870E and 7726/870F: 				

NOC	7724	870D Mar2	<u>b)</u>	theoretical knowledge of modern radiocommunication equipment, including marine radiotelegraph and radiotelephone transmitters and receivers, marine antenna systems, automatic alarm devices, radio equipment for lifeboats and other survival craft, direction-finding equipment, together with all auxiliary items including power supply (such as motors, alternators, generators, inverters, rectifiers and accumulators), as well as a general knowledge of the principles of other apparatus generally used for radionavigation, with particular reference to maintaining the equipment in service;
NOC	7725	870E Mar2	<u>c)</u>	practical knowledge of the operation, adjustment and maintenance of the apparatus mentioned in No. 7724 /870D, including the taking of direction-finding bearings and knowledge of the principles of the calibration of radio direction-finding apparatus;
NOC	7726	870F Mar2	<u>d)</u>	practical knowledge necessary for the location and remedying (using appropriate testing equipment and tools) of faults in the apparatus mentioned in No. 7724 /870D which may occur during a voyage;
NOC	7727	870G Mar2	<u>e)</u>	ability to send correctly by hand and to receive correctly by ear, in the Morse code, code groups (mixed letters, figures and punctuation marks) at a speed of sixteen groups a minute, and a plain language text at a speed of twenty words a minute. Each code group shall comprise five characters, each figure or punctuation mark counting as two characters. The average word of the text in plain language shall contain five characters. The duration of each test of sending and receiving shall be, as a rule, five minutes:

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NOC	7728	870H Mar2	<u>f)</u> ability to send correctly and to receive correctly by radiotelephone;
NOC	7729	870I Mar2	g) knowledge of the Regulations applying to radiocommunications, knowledge of the documents relating to charges for radiocommunications and knowledge of the provisions of the Convention for the Safety of Life at Sea which relate to radio;
NOC	7730	870J Mar2	h) a sufficient knowledge of world geography, especially the principal shipping routes and the most important telecommunication routes;
NOC	7731	870K Mar2	 knowledge of one of the working languages of the Union. Candidates should be able to express themselves satisfactorily in that language, both orally and in writing. Each administration shall decide for itself the language or languages required.
NOC	7732		C. First-Class Radiotelegraph Operator's Certificate
NOC	7733	871	§ 11. The first-class certificate is issued to candidates who have given proof of the technical and professional knowledge and qualifications enumerated below:
NOC	7734	872	a) knowledge both of the general principles of electricity and of the theory of radio, knowledge of the adjustment and practical working of various types of radiotelegraph and radiotelephone apparatus used in the mobile service, including apparatus used for radio direction-finding and the taking of direction-finding bearings, as well as a general knowledge of the principles of operation of other apparatus generally used for radionavigation;

NOC	7735	873	<u>b)</u>	theoretical and practical knowledge of the operation and maintenance of apparatus, such as motor-generators, storage batteries, etc., used in the operation and adjustment of the radiotelegraph, radiotelephone and radio direction-finding apparatus mentioned in No. 7734/872;
NOC	7736	874	<u>c)</u>	practical knowledge necessary to repair, with the means available on board, damage which may occur to the radiotelegraph, radiotelephone and radio direction-finding apparatus during a voyage;
NOC	7737	875	<u>d)</u>	ability to send correctly by hand and to receive correctly by ear, in the Morse code, code groups (mixed letters, figures and punctuation marks), at a speed of twenty groups a minute, and a plain language text at a speed of twenty-five words a minute. Each code group shall comprise five characters, each figure or punctuation mark counting as two characters. The average word of the text in plain language shall contain five characters. The duration of each test of sending and of receiving shall be, as a rule, five minutes;
NOC	7738	876	<u>e)</u>	ability to send correctly and to receive correctly by telephone;
MOD	7739	877	<u>f)</u>	detailed knowledge of the Regulations applying to radiocommunications, knowledge of the documents relating to charges for radiocommunications and knowledge of the provisions of the Convention for the Safety of Life at Sea which relate to radio:
NOC	7740	878	<u>g)</u>	a sufficient knowledge of world geography, especially the principal shipping

shipping and air routes and the most important telecommunication routes;

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NOC	7741	879	<u>h)</u>	sufficient knowledge of one of the working languages of the Union. Candidates should be able to express themselves satisfactorily in that language, both orally and in writing. Each administration shall decide for itself the language or languages required.
NOC	7742		D. Second- Opera	Class Radiotelegraph tor's Certificate
NOC	7743	880	§ 12. The candidates who professional k below:	e second-class certificate is issued to have given proof of the technical and mowledge and qualifications enumerated
NOC	7744	881	<u>a)</u>	elementary theoretical and practical knowledge of electricity and of radio, knowledge of the adjustment and practical working of the various types of radiotelegraph and radiotelephone apparatus used in the mobile service, including apparatus used for radio direction-finding and the taking of direction-finding bearings, as well as elementary knowledge of the principles of operation of other apparatus in general use for radionavigation;
NOC	7745	882	<u>b)</u>	elementary theoretical and practical knowledge of the operation and maintenance of apparatus, such as motor-generators, storage batteries, etc., used in the operation and adjustment of the radiotelegraph, radiotelephone and radio direction-finding apparatus mentioned in No. 7744/881;
NOC	7746	883	<u>c)</u>	practical knowledge sufficient for effecting repairs in the case of minor damage which may occur to the radiotelegraph, radiotelephone and radio direction-finding apparatus during a voyage;
NOC	7747	884	<u>d)</u>	ability to send correctly by hand and to receive correctly by ear in the Morse code, code groups (mixed letters, figures and punctuation marks) at a speed of sixteen groups a minute, and a plain language text at a speed of twenty words a minute. Each code group shall comprise five

characters, each figure or punctuation mark counting as two characters. The average word of the text in plain language shall contain five characters. The duration of each test of sending and of receiving shall, as a rule, be five minutes;

- MOD7748885e)ability to send correctly and to
receive correctly by telephone, except in
the case provided for in
No. 7714/8661;
- MOD 7749 886 <u>f)</u> knowledge of the Regulations applying to radiocommunications, knowledge of the documents relating to charges for radiocommunications and knowledge of the provisions of the Convention for the Safety of Life at Sea which relate to radio;
- NOC 7750 887 <u>g)</u> a sufficient knowledge of world geography, especially the principal shipping and air routes and the most important telecommunication routes;
- NOC 7751 888 <u>h</u> if necessary, an elementary knowledge of one of the working languages of the Union. Candidates should be able to express themselves satisfactorily in that language, both orally and in writing. Each administration shall decide for itself the language or languages required.
- NOC 7752 <u>E. Radiotelegraph Operator's Special</u> Certificate
- NOC 7753 889 § 13. (1) The radiotelegraph operator's special certificate is issued to candidates who have given proof of the knowledge and professional qualifications enumerated below:
- NOC 7754 890 <u>a)</u> ability to send correctly by hand and receive correctly by ear in the Morse code, code groups (mixed letters, figures, and punctuation marks) at a speed of sixteen groups a minute, and a plain language text at a speed of twenty words a minute. Each code group shall comprise five characters, each figure or punctuation mark counting as two characters. The average word of the text in plain language shall contain five characters;

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NOC	7755	891	<u>b)</u>	knowledge of the practical operation and adjustment of radiotelegraph apparatus;
NOC	7756	892	<u>c)</u>	knowledge of the Regulations applying to radiotelegraph communications and specifically of that part of those Regulations relating to safety of life at sea.
MOD	7757	893	(2) Eac fix the other However, the c 7766 /900, 776 as the case ma	h administration concerned shall conditions for obtaining this certificate. onditions specified in Nos. 7765 /899, 7/901 and 7768 /902 or 7769 /903, y be, shall be satisfied.
NOC	7758	893A Mar2	(3) In administration conditions for as provided fo specified in N 7763 /897 and 7 certificate is l January 1976	the maritime mobile service each concerned shall fix the other obtaining this certificate. However, except r in No. 7714/866I, the conditions os. 7760/894, 7761/895, 7762/896, 7764/898 shall be satisfied for such a sued to ship station operators after
NOC	7759	. · ·	F. Radiotelephor	ne Operators' Certificates
MOD	7760	894 Mar2	§ 14. The certificate is of the knowled enumerated bel 7712/866G and	radiotelephone operator's general issued to candidates who have given proof ge and professional qualifications ow (see also Nos. 7708/866C, 7709/866D, 7713/866H):
NOC	7761	895	<u>a)</u>	a knowledge of the elementary principles of radiotelephony;
NOC	7762	896	<u>b)</u>	detailed knowledge of the practical operation and adjustment of radiotelephone apparatus;
NOC	7763	897	<u>c)</u>	ability to send correctly and to receive correctly by telephone;
NOC	7764	898	<u>d)</u>	detailed knowledge of the Regulations applying to radiotelephone communications and specifically of that part of those Regulations relating to the safety of life.
NOC	7765	899	<pre>§ 15. (1) The operator's cer given proof of qualifications</pre>	restricted radiotelephone tificate is issued to candidates who have the knowledge and professional enumerated below:

NOC	7766	900	<u>a)</u>	practical knowledge of radiotelephone
				operation and procedure;

- NOC 7767 901 <u>b)</u> ability to send correctly and to receive correctly by telephone;
- NOC 7768 902 <u>c)</u> general knowledge of the Regulations applying to radiotelephone communications and specifically of that part of those Regulations relating to the safety of life.
- 903 MOD 7769 (2) For ship radiotelephone stations where the Mar peak envelope power of the transmitter does not exceed 400 watts, each administration may itself fix these conditions for obtaining a restricted radiotelephone operator's certificate, provided that the operation of the transmitter requires only the use of simple external switching devices, excluding all manual adjustment of frequency determining elements, and that the stability of the frequencies is maintained by the transmitter itself within the limits of tolerance specified in Appendix 3. However, in fixing the conditions, administrations shall ensure that the operator has an adequate knowledge of radiotelephone operation and procedure particularly as far as distress, urgency and safety are concerned. This in no way contravenes the provisions of No. 7773/906.
- NOC 7770 904 (3) Administrations in Region 1 do not issue certificates under No. 7769/903.
- NOC 7771 905 § 16. A radiotelephone operator's certificate shall show whether it is a general certificate or a restricted certificate and, in the latter case, if it has been issued in conformity with the provisions of No. 7769/903.
- MOD7772905A§ 17. In the maritime mobileMar2Mar2service a radiotelephone operator's restricted
certificate shall show whether it is also limited as
provided for in No. 7711/866F.
- 906 NOC 7773 § 18. In order to meet special needs, special £} agreements between administrations may fix the conditions to be fulfilled in order to obtain a radiotelephone operator's certificate, intended to be used in radiotelephone stations complying with certain technical conditions and certain operating conditions. f } These agreements, if made, shall be on the condition that harmful interference to international services shall not result therefrom. These conditions and **{ }** agreements shall be mentioned in the certificates issued to such operators.

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NOC			Section IV. Qualifying Service
NOC	7774	907 Mar2	§ 19. (1) The holder of a radiocommunication operator's general certificate or a first- or second-class radiotelegraph operator's certificate is authorized to embark as chief operator of a ship station of the fourth category (see No. 7878 /932).
NOC	7775	907A Mar2	(2) However, before becoming chief or sole operator of a ship station of the fourth category (see No. 7878/932) which is required by international agreements to carry a radiotelegraph operator, the holder of a radiocommunication operator's general certificate or a first- or second-class radiotelegraph operator's certificate shall have had adequate experience as operator on board ship at sea.
NOC	7776	908 Mar2	(3) Before becoming chief operator of a ship station of the second or third category (see Nos. 7876/931 and 7877/931A), the holder of a radiocommunication operator's general certificate or a first- or second-class radiotelegraph operator's certificate shall have had, as operator on board ship or in a coast station, at least six months' experience of which at least three months shall have been on board ship.
NOC	7777	909 Mar2	(4) Before becoming chief operator of a ship station of the first category (see No. 7875/930), the holder of a radiocommunication operator's general certificate or a first-class radiotelegraph operator's certificate shall have had, as operator on board ship or in a coast station, at least one year's experience of which at least six months shall have been on board ship.
	7778 to 7802		NOT allocated.

ARTICLE N53

NOC			Personnel of Stations in the Maritime Mobile Service
NOC			Section I. Personnel of Coast Stations
MOD	7803	948	§ 1. Administrations shall ensure that the staff on duty in coast stations shall be adequately qualified to operate the stations efficiently.
NOC			Section II. Class and Minimum Number of Operators for Stations on Board Ships
MOD	7804	912 Mar2	§ 2. In the public correspondence service, each government shall take the necessary steps to ensure that stations on board ships of its own nationality have personnel adequate to perform efficient service.
MOD	7805	913 Mar2	§ 3. The personnel of ship stations in the public correspondence service shall, having regard to the provisions of Article N52/23, include at least:
NOC	7806	914 Mar2	 a) ship stations of the first category, except in the case provided for in No. 7810/918: a chief operator holding a radiocommunication operator's general certificate or a first-class radiotelegraph operator's certificate;
NOC	7807	915 Mar2	b) ship stations of the second and third categories, except in the case provided for in No. 7810 /918: a chief operator holding a radiocommunication operator's general certificate or a first- or second-class radiotelegraph operator's certificate;

NOC	7808	916 Mar2		<u>c)</u>	ship stations of the fourth category, except in the cases provided for in Nos. 7809 /917 and 7810 /918: one operator holding a radiocommunication operator's general certificate or a first- or second-class radiotelegraph operator's certificate;
NOC	7809	917 Mar2		<u>d)</u>	ship stations in which a radiotelegraph installation is provided but not prescribed by international agreements: one operator holding a radiocommunication operator's general certificate or a first- or second-class radiotelegraph operator's certificate, or a radiotelegraph operator's special certificate;
(MOD)	7810	918 Mar		<u>e)</u>	ship stations equipped with a radiotelephone installation only: one operator holding either a radiotelephone operator's certificate or a radiotelegraph operator's certificate.
	7811 to 7835		NOT	allocated.	

ARTICLE N54/21

Inspection of Ship Stations and Ship Earth Stations

MOD 7836 838 § 1. (1) The governments or appropriate Mar2 administrations of countries which a ship station or ship earth station visits, may require the production of the licence for examination. The operator of the station, or the person responsible for the station, shall facilitate this examination. The licence shall be kept in such a way that it can be produced upon request. As far as possible, the licence, or a copy certified by the authority which has issued it, should be permanently exhibited in the station.

MOD7837839
Mar2(2) The inspectors shall have in their
possession an identity card or badge, issued by the
competent authority, which they shall show on request of
the master or person responsible for the ship or other
vessel carrying the ship station or the ship earth station.

NOC 7838 840 (3) When the licence cannot be produced or when manifest irregularities are observed, governments or administrations may inspect the radio installations in order to satisfy themselves that these conform to the conditions imposed by these Regulations.

NOC 7839 841 (4) In addition, inspectors have the right to require the production of the operators' certificates, but proof of professional knowledge may not be demanded.

7840 842 § 2. (1) When a government or an Mar2 administration has found it necessary to adopt the course indicated in No. 7838/840, or when the operators' certificates cannot be produced, the government or administration to which the ship station or ship earth station is subject shall be so informed without delay. In addition, the procedure specified in Article N19/16 is followed when necessary.

MOD 7841 843 (2) Before leaving, the inspector shall report Mar2 the result of his inspection to the master, or the person responsible for the ship or other vessel carrying the ship station or ship earth station. If any breach of the conditions imposed by these Regulations is observed, the inspector shall make this report in writing.

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MOD	7842	844 Mar2	§ 3. The Members of the Union undertake not to impose upon foreign ship stations or upon foreign ship earth stations which are temporarily within their territorial waters or which make a temporary stay in their territory, technical and operating conditions more severe than those contemplated in these Regulations. This undertaking in no way affects arrangements which are made under international agreements relating to maritime navigation, and which are therefore not covered
			navigation, and which are therefore not covered by these Regulations.

7843 to

NOT allocated.

ARTICLE N55

NOC			Working Hours of Stations in the Maritime Mobile Service	
NOC			Section I. Preamble	
(MOD)	7866	921	§ 1. In order to permit the application of the following rules on the subject of hours of watch, every station of the maritime mobile service shall have an accurate clock correctly regulated to [Greenwich Mean []] Time (G.M.T.)].	}
(MOD)	7867	922	§ 2. [Greenwich Mean Time (G.M.T.)], reckoned [from 0000 to 2400 hours beginning at midnight, shall be used for all entries in the radiocommunication service log and in all similar documents of ships compulsorily equipped with radiocommunication apparatus in compliance with an international agreement; this same provision will apply, as far as possible, to other ships.	}
NOC			Section II. Coast Stations	
NOC	7868	923	§ 3. (1) The service of coast stations is, as far as possible, continuous (day and night). Certain coast stations, however, may have a service of limited duration. Each administration or recognized private operating agency duly authorized to that effect fixes the hours of service for coast stations under its jurisdiction.	
NOC	7869	924	(2) These hours of service shall be notified to the Secretary-General who shall publish them in the List of Coast Stations.	
NOC	7870	925	§ 4. Coast stations whose service is not continuous shall not close before:	
NOC	7871	926	<u>a)</u> finishing all operations resulting from a distress call, urgency or safety signal;	
MOD	7872	÷-927₃	b) exchanging all traffic originating in or destined for ship stations which are situated within their service area and have indicated their presence before the actual cessation of work;	

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NOC	7873	927A Mar2	<u>c</u>	<u>;)</u>	making a general call to all stations announcing the closing down of the service and advising the time of reopening, if other than their normal hours of service.
NOC			Section	n I	II. Ship Stations
NOC	7874	929 Mar	§ 5. (1) F corresponden four categor	'or ice ies	the international public service, ship stations are divided into :
NOC	7875	930	-	-	stations of the first category: these stations maintain a continuous service;
NOC	7876	931 Mar	-	-	stations of the second category: these stations maintain a service for 16 hours a day;
NOC	7877	931A Mar	-	-	stations of the third category: these stations maintain a service for 8 hours a day;
NOC	7878	932 Mar		-	stations of the fourth category: these stations maintain a service the duration of which is either shorter than that of stations of the third category, or is not fixed by these Regulations.
NOC	7879	933 Mar	(2) E the rules un be placed in	ach der on	administration shall itself determine which ship stations subject to it are to e of the above four categories.
NOC	7880	934 Mar2	§ 6. (1) S shall mainta	hip in	stations of the second category the following hours of service:
		·			0000 - 0400 0800 - 1200 Ship's time or zone time 1600 - 1800 2000 - 2200

and, additionally, four hours of service at times to be decided by the administration, master or responsible person, to meet the essential communication needs of the ship, having regard to propagation conditions and traffic requirements.

NOC 7881 934A Mar (2) Ship stations of the third category shall maintain the following hours of service: 0800 - 1200 Ship's time or zone time, two continuous hours of service between 1800 - 2200 hours, ship's time or zone time, at times decided by the administration, master or responsible person and, additionally, two hours of service at times decided by the administration, master or responsible person, to meet the essential communication needs of the ship, having regard to propagation conditions and traffic requirements.

NOC 7882 934B (3) Each administration will determine whether Mar2 ship's time observed by its ships is to be zone time as shown in Appendix 12 (see Nos. 7880/934 and 7881/934A).

NOC 7883 935 (4) In case of short voyages, these stations shall provide service during the hours fixed by the administrations to which they are subject.

NOC 7884 935A § 7. Ship stations of the fourth category are Mar2 encouraged to provide service from 0830 to 0930 hours, ship's time or zone time.

NOC 7885 939 § 8. (1) Ship stations whose service is not continuous shall not close before:

NOC **7886** 940 <u>a)</u> finishing all operations resulting from a distress call, urgency or safety signal;

MOD 7887 941 b) exchanging, so far as practicable, all traffic originating in or destined for coast stations situated within their service area and for ship stations which, being within their service area, have indicated their presence before the actual cessation of work.

NOC 7888 942

2) Any ship station not having fixed working hours shall inform the coast stations with which it is in communication of the time of closing and the time of reopening its service.

MOD	7889	943	§ 9. (1) Any ship station arriving in port, and whose service is therefore about to close, shall:
NOC	7890	944	a) notify accordingly the nearest coast station and, if appropriate, the other coast stations with which it generally communicates;
NOC	7891	945	b) not close until after the disposal of traffic on hand, unless this conflicts with the regulations in force in the country of the port of call.
NOC	7892.	946	(2) Upon departure from port the ship station shall notify the coast station or stations concerned that its service is reopening as soon as such reopening is permitted by the regulations in force in the country of the port of departure. However, a ship station not having hours of service fixed by these Regulations may defer such notification until the station first reopens its service after departure from port.
	7893		
	to		NOT allocated.

7917.

ARTICLE N56

NOC		Conditio an	ons to be Observed in the Maritime Mobile Service d in the Maritime Mobile-Satellite Service
NOC			Section I. Maritime Mobile Service
NOC	7918		A. General
MOD	7919	955 Mar	§ 1. Ship stations shall be established in such a way as to conform to the provisions of Chapters NIII and NXI as regards frequencies and classes of emission.
MOD	7 92 0	957	§ 2. The frequencies of emission of ship stations shall be checked as often as possible by the inspection service to which these stations are subject.
NOC	7921	958	§ 3. The energy radiated by receiving apparatus shall be reduced to the lowest possible value and shall not cause harmful interference to other stations.
MOD	7922	959	§ 4. Administrations shall take all practicable steps necessary to ensure that the operation of any electrical or electronic apparatus installed in ship stations does not cause harmful interference to the essential radio services of stations which are operating in accordance with the provisions of these Regulations.
MOD	7923	960	§ 5. (1) Changes of frequency in the sending and receiving apparatus of any ship station shall be capable of being made as rapidly as possible.
MOD	7924	961	(2) Installations of any ship station shall be capable, once communication is established, of changing from transmission to reception and vice versa in as short a time as possible.
MOD	7925	962	§ 6. The operation of a broadcasting service (see No. 3040 /28) by a ship station at sea is prohibited. (See also No. 6214 /422.)
MOD	7926	963	§ 7. Ship stations other than survival craft stations shall be provided with the documents enumerated in the appropriate section of Appendix 11.

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7927 964 When any ship station transmitter itself NOC § 8. cannot be controlled in such a way that its frequency satisfies the tolerance specified in Appendix 3, the ship station shall be provided with a device, having a precision equal to at least one-half of this tolerance, for measuring the frequency of the emission. Ship Stations Using Radiotelegraphy NOC 7928 Β. NOC 7929 970 **§** 9. Ship stations equipped with Mar2 radiotelegraph apparatus intended to be used for normal traffic by Morse telegraphy shall be provided with devices permitting changeover from transmission to reception and vice versa without manual switching. In addition these stations should be able to listen on the reception frequency during the course of periods of transmission. Eł Bands between 405 and 535 kHz NOC B1. 7930 972 § 10. NOC Transmitters used in ship stations working £ } in the authorized bands between 405 and 535 kHz shall be provided with devices readily permitting a material reduction of power. 973 7931 All ship stations equipped with NOC § 11. radiotelegraph apparatus to work in the authorized bands { } between 405 and 535 kHz shall be able to: 974 send class A2 or A2H emissions and NOC 7932 a) receive class A2 and A2H emissions with a Mar carrier frequency of 500 kHz; NOC 7933 975 send, in addition, class [Al] and b) either A2 or A2H emissions on at least Mar two working frequencies; £ } receive, in addition, class Al, A2 NOC 7934 976 c) and A2H emissions on all the other Mar frequencies necessary for their service. 7935 977

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The provisions of Nos. 7933/975 and § 12. 7934/976 do not apply to apparatus provided solely for distress, urgency and safety purposes.

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NOC			B2. Bands between $\begin{bmatrix} 1 & 605 & and & 2 & 850 & kHz \end{bmatrix}$	£ }
NOC	7936	978 Mar	§ 13. In Region 2, any radiotelegraph station installed on board a ship which uses frequencies in the band 2 089.5-2 092.5 kHz for call and reply shall be provided with at least one other frequency in the authorized bands between 1 605 and 2 850 kHz.	£ }
NOC			B3. Bands between 4 000 and 27 500 kHz	
NOC	7937	979	§ 14. In ship stations, all apparatus using class[Al] emissions on frequencies in the authorized bands between 4 000 and 27 500 kHz shall satisfy the following conditions:	[]
NOC	7938	980 Mar2*	<u>a)</u> in each of the bands necessary to carry on the station's service, it shall have at least two working frequencies in addition to one in the calling band (see No. 8162 /1200);	
NOC	7939	981 Mar	b) changes of frequency in transmitting apparatus shall be effected as quickly as practicable, but within fifteen seconds in any event;	
NOC	7940	982	<u>c)</u> in the matter of frequency changing, receiving apparatus shall be capable of a performance equal to that of the transmitting apparatus.	
NOC	7941		C. Ship Stations Using Narrow-Band Direct-Printing Telegraphy	
NOC	7942	999G Mar2	§ 15. The characteristics of the narrow-band direct-printing equipment shall be in accordance with Appendix 20B.	
NOC	7943		D. Ship Stations Using Radiotelephony	
NOC			D1. Bands between $\begin{bmatrix} 1 & 605 & and & 4 & 000 & kHz \end{bmatrix}$	£ }
NOC	7944	983	§ 16. All ship stations equipped with radiotelephony apparatus to work in the authorized bands between [1 605 and 2 850 kHz] shall be able to:	£3

NOC	7945	984 Mar	a) send class [A3 or A3H] emissions with a carrier frequency of 2 182 kHz and receive class [A3 and A3H] emissions on a carrier frequency of 2 182 kHz. However, after	ł	i J
			to send class{A3} emissions, except for such apparatus as is referred to in No. 7948 /987;	£	3
NOC	7946	985 Mar	b) send, in addition:		
			<u>1)</u> class[A3] <u>or</u>	£]
			2) class [A3H, A3A and $A3J^{\frac{1}{2}}$	£	}
	·		emissions on at least two working frequencies. ² However, after 1 January 1982 class[A3 and A3H] emissions are no longer authorized on working frequencies;	£	}
NOC	7946.1	985.1 Mar	l Up to l January 1982 administrations may, in certain areas, reduce this requirement to class[A3H and A3J] emissions on working frequencies.	£	}
NOC	7946.2	985.2 Mar	² In certain areas, administrations may reduce this requirement to one working frequency.		
	7947	986 Mar	<u>c)</u> receive, in addition:		
			1) class[A3 and A3H] or	£	}
			$\underline{2}$ class [A3, A3H, A3A and A3J]	£	£
		<u>.</u> .	emissions on all other frequencies necessary for their service. However, after 1 January 1982, the ability to receive class[A3 and A3H]emissions is no longer required.	£	£
NOC	7948	987	§ 17. The provisions of Nos. 7946/985 and 7947/986 do not apply to apparatus provided solely for distress, urgency and safety purposes.		
NOC		•	D2. Bands between 4 000 and 23 000 kHz		
MOD	7949	987A Mar2	§ 18. In the zone of Regions 1 and 2 south of latitude 15° N, including Mexico, and in the zone of Region 3 south of latitude 25° N, all ship stations equipped with radiotelephony to work in the authorized		

bands between 4 000 and 23 000 kHz should be able to send and receive on the carrier frequencies 4 125 kHz and 6 215.5 kHz (see Nos. 6643/1351E and 6648/1351F).

NOC			D3. Bands between 156 and 174 MHz $-$	£3
NOC	7950	988 Mar2*	 \$ 19. All ship stations equipped with radiotelephony to work in the authorized bands between [156 and 174 MHz] (see No. 3595/287 and Appendix 18) shall be able to send and receive class [F3] emissions (see Resolution No. Mar2 - 14) on: 	£3 £3
NOC	7951	989 Mar2	<u>a)</u> the distress, safety and calling frequency 156.8 MHz;	
NOC	7952	990	\underline{b} the primary intership frequency 156.3 MHz; and	
NOC	7953	991	<u>c)</u> all the frequencies necessary for their service.	
MOD		:	Section II. Conditions to be Observed by Ship Earth Stations	
MOD	7954	1379AA Mar2	§ 20. Ship earth stations shall be so established as to conform to the provisions of Chapter NIII/II as regards frequencies.	
MOD	7955	1379AB Mar2	§ 21. The frequencies of emissions of ship earth stations shall be checked as often as practicable by the inspection service to which these stations are subject.	•
NOC	7956	1379AC Mar2	§ 22. The energy radiated by receiving apparatus shall be reduced to the lowest practicable value and shall not cause harmful interference to other stations.	
MOD	7957	1379AD Mar2	§ 23. Administrations shall take all practicable steps necessary to ensure that the operation of any electrical or electronic apparatus installed in ship earth stations does not cause harmful interference to the essential radio services of stations which are operating in accordance with the provisions of these Regulations.	

NOC		Sta	Section III. Aircraft Communicating with ations of the Maritime Mobile Service and the Maritime Mobile-Satellite Service
NOC	7958		A. General Provisions
NOC	7959	951 Spa2	§ 24. (1) Stations on board aircraft may communicate with stations of the maritime mobile or maritime mobile-satellite services. They shall conform to those provisions of these Regulations which relate to these services.
MOD	7959A	952	(3) For this purpose stations on board
	(ex796)	Mar2 1)	aircraft should use the frequencies allocated to the maritime mobile or maritime mobile-satellite services.
MOD	7960	954 Mar2*	(2) Stations on board aircraft when handling public correspondence with stations of the maritime mobile service or of the maritime mobile-satellite service shall comply with all the provisions applicable to the handling of public correspondence in the maritime mobile or maritime mobile-satellite services (see particularly Articles N58/37A, N59, N60, N62 and N62A).
SUP	7961 (become 7959A)	es	(3)
SUP	7962	993	(4)
SUP	7963	1002	(5)
SUP	7964	1064	(6)
MOD	7965	1078	§ 25. In the case of a communication between a station of the maritime mobile service and an aircraft station, calling may be renewed after an interval of five minutes, notwithstanding No. 8448/1077.
SUP	7966	1106	§ 26.
SUP	7967	1159	§ 27.
SUP	7 9 68	1210	§ 28. (1)
SUP	7969	1232	(2)
SUP	7 9 70	1297	(3)
SUP	7 9 71	1320	(4)

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NOC	7972		B. Provisions Frequencies	Relating to the Use of between 156 and 174 MHz	£
MOD	7973	952 Mar2	\$ 29. (1) Have which may be can high altitudes above 30 MHz sh with the excep 174 MHz]specif provided that observed:	ing regard to interference aused by aircraft stations at , frequencies in the maritime mobile bands hall not be used by aircraft stations, tion of those frequencies between 156 and ied in Appendix 18 which may be used the following conditions are	£
NOC	7974	952A Mar2	<u>a)</u>	the altitude of aircraft stations shall not exceed 300 metres (1000 feet), except for reconnaissance aircraft participating in ice-breaking operations where an altitude of 450 metres (1500 feet) is allowed;	
NOC	7975	952B Mar2	<u>b)</u>	the mean power of aircraft station transmitters shall not exceed five watts; however, a power of one watt or less shall be used to the maximum extent possible;	
NOC	7976	952C Mar2	<u>c)</u>	aircraft stations shall use the channels designated for this purpose in Appendix 18;	
NOC	7977	952D Mar2	<u>d)</u>	except as provided in No. 7975/952B, aircraft station transmitters shall comply with the technical characteristics given in Appendix 19;	L
NOC	7978	952E Mar2	<u>e)</u>	the communications of an aircraft station shall be brief and limited to operations in which stations of the maritime mobile service are primarily involved and where direct communication between the aircraft and the ship or coast station is required.	2
NOC	7979	953 Mar2	(2) The may be used by	frequencies 156.3 MHz and 156.8 MHz aircraft stations for safety purposes only.	
	7980 to 8030		NOT allocated.		

ARTICLE N57

NOC		of	Special Rules Relating to the Use Frequencies in the Maritime Mobile Service	
NOC			Section I. General Provisions	
NOC	8031	<u>A.</u>	Single Sideband Radiotelegraph Transmissions	
MOD	8032	437A Mar	§ 1. Stations employing single sideband radiotelegraph transmissions shall use upper sideband emissions. The frequencies specified in the Radio Regulations for class [A2H] emissions such as 410, 425, 454, 468, 480, 500, 512 and 8 364 kHz shall be used as carrier frequencies.	ŧ}
NOC	8033		B. Bands between 405 and 535 kHz	£3
MOD	8034	438	§ 2. Except as provided in No. 3922/418, ship stations authorized to work in the bands between 415 and 535 kHz shall transmit on the frequencies indicated in this Article (see No. 8088/1123).	£3
NOC	8035	438A Mar	§ 3. As a general rule, the minimum separation between adjacent frequencies used respectively by coast stations and by ship stations is 4 kHz.	
NOC	8036	439	§ 4. In the band 405-415 kHz in Region 1, no frequency is assigned to coast stations, in order to protect the frequency 410 kHz which is designated for the maritime radionavigation service (radio direction-finding).	
NOC	8037	440	§ 5. In the African Area of Region 1, in the bands 415 - 490 kHz and 510 - 525 kHz the separation between adjacent frequencies assigned to coast stations is, as a general rule, 3 kHz. However, in order that the frequencies may coincide with those used in the European Area in these bands, this spacing is reduced in certain cases.	£ł
NOC	8038		C. Bands between 1 605 and 4 000 kHz	£3
MOD	8039	442 Mar	§ 6. (1) In Region 1, frequencies assigned to stations operating in the bands between [1 605 and 3 800 k (see Article N7/5) should, whenever possible, be in accordance with the following subdivision:	Hz }{ }

	- {	1 605 - 1 625 kH	lz: Radiotelegraphy exclusively.	£
		1 625 - 1 670 kH	lz: Low power radiotelephony.	
	 .	1 670 - 1 950 kH	Iz: Coast stations.	
	<u> </u>	1 950 – 2 053 kH	lz: Ship stations working to coast stations.	
		2 053 - 2 065 kH	lz: Intership working.	
	_	2 065 – 2 170 kH	iz: Ship stations working to coast stations.	
		2 170 - 2 173.5	kHz: Coast stations calling ship stations (including selective calling) and, exceptionally, coast stations transmitting safety messages.	- -
	-	<u>2 173.5 - 2 190.</u>	<u>.5 kHz: Guard-band for</u> <u>the distress and</u> <u>calling frequency</u> <u>2 182 kHz</u> .	
	-	2 190.5 - 2 194	kHz: Ship stations calling coast stations.	
	-	2 194 - 2 440	kHz: Intership working.	
•	-	2 440 - 2 578	kHz: Ship stations working to coast stations.	
	_	2 578 - 2 850	kHz: Coast stations.	
	-	3 155 - 3 340	kHz: Ship stations working to coast stations.	
	-	3 340 - 3 400	kHz: Intership working.	
	-	3 500 - 3 600	kHz: Intership working.	
	-	3 600 - 3 800	kHz: Coast stations.]
2)	In	these bands, in R	Region 1, the frequencies	

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(are spaced, as far as possible, by:

> 7 kHz when two adjacent frequencies are used for double sideband radiotelephony;

- 3 kHz when two adjacent frequencies are used for radiotelegraphy;
- 5 kHz when one frequency is used for double sideband radiotelephony and the adjacent frequency is used for radiotelegraphy.

NOC 8041 444 (3) However, in the case of the intership bands, Mar in Region 1, the spacing is reduced to 5 kHz for adjacent frequencies used for double sideband radiotelephony.

> (4) When these bands are used for single sideband radiotelephony, a station operating in the lower half of a double sideband channel shall use upper sideband emission with the carrier frequency located 3 kHz below the centre frequency of that channel.

(5) However, in the case of the intership bands, the carrier frequency of a station operating in the lower half of the double sideband channel is located only 2.5 kHz below the centre frequency of that channel.

8044 445 § 7. In Regions 2 and 3, the carrier Mar frequencies 2 635 kHz (assigned frequency 2 636.4 kHz) and 2 638 kHz (assigned frequency 2 639.4 kHz) are used as single sideband intership radiotelephony working frequencies in addition to the frequencies prescribed for common use in certain services. The carrier frequency 2 635 kHz should be used with class A3A and £} A3J emissions only. The carrier frequency 2 638 kHz may be used with class [A3, A3H, A3A and A3J] emissions. However, after 1 January 1982, class A3 and A3H emissions are no longer authorized. In Region 3 these frequencies are protected by a guard-band between 2 634 and 2 642 kHz.

MOD8045445A§ 8.The assigned frequency of a singleMarsideband radiotelephone channel shall be 1 400 Hz higher than the
carrier frequency.

NOC 8046 D. Bands between 4 000 and 27 500 kHz

NOC **8047** 446

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§ 9. (1) The bands exclusively allocated to the maritime mobile service between 4 000 and 27 500 kHz (see Articles N7/5 and N57/32,35) are subdivided into the following categories:

MOD	8048	447 Mar	<u>a)</u>	Ship stations, telephony, duplex operation (two-frequency channels)
				4 063 - 4 143.6 kHz 6 200 - 6 218.6 kHz 8 195 - 8 291.1 kHz 12 330 - 12 429.2 kHz 16 460 - 16 587.1 kHz 22 000 - 22 124 kHz
MOD	8049	448 Mar2	<u>b)</u>	<u>Coast stations,</u> telephony, duplex operation (two-frequency channels)
				4 357.4 - 4 438 kHz 6 506.4 - 6 525 kHz 8 718.9 - 8 815 kHz 13 100.8 - 13 200 kHz 17 232.9 - 17 360 kHz 22 596 - 22 720 kHz
MOD	8050	449 Mar2	<u>c)</u>	<u>Ship stations and coast stations</u> , telephony, simplex operation (single-frequency channels) and intership cross-band operation (two frequencies)
				4 143.6 - 4 146.6 kHz 6 218.6 - 6 224.6 kHz 8 291.1 - 8 297.3 kHz 12 429.2 - 12 439.5 kHz 16 587.1 - 16 596.4 kHz 22 124 - 22 139.5 kHz
NOC	8051	451 Mar2	<u>d)</u>	<u>Ship stations</u> , wide-band telegraphy, facsimile and special transmission systems
				4 146.6 - 4 162.5 kHz 4 166 - 4 170 kHz 6 224.6 - 6 244.5 kHz 6 248 - 6 256 kHz 8 300 - 8 328 kHz 8 331.5 - 8 343.5 kHz 12 439.5 - 12 479.5 kHz 12 483 - 12 491 kHz 16 596.4 - 16 636.5 kHz 16 640 - 16 660 kHz 22 139.5 - 22 160.5 kHz

MOD	8052	451A Mar2 *	<u>e)</u>	<u>Ship stations</u> , oceanographic data transmission (see note <u>c</u>) in Appendix 15 Mar2)
				4 162.5 - 4 166 kHz 6 244.5 - 6 248 kHz 8 328 - 8 331.5 kHz 12 479.5 - 12 483 kHz 16 636.5 - 16 640 kHz 22 160.5 - 22 164 kHz
NOC	8053	451B Mar2	<u>f)</u>	<u>Ship stations</u> , narrow-band direct-printing telegraph and data transmission systems, at speeds not exceeding 100 bauds (frequencies paired with those in No. 8058 /452C)
				4 170 - 4 177.25 kHz 6 256 - 6 267.75 kHz 8 343.5 - 8 357.25 kHz 12 491 - 12 519.75 kHz 16 660 - 16 694.75 kHz 22 192 - 22 225.75 kHz
NOC	8054	451C Mar2	<u>g)</u>	<u>Ship stations</u> , narrow-band direct-printing telegraph and data transmission systems, at speeds not exceeding 100 bauds (non-paired frequencies)
				4 177.25 - 4 179.75 kHz 6 267.75 - 6 269.75 kHz 8 297.3 - 8 300 kHz 8 357.25 - 8 357.75 kHz 12 519.75 - 12 526.75 kHz 16 694.75 - 16 705.8 kHz 22 225.75 - 22 227 kHz 25 076 - 25 090.1 kHz
NOC	8055	452 Mar2	<u>h)</u>	Ship stations, [A1] Morse telegraphy, calling
				4 179.75 - 4 187.2 kHz 6 269.75 - 6 280.8 kHz 8 359.75 - 8 374.4 kHz 12 539.6 - 12 561.6 kHz 16 719.8 - 16 748.8 kHz 22 227 - 22 247 kHz 25 070 - 25 076 kHz

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NOC	8056	452A Mar2	<u>i)</u>	<u>Ship stations</u> , digital selective calling	
				4 187.2 - 4 188 kHz 6 280.8 - 6 282 kHz 8 374.4 - 8 376 kHz 12 561.6 - 12 564 kHz 16 748.8 - 16 752 kHz 22 247 - 22 250 kHz	
NOC	8057	452B Mar2	<u>i)</u>	Ship stations, [A1] Morse telegraphy, working	f
				4 188 - 4 219.4 kHz 6 282 - 6 325.4 kHz 8 357.75 - 8 359.75 kHz 8 376 - 8 435.4 kHz 12 526.75 - 12 539.6 kHz 12 564 - 12 652.3 kHz 16 705.8 - 16 719.8 kHz 16 752 - 16 859.4 kHz 22 250 - 22 310.5 kHz 25 090.1 - 25 110 kHz	
NOC	8058	452C Mar2	<u>k)</u>	<u>Coast stations</u> , narrow-band direct-printing telegraph and data transmission systems, at speeds not exceeding 100 bauds (frequencies paired wi those in No. 8053 /451B) 4 349.4 - 4 356.75 kHz 6 493.9 - 6 505.75 kHz 8 704.4 - 8 718.25 kHz 13 070.8 - 13 099.75 kHz 17 196.9 - 17 231.75 kHz 22 561 - 22 594.75 kHz	th
NOC	8059	452D Mar2	<u>1)</u>	Coast stations, digital selective calling 4 356.75 - 4 357.4 kHz 6 505.75 - 6 506.4 kHz 8 718.25 - 8 718.9 kHz 13 099.75 - 13 100.8 kHz 17 231.75 - 17 232.9 kHz 22 594.75 - 22 596 kHz	
NOC	8060	453 Mar2	<u>m)</u>	<u>Coast stations</u> , wide-band and A1 Morse telegraphy, facsimile, special and data transmission systems and direct-printing telegraph systems	f

4	219.4	-	4	349.4	kHø
6	325.4	-	6	493.9	kHz
8	435.4	-	8	704.4	kHz
12	652.3	-	13	070.8	kHz
16	859.4	-	17	196.9	kHz
22	310.5	-	22	561	kHz

NOC	8061	453A Mar	(2) Frequencies in the bands 25 010 - 25 070 kHz, 25 110 - 25 600 kHz and 26 100 - 27 500 kHz may be assigned to coast stations.	d
MOD	8062	456 Mar2	§ 10. (1) Appendix 17 Rev. shows the radio-telephone channels in the frequency bands listed in Nos. 8048/447, 8049/448 and 8050/449.	
MOD	8063	457 Mar2	(2) The Frequency Allotment Plan for coast radiotelephone stations in the high frequency bands is contained in Appendix 25 Mar2 .	
NOC	8064		E. Bands between 156 and 174 MHz	£ }
NOC	8065	457A Mar2	§ 11. The ship movement service should be operated only on frequencies allocated to the maritime mobile service in the band 156 - 174 MHz	ŧĴ
NOC		Sect	ion II. Use of Frequencies for Radiotelegraphy	
NOC	8066		A. General	
NOC	8067	1094A Mar	§ 12. Whenever the class of emission A2 or A2H is mentioned in the present Regulations for use in the maritime mobile service, the type of transmission shall, except for selective calling purposes, be telegraphy by on-off keying of the modulated emission, to the exclusion of on-off keying of the modulating audio frequencies only.	£3
NOC	8068		B. Bands between 405 and 535 kHz	£3
NOC			Bl. Call and Reply	
MOD	8069	1107	§ 13. (1) The frequency 500 kHz is the international distress frequency for radiotelegraphy (see also No. 6630/1107 for details of its use for distress, safety and urgency purposes).	

NOC	8070	1109	(2) In addition, 500 kHz may be used only:
NOC	8071	1110	<u>a)</u> for call and reply (see Nos. 8076 /1114 and 8080 /1116);
NOC	8072	1111 Mar	b) by coast stations to announce the transmission of their traffic lists under the conditions provided for in Nos. 8440/1070, 8441/1071 and 8442/1071A.
NOC	8073	1113 Mar	(3) In order to facilitate the reception of distress calls, other transmissions on the frequency 500 kHz shall be reduced to a minimum, and in any case shall not exceed one minute.
MOD	8074	1113A Mar	(4) Before transmitting on 500 kHz, stations must listen on this frequency for a reasonable period to make sure that no distress traffic is being sent (see No. 8426/1007).
NOC	8075	1113B Mar	(5) The provisions of No. 8074 /1113A do not apply to stations in distress.
NOC	8076	1114 Mar2	§ 14. (1) The general calling frequency which, except as provided under No. 8588/1015A, shall be used by any ship station or coast station engaged in radiotelegraphy in the authorized bands between 405 and 535 kHz, and by aircraft desiring to enter into communication with a station of the maritime mobile service using frequencies in these bands, is the frequency 500 kHz.
NOC	8077	1115	(2) However, in order to reduce interference in regions of heavy traffic, administrations may consider the requirements of No. 8076/1114 as satisfied when the calling frequencies assigned to coast stations open to public correspondence are not separated by more than 3 kHz from the general calling frequency 500 kHz.
NOC	8078	1115A Mar	§ 15. (1) A ship station calling a coast station shall, wherever possible and particularly in regions of heavy traffic, indicate to the coast station that it is ready to receive on the working frequency of that station.
NOC	8079	1115B Mar	(2) The ship station should make sure beforehand that this frequency is not already being used by the coast station.

NOC	8080	1116 Mar	§ 16. (1) The frequency for replying to a call sent on the general calling frequency (see No. 8076/1114) shall be as follows:	
			- either 500 kHz,	
			 or the frequency specified by the calling station (see Nos. 8078/1115A and 8482/1023). 	
NOÇ	8081	1117 Mar	(2) In regions of heavy traffic, coast stations may answer calls made by ship stations of their own nationality in accordance with special arrangements made by the administration concerned (see No. 8482 /1023).	
NOC	8082	1117A Mar2	§ 17. Selective calling under the provisions of Article N59/28A may be carried out on the frequency of 500 kHz in the shore-to-ship, ship-to-shore and ship-to-ship directions.	
NOC		· .	B2. Traffic	
NOC	8083	1118	§ 18. (1) Coast stations working in the authorized bands between 405 and 535 kHz shall be able to use at least one frequency in addition to 500 kHz. One of these additional frequencies, which is printed in heavy type in the List of Coast Stations, is the normal working frequency of the station.	ŧ3
MOD	8084	1119	(2) In addition to their normal working frequency, coast stations may use, in the authorized bands, additional frequencies which are shown in ordinary type in the List of Coast Stations. The band 405 to 415 kHz, however, is assigned to radio direction-finding; it may not be used by the maritime mobile service except on the conditions fixed by Chapter NIII/II.	
NOC	8085	1120	(3) The working frequencies of coast stations shall be chosen so as to avoid interference with neighbouring stations.	
NOC	8086	1121 Mar	(4) In regions of heavy traffic, coast stations and ship stations should use class [Al] emission on their working frequencies.	£3
NOC	8087	1122 Mar	§ 19. As an exception to the provisions of Nos. 6630 /1107, 8070 /1109, 8071 /1110 and 8072 /1111 and on condition that signals of distress, urgency and safety, and calls and replies are not interfered with, 500 kHz may be used outside regions of heavy traffic for direction-finding but with discretion.	

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NOC	8088	1123 Mar	§ 20. (1) Ship stations operating in the authorized bands between 405 and 535 kHz shall use working frequencies chosen from the following: 425, 454, 468, 480 and 512 kHz, except as permitted by No. 3922/418.	ŧ}
NOC	8089	1124 Mar	(2) Coast stations are prohibited from transmitting on the working frequencies designated for the use of ship stations on a world-wide basis.	
NOC	8090	1125 Mar	(3) The frequency 512 kHz may be used by ship stations as a supplementary calling frequency when 500 kHz is being used for distress.	
NOC	8091	1126	(4) During these periods coast stations may:	
NOC	8092	1127	<u>a)</u> use 512 kHz as a supplementary frequency for call and reply; <u>or</u>	
NOC	8093	1128	b) make use of other arrangements for call and reply which shall have been specified in the List of Coast Stations.	
NOC	8094	1129	(5) When 500 kHz is in use for distress, ship stations shall not use 512 kHz as a working frequency in those areas where it is in use as a supplementary calling frequency.	
NOC	8095		C. Bands between 1 605 and 4 000 kHz	£}
NOC			Cl. Region 2	
NOC	8096	1138 Mar	§ 21. In Region 2, the frequencies in the band 2 068.5 to 2 078.5 kHz are assigned to ship stations using wide-band telegraphy, facsimile and special transmission systems. The provisions of No. 8105/1146 are applicable.	
NOC			C2. Additional Provisions Applicable in Region 3 Areas North of the Equator Only	
MOD	8097	1139 Mar	§ 22. (1) The band 2 089.5 - 2 092.5 kHz is the calling and safety band for radiotelegraphy in those pa the bands between 1 605 and 2 850 kHz in which radiotelegraphy is authorized.	irts of {}

NOC	8098	1140 Mar	(2) Frequencies in the band 2 089.5 - 2 092.5 kHz may be used for calls, replies and safety. These frequencies may also be used for messages preceded by the urgency or safety signals.	
NOC	8099	1141 Mar	(3) Each coast station using the calling band 2 089.5 - 2 092.5 kHz shall, as far as possible, maintain watch on this band during its working hours.	
MOD	8100	1142 Mar	(4) Coast stations which use frequencies in the band 2 089.5 - 2 092.5 kHz for calling shall be able to use at least one other frequency in those parts of the bands between [1 605 and 2 850 kHz] in which radiotelegraphy [] is authorized.	
NOC	8101	1143	(5) One of these frequencies is printed in heavy type in the List of Coast Stations to indicate that it is the normal working frequency of the station. Supplementary frequencies, if any, are shown in ordinary type.	
NOC	8102	1144	(6) Working frequencies of coast stations shall be chosen in such a manner as to avoid interference with other stations.	
NOC	8103	<u>D.</u>	Bands between 4 000 and 27 500 kHz	
NOC	·		Dl. General	
MOD	8104	1145 Mar2	 \$ 23. (1) Ship radiotelegraph stations equipped to operate in the bands specified in Nos. 8055/452 and 8057/452B shall employ only class [Al] Morse telegraphy [] emissions at speeds not exceeding 40 bauds. Survival craft stations may use class [A2 or A2H] emissions in these bands [] (see Nos. 6664/994 and 6667/997). 	
MOD	8105	1146 Mar2	(2) Ship stations equipped for wide-band telegraphy, facsimile and special transmission systems may, in the frequency bands reserved for such use, employ any class of emission provided that such emissions can be contained within the wide-band channels indicated in Appendix 15 Mar2. However, [A1] Morse telegraphy [] and telephony are excluded, except for circuit alignment purposes.	
NOC	8106	1147 Mar	(3) Except as provided for in No. 8222.1 /1352A.1, coast radiotelegraph stations operating in the maritime mobile exclusive bands between 4 000 and 27 500 kHz shall not use Type 2 emissions (see No. 8067 /1094A).	
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NOC	8107	1148 Mar	(4) Coast radiotelegraph stations employing single-channel class Al or Fl emissions and operating in the maritime mobile exclusive bands between 4 000 and 27 500 kHz shall at no time use a mean power in excess of the following:	£3
			Band <u>Maximum</u> mean power	
			4 MHz 5 kW 6 MHz 5 kW 8 MHz 10 kW 12 MHz 15 kW 16 MHz 15 kW 22 MHz 15 kW	
NOC	8108	1148A Mar	(5) Coast radiotelegraph stations employing multichannel telegraph emissions and operating in the maritime mobile exclusive bands between 4 000 and 27 500 kHz shall at no time use a mean power in excess of 2.5 kW per 500 Hz bandwidth.	
MOD	8109	1149 Mar2	§ 24. Nos. 8051/451 to 8060/453 and the corresponding columns of Appendix 15 Mar2 show those parts of the bands between 4 000 and 27 500 kHz exclusively allocated to the maritime mobile service which are to be used by coast stations and ship stations for radiotelegraphy.	
NOC			D2. Call and Reply	
MOD	8110	1160 Mar2	§ 25. (1) In order to establish communication with a coast station, each ship station shall use an appropriate calling frequency in one of the bands listed in No. 8055 /452.	
MOD	8111	1161 Mar2	(2) Frequencies in the f Al] Morse telegraphy calling bands are assigned to each ship station in accordance with the provisions of Nos. 8133 /1176A to 8141 /1177E.	ŧ }
MOD	8112	1162	§ 26. In order to reduce interference, ship stations shall, within the means at their disposal, endeavour to select for calling the band with the most favourable propagational characteristics for effecting reliable communication. In the absence of more precise	

B.4-41

data, a ship station shall, before making a call, listen for the signals of the station with which it desires to communicate. The strength and intelligibility of such signals are useful as a guide to propagational conditions and indicate which is the preferable band for calling.

NOC 8113 1162A § 27. In order to reduce interference on the Mar2 common calling channels, they shall be used only when a ship cannot use a calling frequency within the group indicated as a coast station receiving channel of the station with which it desires to communicate or when the coast station has indicated that it is keeping watch only on the common calling channels.

- MOD 8114 1163 § 28. (1) The calling frequency to be used by a coast station, in each of the bands for which it is equipped, is its normal working frequency as shown in heavy type in the List of Coast Stations (see Nos. 8058/452C and 8060/453).
- NOC 8115 1164 (2) So far as is practicable, a coast station shall transmit its calls at specified times in the form of traffic lists on the frequency or frequencies indicated in the List of Coast Stations (see Nos. 8435/1067 and 8439/1069).
- SUP 8116 1164A § 29. (1) Mar2

MOD81171164B(2) The exclusive digital selective calling
Mar2Mar2frequencies within the bands indicated in No. 8059/452D
(see No. 8404/1238D) may be assigned to any coast
station for use in accordance with No. 8400/999F.

MOD 8118 1165 § 30. Unless the calling station specifies otherwise, the frequency for reply to a call is as follows:

MOD81191166a)for a ship station, one of its assigned
calling frequencies in the same band,
with due regard to No.Mar2with due regard to No.8113/1162A;

NOC	8120	1167	b) for a coast station, its normal working frequency in the same band as that used by the calling station.
NOC	8121	1168 Mar2	§ 31. Administrations shall indicate, in respect of each coast station, in which of the ship calling bands and on which coast station receiving channels that coast station keeps watch and, as far as possible, the approximate hours of watchkeeping in Greenwich Mean Time (G.M.T.). This information shall be published in the List of Coast Stations.
NOC	8122	1168A Mar2	§ 32. Exceptionally, a coast station may indicate that it is keeping watch on calling frequencies other than those specified as its own receiving frequencies.
NOC	8123	1168B Mar2	§ 33. In order to reduce interference on calling frequencies, a coast station shall take adequate steps to ensure, under normal conditions, the prompt receipt of calls (see No. 8468/1013B).
NOC			D3. Traffic
MOD	8124	1169	§ 34. (1) A ship station after establishing communication on a calling frequency (see No. 8110/1160) shall change to a working frequency for the transmission of traffic. The use of frequencies in the calling bands for any purpose other than calling shall be prohibited.
MOD	8125	1170	(2) Working frequencies shall be assigned to ship stations in accordance with the provisions of Nos. 8144 /1180 to 8162 /1200 inclusive.
NOC	8126	1171	§ 35. (1) A coast station shall transmit its traffic on its normal working frequency or on other working frequencies assigned to it.
NOC	8127	1172	(2) Countries which share a channel in one of the exclusive maritime mobile bands between 4 000 and 27 500 kHz should give special consideration to the countries among them which have no other channel in the same band and should endeavour to use their primary channel to the greatest extent possible, in order to permit the latter countries to satisfy their minimum communication requirements.

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SUP	8128	1173 Mar2	(3)
SUP	8129	1173A Mar2	<u>a)</u>
SUP	8130	1173B Mar2	<u>b)</u>
MOD	8131	<u>E.</u>	Assignment of Frequencies to Ship Stations
NOC			El. Calling Frequencies of Ship Stations
SUP	8132	1174 Mar2	§ 36.
MOD	8133	1176A Mar2*	§ 37. Each calling band between 4 000 and 23 000 kHz indicated in No. 8055/452 Mar2 is divided into four groups of channels and two common channels. The 25 MHz band is divided into three channels of which one is a common channel (see Appendix 15C).
NOC	8134	1176B Mar2	§ 38. (1) Coast stations shall, when providing international service as published in the List of Coast Stations, keep watch on the common calling channels in each band throughout their hours of service in the bands concerned, and on the appropriate group channel or channels during busy periods. The times during which watch will be kept on the group channel or channels shall be published for each country in the List of Coast Stations.
NOC	8135	1176C Mar2	(2) If necessary, an indication of the channels on which watch is kept may be included in the coast station transmissions.
NOC	8136	1177 Mar2	§ 39. In the bands between 4 000 and 23 000 kHz, the administration to which a ship station is subject shall assign to it at least two calling frequencies in each band in which the station is equipped to transmit. ¹ One of the calling frequencies in each band shall be within one of the common coast station receiving channels contained in Appendix 15C; another in each band shall be selected from within the other channels in Appendix 15C, taking account of the receiving channel or channels of the coast station with which the ship station most frequently communicates. In the 25 MHz band, administrations shall assign to ship stations under their control a frequency within the

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common channel. Another calling frequency in this band shall be selected from within Channel A or B of Appendix 15C, taking account of the receiving channel of the coast station with which the ship station most frequently communicates.

- 8136.1 1177.1 NOC ¹ Up to 1 January 1980 ship stations whose Mar2 transmitters are capable of using only three frequencies in each of the bands between 4 000 and 23 000 kHz may, exceptionally, be assigned a single calling frequency in each of the frequency bands in which they can transmit. This exception may be made only if the administration concerned considers that the assignment of a minimum of two working frequencies in each band is necessary for the ship's service.
- NOC 8137 1177A A ship station should, wherever **§** 40. possible, be assigned additional calling frequencies Mar2 (see No. 8113/1162A).
- 8138 1177B NOC **§** 41. If it is not intended to maintain watch on all the receiving channels within a group, the Mar2 administration concerned, in order to ensure an even distribution of calls, shall determine the channel or channels on which watch will be maintained, but only after co-ordination as far as possible with administrations sharing the same group (see Resolution No. Mar2 - 5).
- NOC 8139 1177C \$ 42. Administrations which assign to their Mar2 ships frequencies in two or more calling channels within their group shall take the necessary steps to distribute such assignments uniformly throughout the channels taken into use.
- NOC 8140 1177D § 43. In order to ensure an even distribution of Mar2 calls on the common calling channels, administrations should, as far as practicable, assign frequencies in each of the two channels to an equal number of their ships.
- Administrations shall ensure, as far as NOC 8141 1177E **§** 44. possible, that ship stations under their jurisdiction are Mar2 capable of keeping their transmission within the limits of the assigned channels (see Appendix 3).
- § 45. (1) 8142 1179A SUP Mar2

8143 1179B (2) The exclusive digital selective calling MOD frequencies within the bands indicated in No. 8056/452A Mar2 (see No. 8403/1238C) may be assigned to any ship station for use in accordance with No. 8400/999F.

B.4-46

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MOD			E2. Working Frequencies of Ship Stations
NOC			a) <u>Channel Spacing and Assignment</u> of Frequencies
MOD	8144	1180 Mar	§ 46. In all bands, the working frequencies for ship stations equipped to use wide-band telegraphy, facsimile and special transmission systems are spaced 4 kHz apart. The frequencies assignable are shown in Appendix 15 Mar2.
MOD	8145	1180A Mar	§ 47. In all bands, the frequencies assignable for oceanographic data transmissions are spaced 0.3 kHz apart. The frequencies assignable are shown in Appendix 15 Mar2 .
MOD	8146	1180B Mar2	§ 48. In all bands, the working frequencies for ship stations using narrow-band direct-printing telegraph and data transmission systems, at speeds not exceeding 100 bauds, including those paired with the working frequencies assignable to coast stations (see No. 8058/452C), are spaced 0.5 kHz apart. The frequencies assignable to ship stations which are paired with those used by the coast stations are shown in Appendix 15A (see also No. 8053/451B). The frequencies assignable to ship stations which are not paired with those used by the coast stations are shown in Appendix 15B (see also No. 8054/451C).
MOD	8147	1182 Mar2	§ 49. In all bands, except the 6 MHz band, the working frequencies for ship stations using [A1] Morse [1] telegraphy, at speeds not exceeding 40 bauds, are spaced 0.5 kHz apart; in the 6 MHz band they are spaced 0.75 kHz apart (see also Note <u>e)</u> to Appendix 15 Mar2). The extreme frequencies assignable in each of these bands are shown in Appendix 15 Mar2.
	8148	1183 Mar2	§ 50. In the 4, 6, 8, 12 and 16 MHz bands, certain frequencies are harmonically related as shown in Appendix 15D.
NOC			b) Working Frequencies for Ship Stations Using Wide-Band Telegraphy, Facsimile and Special Transmission Systems
SUP	8149	1188 Mar2	§ 51.

B.4-47

§ 52. (1) Each administration shall assign to MOD 8150 1189 each ship station under its jurisdiction and employing Mar wide-band telegraphy, facsimile and special transmission systems, one or more series of the working frequencies reserved for this purpose and shown in Appendix 15 Mar2. The total number of series assigned to each ship shall be determined by traffic requirements. 1190 NOC 8151 (2) When ship stations employing wide-band telegraphy, facsimile and special transmission systems are assigned less than the total number of working frequencies in a band, the administration concerned shall assign working frequencies to such ships in accordance with an orderly system of rotation that will ensure approximately the same number of assignments on any one working frequency. MOD 8152 1191 (3) However, within the limits of the bands given Mar2* in No. 8051/451, administrations may, to meet the needs of specific systems, assign frequencies in a different manner from that shown in Appendix 15 Mar2. Nevertheless administrations shall take into account, as far as possible, the provisions of Appendix 15 Mar2

concerning channelling and 4 kHz spacing.

assignable frequencies designated in Appendix 15 Mar2.

NOC			<u>c) Working Frequencies for</u> Oceanographic Data Stations
SUP	8153	1191A Mar	§ 53.
MOD	8154	1191B Mar	§ 54. The frequency bands in No. 8052/451A may also be used by buoy stations for oceanographic data transmission and by stations interrogating these buoys.
MOD	8155	1191C Mar	§ 55. Each administration may assign to each station under its jurisdiction of a type specified in Nos. 8052/451A and 8154/1191B one or more of the

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 <u>d)</u> Working Frequencies (paired with those in 8058/452C) for Ship Stations Using Narrow-Band Direct-Printing Telegraph and Data Transmission Systems, at Speeds Not Exceeding 100 Bauds

SUP 8156 1191D § 56. (1) Mar2

NOC 8157 1191DA (2) The frequency pairs assignable to coast Mar2 stations and ship stations using narrow-band direct-printing telegraph and data transmission systems are indicated in Appendix 15A.

NOC 8158 1191E § 57. When assigning frequencies listed in Mar2 Appendix 15A for narrow-band direct-printing telegraph and data transmission systems, administrations shall apply the procedure described in Resolution No. Mar2 - 7.

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- e) Working Frequencies (non-paired) for Ship Stations Using Narrow-Band Direct-Printing Telegraph and Data Transmission Systems, at Speeds Not Exceeding 100 Bauds
- SUP 8159 1191F \$ 58. Mar2

NOC 8160 1191G § 59. When assigning frequencies listed in Mar2 Appendix 15B for narrow-band direct-printing telegraph and data transmission systems, administrations shall take due account of the information entries in the Master Register resulting from the notification procedure contained in Resolution No. Mar2 - 8.

NOC <u>f)</u><u>Working Frequencies for Ship</u> <u>Stations Using Ald Morse</u> <u>Telegraphy</u>

SUP	8161	1196	§ 60.
		Mar2	

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NOC	8162	1200 Mar2	§ 61. Each administration shall assign to each ship station under its jurisdiction a sufficient number of working frequencies, in any of the 4, 6, 8, 12, 16, 22 and 25 MHz bands, to meet the traffic needs of the ship. In each band used, preferably not less than two working frequencies should be assigned to each ship. Administrations shall ensure a uniform distribution of assignments throughout the bands.
MOD	8163	1200A Mar2	§ 62. For the exclusive purpose of communication with stations of the maritime mobile service, an aircraft station may be assigned one or more working frequencies in the bands shown in No. 8057/452B. These frequencies shall be assigned in accordance with the same principles of uniform distribution as for ship stations.
NOC			g) <u>Abbreviations for the Indication of</u> <u>Working Frequencies</u>
NOC	8164	1203 Mar2	§ 63. In the bands between 4 000 and 27 500 kHz the following abbreviations may be used to designate a working frequency:
NOC	8165	1204 Mar2	<u>a)</u> if the frequency expressed in kHz has no decimal value, the last three figures shall be transmitted;
NOC	8166	1204A Mar2	b) if the frequency expressed in kHz has a decimal value, the last three figures before the decimal point and the first decimal figure shall be transmitted.
NOC		Sect	ion III. Use of Frequencies for Narrow-Band Direct-Printing Telegraphy
NOC	8167		A. General
NOC	8168	999H Mar2	§ 64. Frequencies assigned to coast stations shall be indicated in the List of Coast Stations (List IV). This list shall also indicate any other useful information concerning the service performed by each coast station.

NOC	8169		B. Bands between $[405 \text{ and } 535 \text{ kHz}]$	£	3
NOC	8170	9991 Mar2	§ 65. (1) All ship stations equipped with narrow-band direct-printing telegraph apparatus to work in the authorized bands between 405 and 535 kHz shall be able to send and receive class FI emissions on at least two working frequencies (see No. 8088/1123). 1	ł]
NOC	8170.1	9991.1 Mar2	l In the European Maritime Area usage of these class Fl emissions is subject to special arrangements between interested and affected administration	ns.	}€ ∃
NOC	8171	999J Mar2	(2) Narrow-band direct-printing telegraphy is forbidden in the band 490 - 510 kHz	£	3
NOC	8172		C. Bands between 1 605 and 4 000 kHz	£	}
NOC	8173	999K Mar2	§ 66. (1) All ship stations equipped with narrow-band direct-printing telegraph apparatus to work in the authorized bands between [1 605 and 4 000 kHz] shall be able to send and receive class [F1] emissions on at least two working frequencies.	ŧ	} }
NOC	8174	999L Mar2	(2) Narrow-band direct-printing telegraphy is forbidden in the band 2 170 - 2 194 kHz	£	}
NOC	8175		D. Bands between 4 000 and 27 500 kHz		
NOC	8176	999M Mar2	§ 67. All ship stations equipped with narrow-band direct-printing telegraph apparatus to work in the authorized bands between 4 000 and 27 500 kHz shall be able to send and receive class [F1] emissions on at least two frequencies in each band as required by their service. The assignable frequencies are indicated in Appendices 15A and 15B.	£	3
NOC	8177		E. Bands between [156 and 174 MHz]	£	}
NOC	8178	999N Mar2	§ 68. All ship stations equipped with narrow-band direct-printing telegraph apparatus may work in the authorized bands between [156 and 174 MHz] and shall conform to the provisions of Appendix 18.	£	}
NOC	^	Sect	ion IV. Use of Frequencies for Radiotelephony		
NOC	8179		A. General		
SUP	8180	1319	§ 69.		

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NOC	8181	1321A Mar2	§ 70. Except with regard to the provisions of Article N12/9 concerning notification and recording of frequencies, when designating frequencies for single sideband radiotelephony the carrier frequency is always to be designated. The assigned frequency is to be determined in accordance with No. 8045/445A.
MOD	8182	1321B Mar2	§ 71. Coast stations shall not occupy idle radiotelephone channels by emitting identification signals, such as those generated by call slips or tapes. Exceptionally, a coast station, when requested by a ship station for the purpose of establishing a radiotelephone call, may emit a receiver tuning signal of not more than 10 seconds' duration.
NOC	8183	1322	§ 72. The frequencies of transmission (and reception when these frequencies are in pairs as in the case of duplex radiotelephony) assigned to each coast station shall be indicated in the List of Coast Stations. This list shall also indicate any other useful information concerning the service performed by each coast station.
NOC	8184	1322A Mar	§ 73. Single sideband apparatus in radiotelephone stations of the maritime mobile service operating in the bands between [1 605 and 4 000 kHz] allocated to this service and in the bands allocated exclusively to this service between 4 000 and 23 000 kHz shall satisfy the technical and operational conditions specified in Appendix 17A and Resolution No. Mar 4.
NOC	8185	1322AA Mar2	§ 74. When linked compressor and expander systems are used they shall conform to the characteristics specified in Appendix 20D , paragraph <u>a)</u> .
NOC	8186	1322AB Mar2	§ 75. Single sideband radio equipment used in conjunction with linked compressor and expander systems shall conform to the characteristics specified in Appendix 17A and should also conform to Appendix 20D , paragraph <u>b</u> .
NOC	8187		B. Bands between 1 605 and 4 000 kHz
NOC			B1. Mode of Operation of Stations
MOD	8188	1322B Mar2	§ 76. (1) Except in the cases specified in Nos. 6633 /1323, 7945 /984 and 8191 /1322D, the classes of emissions to be used in the bands between [1 605 and 4 000 kHz] shall be:
			a) $[A3]$ or

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b) A3H, A3A and A3J

However, unless otherwise specified in the present Regulations (see Nos. 6633/1323, 6666/996, **7945**/984, **8191**/1322D and **8204**/1337):

-	class A3 emissions shall not be used by	£3
	coast stations; and	

ŦŦ after 1 January 1982, class A3H emissions for coast stations and class A3 ŦŦ and A3H emissions for ship stations shall no longer be authorized.

8189 1322BA NOC (2) The peak envelope power of coast Mar2 radiotelephone stations operating in the authorized bands £} allocated between 1 605 and 4 000 kHz shall not exceed: 1

> 5 kW for coast stations located north of latitude 32° N;

10 kW for coast stations located south of latitude 32° N.

NOC 8189.1 1322BA.1 1 See Resolution No. Mar2 - 9.

Mar2

1322C NOC 8190 (3) The normal mode of operation for each coast Mar station shall be indicated in the List of Coast Stations.

(4) Transmissions in the bands 2 170 - 2 173.5 kHz ŧ ţ NOC 8191 1322D and 2 190.5 - 2 194 kHz with the carrier frequency Mar2 2 170.5 kHz and the carrier frequency 2 191 kHz £} respectively are limited to class A3A and A3J emissions and are limited to a peak envelope power of 400 watts. However, on the frequency 2 170.5 kHz and with the same Εł power limit, coast stations may also use class A2H emissions when using the selective calling system 2 defined in Appendix 20C and, exceptionally, in f f Regions 1 and 3 and in Greenland, may also use class A3H emissions for safety messages.

² See also No. 8196/1329A Mar2. NOC **8191.1** 1322D.2 Mar*

NOC

8192 MOD

- Call and Reply B2.
- 1323 § 77. (1) The frequency 2 182 kHz l is the Mar2 international distress frequency for radiotelephony (see No. 6633/1323 for details of use for distress, urgency, safety and emergency position-indicating radiobeacon (EPIRB) purposes). The class of emission to be used for radiotelephony on the frequency 2 182 kHz shall be A3 or A3H (see No. 7945/984).

NOC	8192.1	1323.1 Mar2	<pre>1 Where administrations provide at their coast stations a watch on 2 182 kHz for receiving class A3A and A3J emissions as well as class A3 and A3H emissions, ship stations beyond the A3 or A3H communication range of such coast stations may call them for safety purposes using class A3A or A3J emissions. This procedure shall only be used when calling by the use of class A3 and A3H emissions has not been successful.</pre>
NOC	8193	1327	(2) The frequency 2 182 kHz may also be used:
NOC	8194	1328	<u>a)</u> for call and reply in accordance with the provisions of Article N62/33;
NOC	8195	1329 Mar	b) by coast stations to announce the transmission, on another frequency, of traffic lists (see Nos. 8693 /1301 to 8697 /1304);
SUP	8196	1329A Mar2	<u>c)</u>
NOC	8197	1330	(3) In addition, an administration may assign to its stations other frequencies for call and reply.
NOC	8198	1331	§ 78. To facilitate the reception of distress calls, all transmissions on 2 182 kHz shall be kept to a minimum.
NOC	8199	1335	§ 79. Ship stations open to public correspondence should, as far as possible during their hours of service, keep watch on 2 182 kHz.
MOD	8200	1326A Mar	§ 80. (1) Before transmitting on the carrier frequency 2 182 kHz, a station should listen on this frequency for a reasonable period to make sure that no distress traffic is being sent (see No. 8683 /1217).
NOC	8201	1326B Mar	(2) The provisions of No. 8200 /1326A do not apply to stations in distress.

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NOC			B3. Traffic	
NOC	8202	1336	§ 81. (1) Coast stations which use 2 182 kHz for calling shall be able to use at least one other frequency in the authorized bands between [1 605 and 2 850 kHz]	ŧ
MOD	8203	1336A Mar2	(2) Coast stations authorized to use radiotelephony on one or more frequencies other than 2 182 kHz in the authorized bands between [1 605 and 2 850 kHz] shall be capable of transmitting on those frequencies class [A3] emissions or class [A3H, A3A and A3J] emissions. However, after 1 January 1982, class [A3H] emissions shall no longer be authorized, except on the frequency 2 182 kHz (see also No. 8191/1322D).	
NOC	8204	1337 Mar*	(3) Coast stations open to the public correspondence service on one or more frequencies between [1 605 and 2 850 kHz] shall also be capable of transmitting class [A3H] emissions with a carrier frequency of 2 182 kHz, and of receiving class [A3 and A3H] emissions with a carrier frequency of 2 182 kHz.	
NOC	8205	1338	(4) One of the frequencies which coast stations are required to be able to use (see No. 8202 /1336) is printed in heavy type in the List of Coast Stations to indicate that it is the normal working frequency of the stations. Supplementary frequencies, if assigned, are shown in ordinary type.	
NOC	8206	1339	(5) Working frequencies of coast stations shall be chosen in such a manner as to avoid interference with other stations.	
NOC			B4. Additional Provisions Applying to Region 1	-
SUP	8207	1340	§ 82.	
MOD	8208	1341 Mar	§ 83. The peak envelope power of ship radiotelephone stations operating in the authorized bands between 1 605 and 2 850 kHz shall not exceed 400 watts.	E]
NOC	8209	1343	§ 84. (1) All stations on ships making international voyages should be able to use:	
NOC	8210	1344 Mar	a) the following ship-shore working frequencies, if required by their service:	

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 carrier frequency 2 046 kHz (assigned frequency 2 047.4 kHz) and carrier frequency 2 049 kHz (assigned frequency 2 050.4 kHz) for class [A3A and A3J] emissions;

- carrier frequency 2 049 kHz also for class A3 and A3H emissions until 1 January 1982;
- b) the following intership frequencies, if required by their service:
 - carrier frequency 2 053 kHz (assigned frequency 2 054.4 kHz) and carrier frequency 2 056 kHz (assigned frequency 2 057.4 kHz) for class [A3A and A3J] emissions;
 - carrier frequency 2 056 kHz also for class A3 and A3H emissions until 1 January 1982.

These frequencies may be used as additional ship-shore frequencies.

NOC	8212	1346	(2) These frequencies shall not be used for
			working between stations of the same nationality.

§ 85. (1) Ships frequently exchanging correspondence with a coast station of a nationality other than their own may use the same frequencies as ships of the nationality of the coast station where mutually agreed by the administrations concerned.

1348A (2) In exceptional circumstances, if frequency
Mar usage according to Nos. 8209/1343 to 8211/1345 or
No. 8213/1348 is not possible, a ship station may use one of its own assigned national ship-to-shore frequencies for communication with a coast station of another nationality, under the express condition that the coast station as well as the ship station take precautions (see No. 8683/1217) to ensure that the use of such a frequency will not cause harmful interference to the service for which the frequency in question is authorized.

NOC 8211

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NOC **8213** 1348 Mar

NOC 8

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NOC		B5.	Additional Provisions Applying to Regions 2 and 3	
NOC	8215	1351 Mar	8 86. All stations on ships making international voyages should, if required by their service, be able to to use the intership carrier frequencies:	
			2 635 kHz (assigned frequency 2 636.4 kHz)	
			2 638 kHz (assigned frequency 2 639.4 kHz)	
			The conditions of use of these frequencies are specified in No. 8044 /445.	
NOC	8216		C. Bands between 4 000 and 23 000 kHz	
NOC			Cl. Mode of Operation of Stations	
MOD	8217	1351A Mar2	§ 87. (1) The classes of emission to be used for radiotelephony in the bands between 4 000 and 23 000 kHz are [A3H, ² A3A and A3J].	£3
SUP	8217.1	1351A.1 Mar2	1	
NOC	8217.2	1351A.2 Mar2	² The conditions of use of class [A3H] emissions are specified in No. 6644 /1351I, in Appendix 17 and in Resolution No. Mar2 — 13.	{ }
NOC	8218	1351B Mar	(2) The normal mode of operation of each coast station is indicated in the List of Coast Stations.	
MOD	8219	1351C Mar2	(3) Coast radiotelephone stations employing class [A3H, 3 A3A or A3J] emissions in the bands between 4 000 and 23 000 kHz shall use the minimum power necessary to cover their service area and shall at no time use a peak envelope power in excess of 10 kW per channel.	ŧ}
(MOD)	8219.1	1351C.1 Mar2	³ For the use of class [A3H] emissions see No. 6644/13511.	
MOD	8220	1351D Mar2	(4) Ship radiotelephone stations employing class [A3H, 4 A3A or A3J] emissions in the bands between 4 000 and 23 000 kHz shall at no time use a peak envelope power in excess of 1.5 kW per channel.	£}
(MOD)	8220.1	1351D.1 Mar2	4 For the use of class [A3H] emissions see No. 6644/1351I.	£

B.4-57

NOC

MOD 8221

C2. Call and Reply

1352 § 88. (1) Ship stations may use the followingMar2 carrier frequencies for calling in radiotelephony:

- 4	125	kHz	1,	2
6	215.5	kHz	3	
8	257	kHz		
12	392	kHz		
16	522	kHz		
22	062	kHz		

MOD 8221.1 1352.1 Mar2

¹ In the United States and Canada, the carrier frequency 4 125 kHz is also authorized for common use by coast and ship stations for single sideband radiotelephony on a simplex basis, provided the peak envelope power of such stations does not exceed 1 kW (see also No. 8222.2/1352A.2).

- MOD 8221.2 1352.2 2 In the zone of Regions 1 and 2 south of Mar2 2 In the zone of Regions 1 and 2 south of Region 3 south of latitude 25° N, the carrier frequency 4 125 kHz is also authorized for common use by coast and ship stations for single sideband radiotelephony on a simplex basis for call, reply and safety purposes, provided the peak envelope power of such coast stations does not exceed 1 kW. In these zones the use of the carrier frequency 4 125 kHz for working purposes is not permitted (see also Nos. 6643/1351E, 6688/1351G and 8221.1/1352.1).
- MOD 8221.3 1352.3 Mar2 ³ In the zone of Region 3 south of of latitude 25° N, the carrier frequency 6 215.5 kHz is also authorized for common use by coast and ship stations for single sideband radiotelephony on a simplex basis for call, reply and safety purposes, provided the peak envelope power of such coast stations does not exceed 1 kW. In these zones the use of the carrier frequency of 6 215.5 kHz for working purposes is not permitted (see also No. 6648/1351F).

MOD82221352A(2)Coast stations may use the following carrierMar2frequencies for calling in radiotelephony: 1

- 4	419.4	kHz	2
6	521.9	kHz	2
8	780.9	kHz	
13	162.8	kHz	
17	294.9	kHz	
22	658	kHz	

8222.1 1352A.1 NOC 1 These frequencies may also be usde by coast stations with class A2H emission, when using the Mar2 selective calling system defined in Appendix 20C.

MOD 8222.2 1352A.2 2 In Regions 2 and 3, the carrier frequencies 4 419.4 and 6 521.9 kHz are also Mar2 authorized for common use by coast and ship stations for single sideband radiotelephony on a simplex basis, provided the peak envelope power of such stations does not exceed 1 kW. The use of 6 521.9 kHz for this purpose should be limited to daytime use (see also No. 8221.1/1352.1).

MOD 8223 1352AA § 89. Ship and coast stations using digital Mar2 selective calling in accordance with No. 8400/999F may use the frequencies specified in Nos. 8403/1238C and 8404/1238D respectively.

NOC 8224 1354 § 90. The hours of service of coast stations open to public correspondence and the frequency or frequencies Mar on which watch is maintained shall be indicated in the List of Coast Stations.

1351G MOD 8225 § 91. (1) In the zone of Regions 1 and 2 south Mar2 of latitude 15° N, including Mexico, and in the zone of Region 3 south of latitude 25° N, before transmitting on the carrier frequency 4 125 kHz or 6 215.5 kHz a station shall listen on the frequency for a reasonable period to make sure that no distress traffic is being sent (see No. 8683/1217).

NOC 8226 1351H (2) The provisions of No. 8225/1351G do not Mar2 apply to stations in distress.

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MOD 8227

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Traffic C3.

§ 92. (1) For the conduct of duplex telephony, the transmitting frequencies of the coast stations and of the corresponding ship stations shall be associated in pairs, as indicated in Appendix 17 Rev., except temporarily in cases where working conditions prohibit the use of paired frequencies in order to meet operational needs.

8228 MOD Mar2

(2) The frequencies to be used for the conduct of simplex radiotelephony are shown in Appendix 17 Rev., Section B. In these cases, the peak envelope power of the coast station transmitter shall not exceed 1 kW.

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MOD	8229	1357 Mar2	(3) The frequencies indicated in Appendix 17 Rev. for ship station transmissions may be used by ships of any category according to traffic requirements.	
MOD	8230	1358 Mar	(4) The technical characteristics of transmitters used for radiotelephony in the bands between 4 000 and 23 000 kHz are specified in Appendix 17A.	
NOC	8231		D. Bands between 156 and 174 MHz	£
NOC			Dl. Call and Reply	
MOD	8232	1359 Mar2	§ 93. (1) The frequency 156.8 MHz is the international distress, safety and calling frequency for radiotelephony when using frequencies in the authorized bands between 156 and 174 MHz (see No. 6656/1359 for details of use). The class of emission to be used for radiotelephony on the frequency 156.8 MHz shall be [F3] (see Appendix 19).	ŧ } ŧ }
MOD	8233	1359A Mar2	 (2) The frequency 156.8 MHz may also be used: <u>a)</u> by coast and ship stations for call and reply in accordance with the provisions of Articles N59 and N62; 	
			b) by coast stations to announce the transmission on another frequency of traffic lists and important maritime information (see Nos. 8693 /1301 to 8697 /1304).	
NOC	8234	1359B Mar2	(3) The frequency 156.8 MHz may be used by ship stations and coast stations for selective calling.	
NOC	8235	1361	(4) Any one of the channels designated in Appendix 18 for public correspondence may be used as a calling channel if an administration so desires. Such use shall be indicated in the List of Coast Stations.	
MOD	8236	1362	(5) Ship and coast stations in the public correspondence service may use a working frequency, for calling purposes, as provided in Articles N59 and N62 .	-

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NOC	8237	1363 Mar	(6) All emissions in the band 156.725 - 156.875 MHz ¹ capable of causing harmful interference to the authorized transmissions of stations of the maritime mobile service on 156.8 MHz are forbidden.
NOC	8237.1	1363.1 Mar2	1 After 1 January 1983 this band is reduced to 156.7625 - 156.8375 MHz (see Resolution No. Mar2 - 14).
NOC	8238	1363C Mar2	(7) To facilitate the reception of distress calls all transmissions on 156.8 MHz shall be kept to a minimum and shall not exceed one minute.
MOD	8239	1363A Mar2	(8) Before transmitting on the frequency 156.8 MHz, a station should listen on this frequency for a reasonable period to make sure that no distress traffic is being sent (see No. 8683 /1217).
NOC	8240	1363B Mar2	(9) The provisions of No. 8239 /1363A do not apply to stations in distress.
NOC			D2. Watch
MOD	8241	1365	§ 94. (1) In addition to the watch referred to in No. 6713/1364, a coast station open to the international public correspondence service should, during its hours of service, maintain watch on its receiving frequency or frequencies indicated in the List of Coast Stations.
NOC	8242	1366	(2) The method of watch on a working frequency shall be no less efficient than watch by an operator.
NOC	8243	1367 Mar2	(3) Ship stations should, where practicable, maintain watch on 156.8 MHz when within the service area of a coast station providing international maritime mobile radiotelephone service in the band [156 to 174 MHz]. Ship stations fitted only with VHF radiotelephone equipment operating in the authorized bands between [156 and 174 MHz] should maintain watch on 156.8 MHz when at sea.
NOC	8244	1367A Mar2	(4) Ship stations, when in communication with a port station, may, on an exceptional basis and subject to the agreement of the administration concerned.

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continue to maintain watch on the appropriate port operations frequency only, provided that watch on 156.8 MHz is being maintained by the port station.

NOC 8245 1367B (5) Ship stations, when in communication with a Mar2 coast station in the ship movement service and subject to the agreement of the administration concerned, may continue to maintain watch on the appropriate ship movement service frequency only, provided the watch on 156.8 MHz is being maintained by that coast station.

NOC

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- 1368 § 95. A coast station in the port operations service in an area where 156.8 MHz is being used for distress, urgency or safety shall, during its working hours, keep an additional watch on 156.6 MHz or other port operations frequency indicated in heavy type in the List of Coast Stations.

NOC D3. Traffic NOC 8248 1369 § 97. (1) Where practicable, coast stations open to the international public correspondence service shall be capable of working with ship stations equipped for duplex or semi-duplex operation. 8249 1370 NOC (2) The method of working (single-frequency or Mar* two-frequency) specified in Appendix 18 for each channel should be used in the international services (see Resolution No. Mar2 - 14). 8250 § 98. NOC 1371 Communications in the port operations service Mar2 shall be restricted to those relating to operational handling, the movement and the safety of ships and, in emergency, to the safety of persons. Messages of a public correspondence nature shall be excluded from this service.

NOC 8251 1371A § 99. Communications in the ship movement service Mar2 shall be restricted to those relating to the movement of ships. Messages of a public correspondence nature shall be excluded from this service. NOC 8252 1372 § 100. (1) Coast stations which use 156.8 MHz for calling shall be able to use at least one other authorized channel in the international maritime mobile £} radiotelephone service in the band 156 to 174 MHz. £7 (2) In the band 156 to 174 MHz administrations NOC 8253 1373 Mar* shall, where practicable, assign frequencies to coast and ship stations in accordance with the Table of Transmitting Frequencies given in Appendix 18 for such international services as administrations consider necessary (see Resolution No. Mar2 - 14). 1373A MOD 8254 (3) The normal sequence in which channels should £Ŧ be put into use in the band 156 to 174 MHz is indicated Mar by the figures in the relevant columns of Appendix 18. NOC 8255 1373B (4) Administrations should, as far as possible, Mar arrange that ship stations fitted with the channels corresponding to the figures in a circle in Appendix 18 can obtain a reasonably adequate use of available services. NOC 8256 1374 (5) In assigning frequencies to their coast Mar stations, administrations should collaborate in cases where harmful interference might occur. NOC 8257 1375 (6) Channels are designated by numbers in the Table Mar* of Transmitting Frequencies given in Appendix 18 (see Resolution No. Mar2 - 14). NOC 8258 1376 § 101. (1) In assigning frequencies to stations of authorized services, other than maritime mobile, administrations shall avoid the possibility of interference to international maritime services in the Eł bands between 156 and 174 MHz. (2) The use of channels for maritime mobile NOC 8259 1377 purposes other than those indicated in the Table of Mar* Transmitting Frequencies given in Appendix 18 shall not cause harmful interference to services which operate in accordance with that Table and shall not prejudice the future development of such services (see Resolution No. Mar2 - 14).

NOC 8260	1379 Mar	§ 102. The carrier power of ship station transmitters shall not exceed 25 watts for equipment brought into service after 1 January 1970.
8261 to		NOT allocated.

INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

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COMMITTEE 5

France

LOW-POWER RADIOLOCATION SYSTEMS IN THE BAND 420 - 450 MHz

Low-power radiolocation systems have been in operation for several years in the band 420 - 450 MHz. Their numbers are increasing rapidly, and Administrations are finding it more and more difficult to set aside frequencies for them, in the absence of any band actually allocated to them.

These systems, however, are used for purposes which are of concern to navigation and are of great economic importance :

- accurate guiding of big ships in narrow harbour fairways;
- hydrographical surveys for navigation charts;
- sounding and dredging operations for creating and maintaining harbour fairways;
- geophysical prospecting, laying of submarine conduits and cables, positioning of drilling rigs.

The Report of the SPM (4.2.5) stressed the advantages of using the band in question in establishing accurate systems for determining the position of ships and other items :

- the propagation velocity is independent of the characteristics of the terrain under the wave path. In particular, the repeatability is not diminished by the effect of the tide, which often profoundly alters the coastline between land and sea, or by climatic variations, which affect soil humidity or the salinity of estuary waters;
- there is no skywave interference and the systems in question can operate with equal accuracy by day and by night.

Furthermore, this frequency band has been recognized by the CCIR (Reports 238-3 and 718) and by the SPM (4.2.5.2) as "highly favourable to the implementation of accurate low-power radiolocation systems having ranges beyond the line of sight".

These systems generally have a peak power of <u>100 mW to 20 W</u> for ranges of <u>50 to 100 km</u>. For special applications for which a range of <u>250 km</u> is necessary, the peak power can go up to about <u>300 W</u>.

A single network has an occupied band of \pm 1.25 MHz. However, in order to allow upwards of ten or so networks in the same system to operate in the same geographical zone, where distance separation is not sufficient, a maximum band of 4 MHz will ensure frequency separation by an appropriate staggering of the centre frequencies, while the spectra of the different networks can overlap.

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

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COMMITTEE 6

NOTE FROM THE CHAIRMAN OF COMMITTEE 5

TO THE CHAIRMAN OF COMMITTEE 6

During the consideration of Document No. 263 (Rev.1) at the eighth meeting of Committee 5 on Tuesday, 30 October 1979, Working Group 5D recommended that the attention of Committee 6 should be drawn to the need for coordination and regulated procedures between the Mobile Satellite Service and the Aeronautical Mobile Service with reference to footnote No. ADD 3764B appearing on page 3 of that document.

Committee 6 is requested to consider this item and furnish their advice to Committee 5 as soon as possible.

M. HARBI Chairman of Committee 5



WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

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COMMITTEE 4

SIXTH REPORT OF THE CHAIRMAN OF WORKING GROUP 4A TO THE CHAIRMAN OF COMMITTEE 4

Working Group 4A has examined the proposals submitted by Administrations for several terms in Section VI of Article N1 (see Annex).

The delegation of the United Kingdom has expressed its reservation to the term "accepted interference".

Concerning the symbols used in MOD 3143, there was a divergence of opinion. The delegations of Algeria, Ivory Coast, Cuba, Spain, France, Gabon, Morocco, Senegal and Zaire have expressed their reservations to the maintenance of the present symbols p, p and p. They propose the use of symbols \hat{p} , \bar{p} and \ddot{p} which are independent of any ITU languages.

A.R. BASTIKAR Chairman of Working Group 4A

<u>Annex</u> : 1



Document No. 460-E

Page 2

ANNEX

Brouillage accepté : Brouillage, supérieur à celui défini comme admissible, qui a fait l'objet d'un accord entre deux ou plusieurs administrations intéressées sans préjudice aux autres administrations.

Accepted Interference : Interference at a higher level than that defined as permissible interference and which has been agreed upon between two or more Administrations without prejudice to other Administrations.

Interferencia aceptada : Interferencia de nivel más elevado que el definido como admisible, y que ha sido acordada entre dos o más administraciones, sin perjuicio para otras administraciones.

ADD

ADD

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MOD 3143/94

3143/94

MOD

Puissance : Chaque fois que la puissance d'un émetteur radioélectrique, etc. est mentionnée, elle doit être exprimée sous l'une des formes suivantes: <u>ci-dessous, selon la classe d'émission</u> :

- puissance moyenne
$$(\overline{p}); (p_m \text{ ou } P_m);$$

- puissance de
$$\frac{1-\frac{1}{2}}{c}$$
 porteuse $(\frac{r}{p})$, $(p_c \text{ ou } P_c)$.

en Pour différentes classes d'émission, les rapports entre la puissance de crête, la puissance moyenne et la puissance de l'onde porteuse, dans les conditions de fonctionnement normal et en l'absence de modulation, sont indiqués dans des Avis du CCIR, lesquels peuvent être utilisés comme guides.

1)

Power : Whenever the power of a radio transmitter etc. is referred to it shall be expressed in one of the following forms, according to the class of emission :

- peak envelope power $(\hat{p}); (p_p \text{ or } P_p);$
- mean power $(\overline{\mathbf{p}})$; $(\mathbf{p}_{m} \text{ or } \mathbf{P}_{m})$;
- carrier power (p). (p or P).

For different classes of emissions, the relationships between peak envelope power, mean power and carrier power, under the conditions of normal operation and of no modulation, are contained in Recommendations of CCIR which may be used as a guide.

MOD 3143/94

1) Potencia: Siempre que se haga referencia a la potencia de un transmisor radioeléctrico, etc, se expresará en una de estas formas, según la clase de emisión:

potencia
$$\frac{de}{de}$$
 la cresta $\frac{de}{(\hat{p})}$; $(p \circ P_p)$;

- potencia media $(\bar{p}); (\underline{p}_{m} \circ P_{m});$
- potencia de la portadora (ÿ). (p_c o P_c).

Las relaciones entre la potencia en la cresta de la envolvente, la potencia media y la potencia de la portadora, para las distintas clases de emisiones, en condiciones normales de funcionamiento y en ausencia de modulación, se indican en las Recomendaciones del CCIR que pueden tomarse como guía para determinar tales relaciones.

3143.1

On utilise des lettres minuscules lorsque la puissance est exprimée en watts et des lettres majuscules lorsqu'elle est exprimée en décibels par rapport à une puissance de référence.

3143.1 Lower-case letters denote power values expressed in Watts and capital letters denote ratios expressed in decibels.

3143.1 Las letras minúsculas se han utilizado cuando la potencia se expresa en vatios, y las letras mayúsculas cuando se expresa en decibelios con relación a una potencia de referencia. 3144/95

Puissance en crête (d'un émetteur radioélectrique) : Moyenne de la puissance fournie à la ligne d'alimentation de l'antenne par un émetteur en fonctionnement normal, au cours d'un cycle de radiofréquence correspondant à l'amplitude maximale de l'enveloppe de modulation.

MOD 3144/95 Peak envelope power (of a radio transmitter): The average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle at the crest of the modulation envelope under normal operating conditions.

MOD 3144/95

MOD

Potencia en la cresta de la envolvente (de un transmisor radioeléctrico): La media de la potencia suministrada por un transmisor en condiciones normales de funcionamiento, a la línea de alimentación de la antena durante un ciclo de radiofrecuencia, tomado en la cresta más elevada de la envolvente de modulación.

MOD	3145/96	Puissance moyenne (d'un émetteur radioélectrique) :
		Moyenne de la puissance fournie à la ligne d'alimentation de l'antenne par un
		émetteur en fonctionnement normal, évaluée pendant un intervalle de temps
		relativement long par rapport à la période de la composante de plus basse
		fréquence de la modulation.
	·	radio
MOD	3145/96	Mean power (of a transmitter) : The average power
		supplied to the antenna transmission line by a transmitter during an interval
		of time sufficiently long compared with the lowest frequency encountered in the
		modulation taken under normal operating conditions.
MOD	3145/96	Potencia media (de un transmisor radioeléctrico): La
		media de la potencia suministrada por un transmisor en condiciones normales de
		funcionamiento, a la línea de alimentación de la antena, evaluada durante un
		intervalo de tiempo suficientemente largo comparado con el periodo correspon-
		diente a la frecuencia mas baja que existe realmente como componente de
		modulacion.

MOD 3146/97 Puissance de la porteuse (d'un émetteur radioélectrique) : Moyenne de la puissance fournie à la ligne d'alimentation de l'antenne par un émetteur au cours d'un cycle de radiofréquence en l'absence de modulation. radio MOD 3146/97 Carrier power (of attransmitter) : The average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle under the condition of no modulation. Potencia de la portadora (de un transmisor radioeléctrico): 3146/97 MOD La media de la potencia suministrada por un transmisor radioeléctrico a la línea de alimentación de la antena durante un ciclo de radiofrecuencia en ausencia de modulación.

MOD 3149/99

dans la direction du maximum de rayonnement.

Gain d'une antenne : Rapport <u>généralement exprimé en</u> <u>décibel</u>, entre la puissance nécessaire à l'entrée d'une antenne de référence <u>sans pertes</u> et la puissance fournie à l'entrée de l'antenne donnée, pour que les deux antennes produisent dans une direction donnée le même champ <u>ou la</u> <u>même puissance surfacique</u>, à la même distance. <u>Sauf En l'absence</u> d'indication contraire, le chiffre donné pour le gain d'une antenne désigne le s'il s'agit <u>du</u> gain de l'antenne dans la direction du lobe principal <u>maximum</u> de rayonnement. Dans les services utilisant les modes de propagation par diffusion, il-se peut que le gain total de l'antenne ne soit pas réalisable en pratique et que le gain apparent varie dans le temps. <u>On peut éventuellement considérer le gain</u> pour une polarisation spécifiée.

<u>Suivant l'antenne de référence choisie</u> Suivant le cas on distingue :

(G_i) :

Gain isotrope ou absolu d'une-antenne : (Gis) Gain-($G_{\overline{1}\overline{5}}$) (G-)-d'une-antenne-dans-une-direction-donnée-lorsque - L'antenne de référence est une antenne isotrope <u>sans-pertes</u> isolée dans l'espace.

Gain-relatif-d'une-antenne <u>Gain par rapport à un doublet</u> <u>demi-onde (G_d) : Gain- (G_d) -d'une-antenne-dans-une-direction-donnée-lorsque</u> L'antenne de référence est un doublet demi-onde <u>sans-pertes</u>, isolé dans l'espace, et dont le plan équatorial contient la <u>cette</u> direction donnée. (G_u)

Gain par rapport à une antenne verticale courte : Gain-(G) d'une-antenne-dans-une-direction-donnée-lorsque L'antenne de référence est une antenne-verticale-parfaite conducteur rectiligne beaucoup plus courte que le quart de la longueur d'onde, placée normal à la surface d'une terre-plane plan parfaitement conductrice conducteur qui contient la direction donnée.

MOD 3149/99

Gain of an Antenna : The ratio, usually expressed in decibels, of the power required at the input of a loss free reference antenna to the power supplied to the input of the given antenna to produce, in a given direction, the same field strength or the same power flux-density at the same distance. When not specified otherwise, the figure expressing the gain of an antenna-it the gain refers to the gain in the direction of the maximum radiation-main-lobe. The gain of the unterma services-using scattering-modes-of propagation-the-full-gain-of-an antenna-may not be realizable-in-practice-and the apparent-gain-may-vary with-time. The gain may be considered for a specified polarization. (direction of maximum radiation)

Depending on the choice of the reference antenna. distinction is made between : (G_i) :

Isotropic or Absolute Gain of an Antenna $\neq (613)$ The gain (6is)-(6a)-of an antenna in a given direction when the reference antenna is an isotropic <u>loss-free</u> antenna isolated in space.

Dipole (G_d) :

Relative-Gain-of-an-Antenna <u>Gain Relative to a Half-Wave</u> <u>Dipole-(Gd)</u> : The-gain-(Gd)-of-an-antenna-in-a-given-direction-when the reference antenna is a <u>loss-free</u> half-wave loss-free dipole isolated in space and the equatorial plane of which contains the given <u>that</u> direction.

Gain Relative to a Short Vertical Antenna # The-gain (G_v): of-an-antenna-in-a-given-direction-when the reference antenna is a perfect vertical-antenna linear conductor, much shorter than one quarter of the wavelength, placed-on normal to the surface of a perfectly conducting plane earth which contains the given direction.

The-gain-is-usually-expressed-in-decibels.

Salvo que se indique lo contrario, se refiere a la dirección de máxima radiación

Ganancia de una antena: La relación <u>generalmente</u> <u>expresada en decibelios</u>, que debe existir entre la potencia necesaria a la entrada de una antena de referencia sin pérdidas y la potencia suministrada a la entrada de la antena en cuestión, para que ambas antenas produzcan, en una dirección dada, el mismo campo, <u>o la misma densidad de flujo de potencia</u>, a la misma distancia. Salve indicación en contrario, la eifra que expresa de la ganancia de una entena se refiere a <u>en la dirección del</u> lóbulo principal de <u>máxima</u> radiación de la antena. En los servicios que utilicen los modos de propagación por dispersión, co posible que no se consiga en la práctica la ganancia total de una entena y que la ganancia aparente varíe con el tiempo. Eventualmente puede tomarse en consideración la ganancia para una polarización especificada.

<u>Según la antena de referencia elegida</u>, Según el caso se distingue entre:

Ganancia isótropa o absoluta de una antena: (G_i) : Ganancia (Gis) (Gis)-(Ga)-de-una-antena-en-una-dirección-dada, ci La antena de referencia es una antena isótropa <u>sin-pérdidas</u> aislada en el espacio.

Ganancia <u>con relación a un dipolo de media onda</u> (G_d) ; relativa-de-una-antena: Gananeia-(Gd)-de-una-antena-en-una-dirección-dada,

euande ei la antena de referencia es un dipolo de media onda sin pérdidas aislado en el espacio y cuyo plano ecuatorial contiene la <u>esa</u> dirección dada.

Ganancia con relación a una antena vertical corta+ $\left(\begin{array}{c} G_{v} \end{array}\right)$: Ganancia (G_) de-una-antena-en-una-dirección-dada,-cuando si la antena de referencia es un conductor rectilíneo mucho menor que un cuarto de longitud de onda y perpendicular a una superficie perfectamente conductora que contiene la dirección dada.

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MOD

3149/99

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

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COMMITTEE 4

NOTE FROM THE CHAIRMAN OF WORKING GROUP 4A

Working Group 4A proposes the following text of a note to be sent from Committee 4 to Committee 6 :

DRAFT

" NOTE FROM THE CHAIRMAN OF COMMITTEE 4 TO THE CHAIRMAN OF COMMITTEE 6

1. While, in the process of preparation the texts for the two definitions namely, "coordination distance" and "coordination area" by applying the same station separation criteria for both; the term "or another earth" appears in square brackets. It was considered opinion of the Working Group 4A, that it is not within its competence to study the case when there is a bidirectional frequency re-use and that this matter should be referred to Committee 6 to seek their guidance."

A.R. BASTIKAR Chairman of Working Group 4A



WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 462-E 1 November 1979 Original : English

COMMITTEE 4

TENTH REPORT OF WORKING GROUP 4C TO COMMITTEE 4

Subject : MOD Appendix 5, SUP New Appendix B

1. Working Group 4C, having considered all proposals concerning Appendices 5 and New B, submits Appendix 5 as revised (see Annex) for consideration in Committee 4.

2. Following from the decision to combine Appendices 5 and New B, it is proposed to delete New Appendix B.

3. Since it was decided that the details on the additional characteristics for classifying emissions shall not be included in Article N3 (see Document No. 406) they form Part A of MOD Appendix 5.

4. The question of supplementing the additional characteristics by the CCIR will be covered by a possible revision of Recommendation No. 8. This will be the subject of a separate report of Working Group 4C.

5. Further study is required by the CCIR on the calculation of necessary bandwidths for various types of emission of which examples are not yet included in the table of Appendix 5 and on the K-factors used in the table. This matter will most likely be the subject of a new Resolution to which reference is already made in square brackets in Part B.

6. Two examples for single-sideband sound broadcasting emissions have been enclosed in square brackets. The deletion of these square brackets or the deletion of one or both of these examples depends on a decision in Committee 5 on the policy for the introduction of single-sideband HF broadcasting.

7. This Report and its Annex have been approved unanimously.

E. GEORGE Chairman of Working Group 4C

Annex : 1

Document No. 462-E Page 2

ANNEX

NEW APPENDIX B

APPENDIX 5

Additional Characteristics for the Classification of Emissions; Determination of necessary Bandwidths including Examples for their Calculation and Associated Examples for the Designation of Emissions

(see Article N3)

PARTA

Additional characteristics for the classification of emissions

Article N3 of these Regulations describes the basic characteristics, with three symbols, for the classification of emissions. For a more complete description of an emission, two optional, additional characteristics should be added.

The optional additional characteristics (see also Recommendation No. / 8 /) are :

Fourth symbol - Details of signal(s);

Fifth symbol - Nature of multiplexing.

Where the fourth or the fifth symbol is not used this should be indicated by a dash where each symbol would otherwise appear.

l. Fourth symbol - details of signal(s)

- Two-condition code with elements of differing numbers 1.1 and/or durations
- Two-condition code with elements of the same number 1.2 and duration without error-correction

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Two-condition code with elements of the same number and 1.3 duration with error-correction С 1.4 Four-condition code in which each condition represents a signal element (of one or more bits) D Multi-condition code in which each condition represents a 1.5 signal element (of one or more bits) Е Multi-condition code in which each condition or combination 1.6 of conditions represents a character F 1.7 Sound of broadcasting quality - monophonic G 1.8 Sound of broadcasting quality - stereophonic or quadraphonic Η 1.9 Sound of commercial quality (excluding categories given in sub-paragraphs 1.10 and 1.11) J 1.10 Sound of commercial quality with the use of frequency inversion or band-splitting Κ 1.11 Sound of commercial quality with separate frequency-modulated signals to control the level of demodulated signal \mathbf{L} 1.12 Monochrome М 1.13 Colour Ν 1.14 Combination of the above W 1.15 Cases not otherwise covered Х Fifth symbol - nature of multiplexing 2.1 None Ν Code-division multiplex*) 2.2 C Frequency-division multiplex 2.3 F т 2.4 Time-division multiplex Combination of frequency-division multiplex and 2.5 time-division multiplex W 2.6 Other types of multiplexing Х

*) This includes bandwidth expansion techniques.

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PART B

Determination of necessary bandwidths including examples for their calculation and associated examples for the designation of emissions

For full designation of an emission, the necessary bandwidth, indicated in four characters, shall be added just before the classification symbols. When used, the necessary bandwidth shall be determined by one of the following methods :

- 1) use of the formulae included in the following table which also gives examples of necessary bandwidths and designation of corresponding emissions:
- 2) computation in accordance with CCIR Recommendations; $(\underline{1}, \underline{1})$
- 3) measurement, in cases not covered by 1) or 2) above.

However, the necessary bandwidth so determined is not the only characteristic of an emission to be considered in evaluating the interference that may be caused by that emission.

In the formulation of the table, the following terms have been employed :

 B_n = Necessary bandwidth in hertz

B = Modulation rate in bauds

- N = Maximum possible number of black plus white elements to be transmitted per second, in facsimile
- M = Maximum modulation frequency in hertz
- C = Sub-carrier frequency in hertz
- D = Peak deviation, i.e., half the difference between the maximum and minimum values of the instantaneous frequency

The instantaneous frequency in hertz is the time rate of change in phase in radians divided by 2π

- t = Pulse duration in seconds at half-amplitude
- t_r = Fulse rise time in seconds between 10 % and 90 % amplitude
- K = An overall numerical factor which varies according to the emission and which depends upon the allowable signal distortion
- N_c = Number of baseband channels in radio systems employing multichannel multiplexing
- fp = Continuity pilot subcarrier frequency (Hz) (continuous signal utilized to verify performance of frequency division multiplex systems).

/]) See also Resolution No. / 7 "Examples of Necessary Bandwidths". 7

Description of emission	Necessary Formula	Bandwidth Sample calculation	Designation of emission	
	I. No	modulating signal	1	
No modulating signal, CW emission	-	-	NON	
II. Amplitude modulation				
-	l. Signal with qua	ntized or digital	l information	
Continuous wave telegraphy, Morse code	B _n = BK K = 5 for fading circuits K = 3 for non- fading circuits	25 words per minute; B = 20, K = 5 Bandwidth : 100 Hz	loohalaan	
Telegraphy by on-off keying of a tone modu- lated carrier, Morse code	B _n = BK + 2M K = 5 for fading circuits K = 3 for non- fading circuits	25 words per minute; B = 20, M = 1000 K = 5. Bandwidth : 2 100 Hz=2.1 kHz	2K10A2AAN	

Description	Necessary Bandwidth		Designation	
of emission	Formula	Sample calculation	of emission	
Selective calling signal using sequential single frequency code, single sideband, full carrier	B _n = M	Maximum code frequency is : 2 110 Hz M = 2 110 Bandwidth : 2 110 Hz = 2.11 kHz	2K11H2BFN	
Direct printing telegraphy using a frequency shifted modulating sub- carrier, with error- correction, single side- band, sup- pressed carrier (single cnannel)	$B_n = 2M + 2DK$ $M = B/2$	B = 50 bauds D = 35 Hz (70 Hz shift) K = 1.2 Bandwidth : 134 Hz	134HJ2BCN	
Telegraphy, multi-channel with voice frequency, error-correc- tion, some channels are time-division multiplexed, single side- band, reduced carrier	$B_{n} \stackrel{\text{!`e}}{=} \begin{array}{l} \text{highest} \\ \text{central} \\ \text{frequency} \\ + M + DK \\ M = \frac{B}{2} \end{array}$	15 channels highest central frequency is : 2 805 Hz B = 100 bauds D = 42.5 Hz (85 Hz shift) K = 0.7 Bandwidth : 2 805 Hz = $2_{\circ}885$ kHz	2K89R7BCW	
2. Telephony (commercial quality)				
Telephony, double sideband (single channel)	$B_n = 2M$	M = 3 000 Bandwidth : 6 000 Hz = 6 kHz	6kooa3ejn	
Telephony, single sideband, full carrier (single channel)	$B_n = M$	M = 3 000 Bandwidth : 3 000 Hz = 3 kHz	3KOOH3EJN	

Description	Necessary Bandwidth		Designation
of emission	Formula	Sample calculation	of emission
Telephony, single sideband, suppressed carrier (single channel)	B _n = M - lowest modulation frequency	M = 3 000; lowest modul- ation frequency is 300 Hz Bandwidth : 2 700 Hz = 2.7 kHz	2KJ0J3EIN
Telephony with separate frequency modu- lated signal to control the level of de- modulated speech signal, single sideband, re- duced carrier, (Lincompex) (single channel)	$B_n = M$	Maximum control frequency is 2 990 Hz M = 2 990 Bandwidth : 2 990 Hz - 2.99 kHz	2K99R3ELN
Telephony with privacy, single sideband, sup- pressed carrier (two or more channels)	$B_n = N_C M -$ lowest modulation frequency in the lowest channel	$N_c = 2$ M = 3 000 lowest modulation frequency is 250 Hz Bandwidth : 5 750 Hz=5.75 kHz	5K75J8EKF
Telephony, independent side- band (two or more channels)	B _n = sum of M for each side- band	two channels M = 3 000 Bandwidth : 6 000 Hz = 6 kHz	6koob8ejn

Annex to Document No. 462-E Page 8

Description	Necessary	Necessary Bandwidth	
of emission	Formula	Sample calculation	of emission
	3. Sou	nd broadcasting	
Sound broad- casting double sideband	B _n = 2M M may vary between 4 000 and 10 000 depending on the quality desired	Speech and music, M = 4 000 Bandwidth : 8 000 Hz = 8 kHz	8kooa3egn
Sound broad- casting, single sideband, reduced carrier (single channel)	B _n = M M may vary between 4 000 and 10 000 depending on the quality desired	Speech and music, M = 4 000 Bandwidth : 4 000 Hz = 4 kHz	4KOOR3EGN
Sound broad- casting, single sideband, suppressed carrier	B _n = M - lowest modulation frequency	Speech and music, M = 4 500; lowest modulation frequency	-

Description	Necessary	Bandwidth	Designation	
of emission	Formula	Sample calculation	of emission	
	4.	Television		
Television, vision and sound	Refer to rele- vant CCIR docu- ments for the bandwidths of the commonly used television	Number of lines = 625; Nominal video bandwidth : 5 MHz Sound carrier		
	systems	relative to video carrier = 5.5 MHz; Total vision bandwidth : 6.25 MHz; FM sound band-	6m25c3f 	
		width including guardbands : 750 kHz RF channel band- width : 7 MHz	750KF3EGN	
	5.	Facsimile		
Analogue facsimile by sub-carrier frequency modu- lation of a SSB emission with reduced carrier.	B _n = C + <u>N</u> [*] + DK K = 1.1 (typically)	N = 1 100 corresponding to an index of cooperation of 352 and a cylinder rotation speed of 60 rpm.		
monochrome		Index of cooperation is product of drum diameter and number of lines per unit length C = 1 900, D = boo		
		Bandwidth : 2 890 Hz = 2.89 kHz	2k89r3cmn	

Description	Necessary	Designation	
of emission	Formula	Sample calculation	of emission
Analogue fac- simile; frequency modulation of an audio frequency sub- carrier which modulates the main carrier, single sideband	$B_n = 2M + 2DK$ $M = \frac{N}{2}$ $K = 1.1$ (typically)	N = 1 100 D = 400 Bandwidth : 1 980 Hz = 1.98 kHz	1K98J3C
'suppressed carrier			
	6. Compo	osite emissions	
Double sideband, television relay	$B_n = 2C + 2M + 2D$	Video limited to 5 MHz, audio on 6.5 MHz frequency modulated sub- carrier, sub-carrier deviation = 50 kHz C = 6.5 MHz D = 50 kHz M = 15 kHz Bandwidth : 13.13 x 10 ⁵ Hz = 13.13 MHz	13M1A8W
Double sideband, radio-relay system, FDM	B _n = 2M	10 voice channels occupying base-band between 1 and 164 kHz; M = 164 000 Bandwidth : 328 000 Hz = 328 kHz	328ka8e

Annex to Document No. 462-E Page 11

Description	Necessary	Bandwidth	Designation
of	Formula	Sample	of
emission		calculation	emission
Double sideband	$B_n = \frac{1}{2000}$	The main carrier is	
emission of	max	modulated by :	
VOR with	K = I	- a 30 Hz sub-	
voice	(typically)	- a carrier	
	· · · · ·	resulting	
		from a	
		9 960 Hz	
· · ·		tone fre-	
		quency modu-	
		lated by a	
		30 Hz tone	
		- a terephone	
		- a 1 020 Hz	
•		keyed tone	
		for continual	
		Morse iden-	
		tification	
		$C_{max} = 9 960$	
		M = 30	
		D = 480	
		Bandwidth :	20K9A9WWF
		20 940 Hz	
	1	= 20.94 kHz	
Independent	$B_n = sum of M$	Normally com-	
sidebands;	for each	posite systems	
several tele-	aidohard	are operated	
graph channels	sideband	in accordance	
with error		with	
correction to-		standardized	
gether with		channel	
several tele-		arrangements	
ohone channels		(e.g. CCIR-	
with privacy:		Rec. 348-2).	
ATOM PLIVEOUS		3 telephone	
FDM		channels and	
		15 telegraphy	
		channels re-	
		miners 10°	
		quire the	1 OKOBOLTUTE
		Danawidth	TSVODAMML
		12 000 Hz	
		= 12 KHZ	
	1 State Annual Annua	1	

Description	Necessary	Bandwidth	Designation
of emission	Formula	Sample calculation	of emission
	III-A Fr	equency modulatio	on
1.	Signal with quanti	zed or digital in	nformation
Telegraphy without error- correction (single channel	B _n = 2M + 2DK M = B/2 K = 1.2, (typically) .)	B = 100 bauds D = 85 Hz (170 Hz shift) Bandwidth : 304 Hz	304HF1BBN
Telegraphy, narrowband direct printing with error- correction (single channel)	B _n = 2M + 2DK M = B/2 K = 1.2 (typically)	B = 100 bauds D = 85 Hz (170 Hz shift) Bandwidth : 304 Hz	304HF1BCN
Selective calling signal	$B_n = 2M + 2DK$ M = B/2 K = 1.2 (typically)	B = 100 bauds D = 85 Hz (170 Hz shift) Bandwidth : 304 Hz	304HF1BCN
Four-frequency Diplex tele- graphy	B _n = 2M + 2DK B = Modulation rate in bauds of the faster channel. If the channels are synchronized M = B/2 (other- wise M = 2B) K = 1.1,(typically)	Spacing between adjacent fre- quencies = 400Hz; Sychronized channels B = 100 bauds M = 50 D = 600 B _n = 1 420 Hz Bandwidth : 1420 Hz = 1.42 kHz	1K42F7BDX
	2. Telephon	y (Commercial qua	ality)
Commercial telephony	$B_n = 2M + 2DK$ K = 1 (typically, but under certain conditions a higher value may be necessary)	For an average case of commercial telephony, D = 5 000 M = 3 000 Bandwidth : 16 000 Hz = 16 kHz	16kof3ejn

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Description	Necessary	Bandwidth	Designation
of emission	Formula	Sample calculation	of emission
	3. Sc	ound broadcasting	
Sound broadcasting	B = 2M + 2DK K ⁿ = 1 (typically)	Monaural D = 75 000 M = 15 000 Bandwidth : 180 000 Hz = 180 kHz	180kf3egn
	1	. Facsimile	
Facsimile by direct frequency modulation of the carrier; black and white	$B_{n} = 2M + 2DK$ $M = \frac{N}{2}$ $K = 1.1$ (typically)	N = 1 100 elements/sec; D = 400 Hz Bandwidth : 1980 Hz = 1.98 kHz	1K98F1C
Analogue facsimile	$B_{n} = 2M + 2DK$ $M = \frac{N}{2}$ $K = 1.1$ (typically)	N = 1 100 elements/sec D = 400 Hz Bandwidth : 1980 Hz = 1.98 kHz	1k98f3c

Annex to Document No. 462-E Page 14

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Description	Necessary	Bandwidth	Designation
of emission	Formula	Sample calculation	of emission
6. C	omposite emissions	(see Table III-B)	
Radio-relay system, FDM	B _n = 2f _p + 2DK K = 1 (typically)	60 telephone channels occu- pying baseband between 60 and 300 kHz; rms per-channel deviation 200 kHz; continuity pilot at 331 kHz pro- duces 100 kHz rms deviation of main carrier D = 200 x 103 x 3.76 x 2.02 = 1.52 x 106 Hz; fp = 0.331 x 106 Hz; Bandwidth : 3.702 x 106 Hz	3M70F8EJF

Annex to Document No. 462-E Page 15

Description	Necessary	Bandwidth	Designation
of emission	Formula	Sample calculation	of emission
Radio-relay system; FDM	B _n = 2M + 2DK K = 1 (typically)	960 telephone channels occu- pying baseband between 60 and 4 028 kHz; rms per-channel deviation 200 kHz; continuity pilot at 4 715 kHz pro- duces 140 kHz rms deviation of main carrier D = 200 x 10 ³ x 3.76 x 5.5 = 4.13 x 10 ⁶ Hz; M = 4.028 x 10 ⁶ Hz; fp = 4.715 x 10 ⁶ Hz; (2M + 2DK) > 2fp	
		Bandwidth : 16.32 x 10 ⁶ Hz = 16.32 MHz	16M3F8FJF

Description	Necessary	/ Bandwidth	Designation
of emission	Formula	Sample calculation	of emission
Radio-relay system; FDM	$B_n = 2f_p$	600 telephone channels occu- pying baseband between 60 and 2 540 kHz; rms per-channel deviation 200 kHz; continuity pilot at 8 500 kHz pro- duces 140 kHz rms deviation of main carrier $D = 200 \times 10^3$ $\times 3.76 \times$ 4.36 $= 3.28 \times$ 10^6 Hz; $M = 2.54 \times$ 10^6 Hz; K = 1; $f_p = 8.5 \times$ 10^6 Hz; (2M + 2DK) $< 2f_p$ Bandwidth : 17×10^6 Hz	
		- 17 1012	l7mof8ejf
Stereophonic sound broad- casting with multiplexed subsidiary telephony sub-carrier	B _n = 2M + 2DK K = 1 (typically)	Pilot tone system; M = 75 000 Hz; D = 75 000 Hz; Bandwidth : 300 000 Hz - 300 kHz	300KF8EHF

•

III-B MULTIPLYING FACTORS FOR USE IN COMPUTING D, PEAK FREQUENCY DEVIATION, IN FM FREQUENCY DIVISION MULTIPLEX (FM/FDM) MULTI-CHANNEL EMISSIONS

For FM/FDM systems the necessary bandwidth is :

 $B_n = 2M + 2DK$.

The value of D or peak frequency deviation in this formula for B_n is calculated by multiplying the rms value of per-channel deviation by the appropriate "Multiplying factor" shown below.

In the case where a continuity pilot of frequency f_p exists above the maximum modulation frequency, M, the general formula becomes :

 $B_n = 2f_p + 2DK$.

In the case where modulation index of the main carrier produced by the pilot is less than 0.25, and the rms frequency deviation of the main carrier by the pilot is less than or equal to 70 % of the rms value of per-channel deviation, the general formula becomes either

 $B_n = 2f_p \text{ or } B_n = 2M + 2DK$

whichever is greater.

· Number of	Multiplying factor 1)						
channels, N _C	(peak factor) x antilog $\begin{pmatrix} dB \text{ above} \\ modulation \text{ reference level} \\ 20 \end{pmatrix}$						
3 < N _c < 12	4.47 x antilog 4.47 x antilog						
12 ≼ N _c < б0	3.76 x antilog $\left(\begin{array}{c} 2.6 + 2 \log N_c \\ 20 \end{array} \right)$						
б́0 ≼ II _с < 240	3.76 x antilog $\left(\frac{-1 + 4 \log N_c}{20} \right)$						
N _C ≥ 240	3.76 x antilog $\left(\begin{array}{c} -15 + 10 \log N_{\rm C} \\ 20 \end{array} \right)$						

 In the above chart, the multipliers 3.76 and 4.47 correspond to peak factors of 11.5 dB and 13.0 dB, respectively.

Annex to Document No. 462-E Page 18

Description	Necessar	Designation	
of emission	Formula	Sample calculation	of emission
	IV]	Pulse modulation	
		1. Radar	
Unmodulated pulse emission	$B_n = \frac{2K}{t}$ K depends upon the ratio of pulse duration to pulse rise time. Its value usually falls between 1 and 10 and in many cases it does not need to exceed 6	Primary Radar Range resol- ution 150 m. K = 1.5 (tri- angular pulse where t \simeq t _r ,only components down to 27 dB from the strongest are considered) Then t = 2(range res- olution) velocity of light = $\frac{2 \times 150}{3 \times 10^3}$ = 1 x 10 ⁻⁶ seconds Bandwidth : 3. x 10 ⁶ Hz	3 MOO PO N AN'
· · · · · · · · · · · · · · · · · · ·	2. Co	mposite emissions	·
Radio-relay system	$B_n = \frac{2K}{t}$ K = 1.6	Pulse- position mod- ulated by 36- voice channel baseband; pulse width at half amplitude = $0.4 \ \mu s$ Bandwidth : $\delta \ge 10^6 \ \text{Hz} = 8 \ \text{MHz}$ (Bandwidth independent of the number of voice channels)	ЮОМ7ЕЛТ

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. <u>463-E</u> 1 November 1979 Original : English

COMMITTEE 5

Note by Australia

HF BAND ALLOCATIONS FOR THE MARITIME MOBILE SERVICE

Strong arguments for major increases in allocations to the maritime mobile service have been advanced to this Conference in IMCO Document No. 208 which, in essence, highlights the increase in the number of vessels world-wide and the growing number of off-shore maritime units engaged in the ceaseless search for fossil energy and ocean-bed minerals. The validity of the points made in Document No. 208 has not been challenged but the trend of decisions within Working Groups 5BA and 5BB is to deny the maritime service the small increases sought.

All countries are dependent upon seaborne trade which is influenced by the capacity of the world's merchant fleets to accommodate escalating requirements and many of the world's countries are dependent to a greater or lesser degree on their fishing industry. Moreover, the growth in merchant and fishing fleets has resulted in severe congestion in the maritime mobile HF and MF bands despite employment of new techniques such as SSB and Narrow Band Direct Printing (NBDP) and revised operating procedures. The point has now been reached whereby maritime operations cannot survive without adequate radiocommunication facilities for distress and safety and operational control, recognizing that in the ocean environment there are no alternatives to radio for communication and that a reliable distress system rides on the back of an efficient public correspondence service.

It has been stated that maritime satellites will solve all the problems. The fact is that in three years of international use and operation of the Marisat system, less than 300 vessels are fitted with satellite terminals. The international INMARSAT organization is moving steadily but slowly from the conceptual stage and although it is expected to have a significant impact in a decade hence, it is probable that most of its capacity will only cope with the increase in traffic generated by the INMARSAT system itself. INMARSAT forecast 8,000 ships fitted by the year 2000 only 14 % of the world's merchant fleet of 110,000 ships expected at that time. Further, due to the sheer physical size of the shipboard antenna, it will be impossible to utilize satellite techniques aboard the countless ocean-going small craft, particularly in fishing fleets. The next 15 years will be a critical phase for the maritime mobile service with an increasing reliance on the HF spectrum.

Many developing countries are now participating in maritime trade and their number will increase and this will require more spectrum for new coast stations. Whilst the radio spectrum needs of developing countries for internal communications are fully appreciated, decisions taken at this Conference will project into the 21st century. It is reasonable to assume that within the next decade, many terrestrial radio links will be supplanted by alternative systems thus releasing spectrum which could be made available to the shipping and fishing industries. Consequently, it is considered that both services can co-exist by time-transferring the HF bands to provide present priority to the fixed services in their designated bands. As other alternatives are employed, the fixed services could, by appropriate planning, relegate from primary to secondary status in favour of maritime mobile.

In summary, Administrations are urged to consider the vital needs of the maritime industry by providing small new allocations by permitting sharing over portions of the designated HF fixed bands below 18 MHz with the maritime mobile service as proposed by the USA and expanded upon by the UK. Australia believes that a period should be allocated during a plenary session of Committee 5 to discuss maritime mobile needs and problems.



WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 464-E 2 November 1979 Original : French

COMMITTEE 3

SUMMARY RECORD

OF THE

THIRD MEETING OF COMMITTEE 3 (BUDGET CONTROL)

Thursday, 25 October 1979, at 1600 hrs

Chairman : Mr. Z. KUPCZYK (People's Republic of Poland)

Sub	Subjects discussed					
1.	Facilities available to delegates					
2.	Final Acts of the Conference	127				
3.	Position of WARC accounts on 20 October 1979	308				
4.	Recognized private operating agencies and international					

organizations contributing to the defrayal of WARC 1979. expenses

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Document No. 464-E Page 2

1. Facilities available to delegates

1.1 The <u>Secretary of the Committee</u> explained that the item had been placed on the agenda so that delegates could make any criticisms or comments on the facilities available to them.

2. Final Acts of the Conference (Document No. 127)

2.1 The <u>Secretary of the Committee</u> reminded members that when the Administrative Council had approved the budget of the Conference, it had agreed that one third of the composition costs should be charged to the Conference budget and two thirds to the supplementary publications budget.

It was so decided.

3. Position of WARC accounts on 20 October 1979 (Document No. 308)

3.1 The <u>Secretary of the Committee</u>, replying to a question from the <u>delegate of New Zealand</u>, said that, in view of the expenditure of 75,000 francs for the recruitment of additional interpreters in the estimates, the margin mentioned in the last column of the grand total on page 5 of Document No. 205 was now 15,000 francs.

3.2 The <u>delegate of the United Kingdom</u>, referring to item 11.101, asked why the sum in column 4 had aropped from 1,956,000 (Document No. 205) to 1,899,000 francs (Document No. 308).

3.3 The <u>Secretary of the Committee</u> explained that the revised budget varied in accordance with the dollar rate, which affected the salaries of non-local interpreters. The exchange rate of the dollar against the Swiss franc having been reduced from 1.66 to 1.56 on 1 October 1979, the salaries of non-local interpreters had gone down, which explained the difference pointed out by the United Kingdom delegate.

3.4 The <u>Secretary of the Committee</u>, replying to a comment from the <u>delegate of Japan</u>, pointed out that under its terms of reference, Committee 3 was only concerned with Section 11 of the budget. Expenditure relating to categories of personnel other than personnel specially recruited for the Conference was included in Section 17.

4. <u>Recognized private operating agencies and international organizations contributing</u> to the defrayal of WARC 1979 expenses

4.1 The <u>Secretary of the Committee</u> announced that with the exception of the World Press Freedom Committee, all the international organizations listed in Document No. 206 had indicated the class of their contribution to the defrayal of Conference expenses and that they all proposed to contribute on the basis of half a unit, except for the INTELSAT organization, which Would contribute a whole unit. The list of international organizations concerned would be published in Addendum No. 2 to the Committee's report.

The meeting rose at 1625 hours.

The Secretary :

R. PRELAZ

The Chairman : Z. KUPCZYK

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 465-E 2 November 1979 Original : French

COMMITTEE 3

Note by the Secretary-General

POSITION OF WARC ACCOUNTS ON 31 OCTOBER 1979

I hereby submit for examination by the Budget Control Committee an estimate of the expenditure of the Conference at 31 October 1979.

This estimate shows a margin of 21,000 Swiss francs compared with the budget allocation.

M. MILI

Secretary-General

Annex : 1



Document No. 465-E Page 2

ANNEX

		Budget		Transfers	of credits		Expenditure at 31 October 1979				Differ
Item	Title	approved by AC	Revised budget1)	Item/ Item	sub-head/ sub-head ²	Credits available	actual	committed	estimated	total	ence + / -
1	2	3	4	5	6	7	8	9	10	11	12
	Sub-head 1 - <u>Staff</u>										
11.101	Salaries and related expenses			、				·			
	Interpretation IFRB reinforcement staff CCIR reinforcement staff Transitional allowance Reprography Sundry common services	1.850.000 180.000 15.000 3)	1.899.000 180.000 15.000 - - -		+ 80.000	1.899.000 180.000 15.000 - 80.000	144.201 144.771 25.628 3.569	1.636.762 46.089 5.200 49.365	90.037 140 172 10.065	1.871.000 191.000 - 31.000 63.000	
		2.045.000	2.094.000		+ 80.000	2.174.000	318.169	1.737.417	100.414	2.156.000	18.000
11.102	<u>Travel expenses</u> Recruitment travel expenses	170.000	170.000	- 29.000		141.000	12.792	77.636	29.572	120.000	21.000
11.103	<u>Insurance</u> UNJSPF Sickness Accidents	37.000 13.000	- 37.000 13.000	+ 29.000		29.000 37.000 13.000	27.091 3.055 -	6.000 28.000 -	909 945 13.000	34.000 32.000 13.000	
		50.000	50.000	+ 29.000		79.000	30.146	34.000	14.854	79.000	-
	TOTAL SUB-HEAD 1	2.265.000	2.314.000	-	+ 80.000	2.394.000	361.107	1.849.053	144.840	2.355.000	39.000

Annex	to	Document	No.	465-E	

Page 3

		Dubut		Transfers of credits			Expenditure at 31 October 1979				Differ-
Item	Title	approved by AC	Revised budget ¹⁾	l .) Item/ sub-head/ Item sub-head ²)		Credits available	actual	committed	estimated	total	ence + / -
1	2	3	4	5	6	7	8	9	10	11	12
11.111	Sub-head 2 - <u>Premises and</u> <u>equipment</u> Premises, furniture, machines Rental for CICG SUL maintenance	1.008.000 45.000	1.008.000 45.000			1.008.000 45.000	884.000	-	26.000 45.000	910.000 45.000	
	Cleaning Supervision Lease - other premises Lease of machines Display board Sundry	25.000 20.000 50.000 12.000	25.000 20.000 50.000 12.000	5.000		25.000 20.000 50.000 12.000 5.000	7.500 13.481 19.933 16.727	15.200 - 1.500 29.812 40.787 5.692	9.800 20.000 - 12.707 1.280 15.581	25.000 20.000 9.000 56.000 62.000 38.000	
		1.160.000	1.160.000	+ 5.000		1.165.000	941.641	92.991	130.368	1.165.000	-
11.113	Document production Internal production	250.000	250.000	,		250.000	274.095	- -	330.905	605.000	
	Preparation IFRB report	550.000 90.000	550.000 90.000	- 30.000	- 80.000	470.000 60.000	47.348	-	120.000 652	120.000 48.000	
	· · ·	890.000	890.000	- 30.000	- 80.000	780.000	321.443	-	451.557	773.000	7.000
11.114	Office supplies and expenses Supplies and equipment Local transport and removal	30.000	30.000 10.000	+ 56.000 + 8.000		86.000 18.000	64.523 8.276	7.076 9.724	14.401 -	86.000 18.000	
		40.000	40.000	+ 64.000		104.000	72.799	16.800	14.401	104.000	· _ ·

Annex to Document No. 465-E

Transfers of credits Expenditure at 31 October 1979 Budget Differ-Revised Credits approved Title Item ence sub-head/ budget1) 'Item/ available committed estimated actual total . by AC sub-head²) + / -Item 7 1 2 3 4 5 6 8 9 10 11 12 11.115 Post, telegraph and telephone 350.000 350.000 - 20.000 330.000 189.251 140.749 330.000 Post - 4.500 70 430 500 5.000 5.000 **50**0 Telephone - 4.500 90 500 5.000 5.000 500 410 Telegrams 331.000 360.000 - 29.000 331.000 189.411 + 141.589 360.000 -- 10.000 `--10.000 10.000 -11.116 Technical installations 11.080 6.414 24.506 42.000 -42.000 42.000 42.000 11.117 Sundry and unforeseen TOTAL SUB-HEAD 2 762.421 2.415.000 7.000 2.502.000 2.502.000 -80.000 2.422.000 1.536.374 116.209 -

Page 4

Annex to Document No. 465-E

Page 5

Transfers of credits Expenditure at 31 October 1979 Budget Differ-Credits Revised Item Title approved ence 'Item/ sub-head budget1) available committed estimated actual total + / by AC sub-head² Item 2 6 7 8 9 10 11 12 3 5 1 4 Sub-head 3 - Other expenses 11.121 Final acts of the Conference 38.000 38,000 38,000 63.000 63.000 Date entry 200.000 200,000 200,000 200.000 200.000 Printing 70,000 70,000 70,000 70.000 Chinese translation 70.000 70,000 70.000 70,000 70.000 70.000 Russian translation 378.000 TOTAL SUB-HEAD 3 378.000 378.000 403.000 403.000 - 25.000 -------Sub-head 4/1980 - Finalizing 240,000 240.000 240.000 240.000 240.000 Expenditure 1980 5.385.000 5.434.000 5.434.000 1.897.481 1.965.258 1.550.261 5.413.000 21,000 GRAND TOTAL

<u>NOTES</u>: 1) Budget approved by the Administrative Council and taking into account the additional credits under Administrative Council Resolution No. 647.

2) In accordance with the Union's Financial Regulations, Article 15, paragraph 3.

3) Following a change in the budgetary structure adopted by the Administrative Council in 1976, expenditure on staff under the heading of the General Secretariat Common Services is shown in a special section (Section 17) from the 1977 budget onwards.

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

B.5

Document No. 466 2 November 1979

PLENARY MEETING

5th SERIES OF TEXTS SUBMITTED BY THE EDITORIAL COMMITTEE TO THE PLENARY MEETING

The following texts are submitted to the Plenary Meeting for first reading:

Source	Document No.	Title
C.8	377 + 378 (DT93)	Art. 58 to 62; Art. 62A Art. 63 and 64 (SUP); Art. 65; Art. 66 and 67 (SUP); Art. 68 Art. 69 to 72 (SUP) Additional Radio Regulations (SUP) Recommendation B Resolution AB Resolution AC Recommendation C Appendixes 21 Mar2; 21A Mar2 and 22 (SUP) Resolutions Mar2 - 22 and Mar2 - 23 (SUP) Recommendation Mar2 - 18 (SUP) Resolution Mar2 - 16 (SUP) Resolution Sat - 10 (SUP) Recommendation Mar 2 (SUP) Recommendation Mar2 - 21 (SUP) Recommendation Mar2 - 14 (SUP)

P. BASSOLE Chairman of the Editorial Committee

Annex: 58 pages



BLUE PAGES

ARTICLE N58/37A

NOC

Order of Priority of Communications in the Maritime Mobile Service and in the Maritime Mobile-Satellite Service

MOD 8361 1496A The order of priority for communications 1 in the Mar2 maritime mobile service and the maritime mobile-satellite service shall be as follows, except where impracticable in a fully automated system in which, nevertheless, category 1 shall receive priority: 1. Distress calls, distress messages, and distress traffic. 2. Communications preceded by the urgency signal. 3. Communications preceded by the safety signal. 4. Communications relating to radio direction-finding. 5. Communications relating to the navigation and safe movement of aircraft engaged in search and rescue operations. 6. Communications relating to the navigation, movements and needs of ships, and weather observation messages destined for an official meteorological service. 7. ETATPRIORITENATIONS - Radiotelegrams relating to the application of the United Nations Charter. 8. ETATPRIORITE - Government radiotelegrams with priority and Government calls for which priority has been expressly requested. 9. Service communications relating to the working of the telecommunication service or to communications previously exchanged.

ADD **8361-1** 1496A-1

1 The term <u>communications</u> as used in this Article includes radiotelegrams, radiotelephone calls and radiotelex calls. Government communications other than those shown in 8 above, ordinary private communications, RCT 2 radiotelegrams and press radiotelegrams.

ADD 8361-2 1496A-2 2 RCT (Red Cross Telegrams): Telegrams concerning persons protected in time of war by the Geneva Conventions of 12 August 1949.

8362		
to	NOT allocated.	
8386		

ARTICLE N59

Selective Calling Procedure in the Maritime Mobile Service

NOC

NOC		Section I. General						
MOD	8387	235B § 1. (1) Selective calling may be carried out ar2 on appropriate radiotelephone working frequencies in the shore-to-ship, ship-to-shore and ship-to-ship directions in the band [1 605 - 4 000 kHz].						
MOD	8388	 1239A (2) Selective calling may be carried out Mar2 on 156.8 MHz and on appropriate radiotelephone working frequencies in the shore-to-ship, ship-to-shore and ship-to-ship directions. 						
NOC		Section II. Sequential Single-Frequency Code System						
NOC	8389	A. General						
NOC	8390	999A § 2. (1) The characteristics of the sequential Mar single-frequency code international selective calling system shall be in accordance with Appendix 20C.						
SUP	8391	1013AA (2) Mar2						
NOC	8392	B. Method of Calling						
NOC	8393	999B § 3. (1) The call shall consist of: Mar2						
		 the selective call number or identification number or signal of the station called, followed by 						
		 the selective call number or 						

identification number or signal of the station calling.

B.5-3

However, in the case of a coast station calling on VHF, the number of the channel to be used for the reply and for traffic may replace the identification number or signal of the coast station.

The call shall be transmitted twice.

- NOC 8394 999C (2) When a station called does not reply, the Mar2 call should not normally be repeated until after an interval of at least five minutes and should not then normally be renewed until after a further interval of fifteen minutes.
- NOC 8395 999CA Mar2 (3) The use of an "all ships call" shall be confined to distress and urgency in the MF and HF bands and the announcement of vital navigational warnings in those bands; additionally it may be used for safety purposes in the VHF band. This call may only be used to supplement, if required, the distress procedure specified in Nos. 6782/1402, 6783/1403, 6797/1416 and 6798/1417 and shall in no circumstances be used in place of such procedures, in particular the alarm signals mentioned in Nos. 6934/1463 and 6937/1465.

NOC	8396	C. Reply to Calls					
(MOD)	8397	999D Mar	§ 4. accordance	The reply to calls shall be made in with the provisions of:			
				 Nos. 8480/1022A and 8482/1023 when using radiotelegraphy; 			
				 Nos. 8749/1241 to 8766/1253 when using radiotelephony. 			
NOC	8398		<u>D.</u>	Frequencies to Be Used			
MOD	8399	999E Mar2	§ 5. of the foll	Selective calls should be sent on one or more owing calling carrier frequencies:			
				500 kHz			

 500
 kHz

 2
 170.5
 kHz

 4
 125
 kHz

 4
 419.4
 kHz

 6
 521.9
 kHz

 8
 780.9
 kHz

 13
 162.8
 kHz

 17
 294.9
 kHz

 22
 658
 kHz

 156.8
 MHz
 2

MOD	8399.1	999E.1 Mar2	1 This frequency has replaced 2 182 kHz for selective calling except as provided in No. 6636 /1325A.
NOC	8399.2	999E.2 Mar2	² Selective calling on this frequency should normally be only in the direction coast station to ship or intership. Selective calls from ship to coast stations should whenever possible be sent on other frequencies of Appendix 18 , as appropriate.

Section III. Digital Selective Calling System

- NOC 8400 999F § 6. A digital selective calling system may be Mar2 used if it is in full conformity with the relevant CCIR Recommendations in which all operational, technical and compatibility aspects which might be involved have been taken into account.
- SUP 8401 1013AB § 7. Mar2

MOD84021238B§ 8.The frequencies assignable to ship and
Mar2Mar2coast stations for digital selective calling are
(ex8739)as follows:

b)

MOD	8403	1238C Mar2	<u>a)</u>	Ship stations
	(ex 874	0)		

-4	187.6	kHz
6	281.4	kHz
8	375.2	kHz
12	562.3	kHz
12	562.8	kHz
16	749.9	kHz
16	750.4	kHz
22	248	kHz
22	248.5	kHz

Coast stations

MOD 8404

Mar2 (ex**8741**)

1238D

4	357	kHz
6	506	kHz
8	718.5	kHz
13	100	kHz
13	100.5	kHz
17	232	kHz
17	232.5	kHz
22	595	kHz
22	595.5	kHz

8405	
to	NOT allocated
8422	

NOC

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B.5-6

ARTICLE N60

NOC			General Radiotelegraph Procedure in the Maritime Mobile Service
NOC			Section I. General Provisions
MOD	8423	1000	§ 1. The procedure detailed in this Article is obligatory, except in cases of distress, urgency or safety, to which the provisions of Chapter NIX are applicable.
MOD	8424	1003	§ 2. The use of the Morse code signals specified in the Instructions for the Operation of the International Public Telegram Service shall be obligatory. However, for radiocommunications of a special character, the use of other signals is not precluded.
MOD	8425	1005 Mar	§ 3. The service abbreviations given in Appendix 13A are to be used.
NOC			Section II. Preliminary Operations
NOC	8426	1007 Mar2	§ 4. (1) Before transmitting, a station shall take precautions to ensure that its emissions will not interfere with transmissions already in progress; if such interference is likely, the station shall await an appropriate break in the communications in progress. This obligation does not apply to stations where unattended operation is possible through automatic means (see No. 7695/850) on frequencies dedicated to narrow-band direct-printing.
NOC	8427	1008	(2) If, these precautions having been taken, the emissions of the station should, nevertheless, interfere with a transmission already in progress, the following rules shall be applied:
MOD	8428	1009	<u>a)</u> the ship station whose emission causes interference to the correspondence of a mobile station with a coast station shall cease sending at the first request of the coast station;
MOD	8429	1010	b) the ship station whose emission causes interference to communications already in progress between mobile stations shall cease sending at the first request of one of the other stations;
NOC	8430	1011	<u>c)</u> the station which requests this cessation shall indicate the approximate waiting time imposed on the station whose emission it suspends.

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E]

B.5-7

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NOC			Section III. Calls by Radiotelegraphy
NOC	8431		A. General
MOD	8432	1064A Mar2	§ 5. The provisions of this Section are not applicable to the maritime mobile-satellite service.
MOD	8433	1065	§ 6. (1) As a general rule, it rests with the ship station to establish communication with the coast station. For this purpose, the ship station may call the coast station only when it comes within the service area of the latter, that is to say, that area within which, by using an appropriate frequency, the ship station can be heard by the coast station.
MOD	8434	1066	(2) However, a coast station having traffic for a ship station may call this station if it has reason to believe that the ship station is keeping watch and is within the service area of the coast station.
MOD	8435	1067	§ 7. (1) In addition, each coast station shall, so far as practicable, transmit its calls in the form of "traffic lists" consisting of the call signs in alphabetical order of all ship stations for which it has traffic on hand. These calls are made at specified times fixed by agreement between the administrations concerned and at intervals of at least two hours and not more than four hours during the working hours of the coast station.
NOC	8436	1067 A Mar2	(2) In the bands between 4 000 and 27 500 kHz, however, traffic lists may be transmitted at intervals of not less than one hour.
NOC	8437	1068	(3) Continuous or frequently repeated emissions of its call sign or of the enquiry signal CQ by a coast station should be avoided (see No. 4997 /693).
MOD	8438	1068A Mar	(4) However, in the bands between 4 000 and 27 500 kHz, a coast station may transmit its call sign at intervals, using Type[Al] transmission, to enable ship stations to select the calling band with the most favourable propagation characteristics for reliable communication (see No. 8112/1162).
NOC	8439	1069 Mar	(5) Coast stations shall transmit their traffic lists on their normal working frequencies in the appropriate bands. This transmission shall be preceded by a general call to all stations (CQ).
NOC	8440	1070 Mar	(6) The call to all stations announcing the traffic list may be sent on a calling frequency in the following form:

- CQ, not more than three times;

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B.5-8

the word DE; the call sign of the calling station, not more than three times; OSW followed by the indication of the working frequency or frequencies on which the traffic list is about to be sent. In no case may this preamble be repeated. 8441 1071 NOC (7) The provisions of No. 8440/1070: Mar 8442 1071A a) are obligatory when 500 kHz is used; NOC Mar NOC 8443 1072 b) do not apply when frequencies in the bands between 4 000 and 27 500 kHz are Mar used. 8444 1073 (8) The hours at which coast stations transmit NOC their traffic lists and the frequencies and classes of emission which they use for this purpose shall be stated in the List of Coast Stations. 8445 1074 MOD (9) Ship stations should, as far as possible, listen to the traffic lists transmitted by coast stations. On hearing their call sign in such a list they shall reply as soon as they can do so. 8446 1075 MOD (10) When the traffic cannot be sent immediately, the coast station shall inform each ship station concerned of the probable time at which working can begin, and also, if necessary, the frequency and class of emission which will be used. When a coast station receives calls from 8447 1076 MOD § 8. Mar2* several ship stations at practically the same time, it decides the order in which these stations may transmit their traffic. Its decision shall be based on the priority (see No. 8361/1496A) of the radiotelegrams that ship stations have on hand and on the need for allowing each calling station to clear the greatest possible number of communications. NOC 8448 1077 § 9. (1) When a station called does not reply to a call sent three times at intervals of two minutes, the calling shall cease and shall not be renewed until after an interval of fifteen minutes. ADD 8448A 1078 (1A) In the case of a communication between a station of the maritime mobile service and an aircraft station, calling may be renewed after an interval of five minutes, notwithstanding No. 8448/1077.

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NOC	8449	1079	(2) Before renewing the call, the calling station shall ascertain that the station called is not in communication with another station.
NOC	8450	1080	(3) If there is no reason to believe that harmful interference will be caused to other communications progress, the provisions of Nos. 7965 /1078 and 8448 /1077 are not applicable. In such cases the call, sent three times at intervals of two minutes, may be repeated after an interval of less than fifteen minutes but not less

than three minutes.

MOD 8451 1081 § 10. Ship stations shall not radiate a carrier wave between calls.

MOD 8452 1082 When the name and address of the **§** 11. administration or private operating agency controlling a ship station are not given in the appropriate list of stations or are no longer in agreement with the particulars given therein, it is the duty of the ship station to furnish as a matter of regular procedure, to the coast station to which it transmits traffic, all the necessary information in this respect.

MOD 8453 1083 § 12. (1) The coast station may, by means of the abbreviation TR, ask the ship station to furnish it with the following information:

NOC 8454 1084 a) position and, whenever possible, course and speed;

NOC 8455 1085 b) next port of call.

MOD 8456 1086 (2) The information referred to in Nos. 8453/1083 to 8455/1085, preceded by the abbreviation TR, should Mar be furnished by ship stations whenever this seems appropriate, without prior request from the coast station. The provision of this information is authorized only by the master or person responsible for the ship or other vessel carrying the ship station.

NOC	8457		B. Calls to Several Stations
MOD	8458	1087A Mar2	13. The provisions of this Section are not applicable to the maritime mobile-satellite service.
NOC	8459	1088	8 14. Two types of calling signal "to all stations" are recognized:
NOC	8460	1089	<u>a)</u> call CQ followed by the letter K (see Nos. 8462 /1091 and 8463 /1092);
NOC	8461	1090	b) call CQ not followed by the letter K (see No. 8464/1093).

MOD 8462 1091 § 15. Stations desiring to enter into communication with stations of the maritime mobile service without, however, knowing the names of any such stations within their service area may use the enquiry signal CQ in place of the call sign of the station called in the calling formula, the call being followed by the letter K (general call to all stations in the maritime mobile service with request for reply).

MOD 8463 1092 § 16. In regions where traffic is congested, the use of the call CQ followed by the letter K is forbidden. As an exception it may be used with signals denoting urgency.

NOC 8464 1093 § 17. The call CQ not followed by the letter K (general call to all stations without request for reply) is used before the transmission of information of any kind intended to be read or used by anyone who can intercept it.

NOC 8465 1094 § 18. The call CP followed by two or more call signs or by a code word (call to certain receiving stations without request for reply) is used only for the transmission of information of any nature intended to be read or used by the persons authorized.

Section IV. Method of Calling, Reply to Calls NOC and Signals Preparatory to Traffic 8466 NOC A. Method of Calling - Morse Telegraphy SUP 8467 1013A 8 19. Mar2 NOC 8468 1013B § 20. (1) The call consists of: Mar2 the call sign of the station called, not more than twice; the word DE; the call sign of the calling station, not more than twice; the information required by No. 8474/1016A and, as appropriate, by Nos. 8477/1020A and 8478/1021; _ the letter K. NOC 8469 1013C (2) For normal calling, when the requirements of Mar2 No. 8112/1162 have been met, the call specified in No. 8468/1013B may be transmitted twice at an interval of not less than one minute; thereafter it shall not be repeated until after an interval of three minutes. NOC 8470 Frequency to Be Used for Calling Β. and for Preparatory Signals NOC 8471 1014 § 21. (1) For making the call and for transmitting preparatory signals, the calling station shall use a frequency on which the station called keeps watch. 1015 MOD 8472 (2) A ship station calling a coast station in any of the frequency bands between 4 000 and 27 500 kHz shall use a frequency in the calling band specially reserved for this purpose.

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C. Indication of the Frequency to Be Used for Traffic

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MOD	8474	1016A Mar2	§ 22. (1) The call, as described in No. 8468 /1013B Mar2, shall contain the service abbreviation indicating the working frequency and, if useful, the class of emission which the calling station proposes to use for the transmission of its traffic.		
MOD	8475	1019A Mar2	(2) When the call by a coast station does not contain an indication of the frequency to be used for the traffic, this indicates that the coast station proposes to use for traffic its normal working frequency shown in the List of Coast Stations.		
NOC	8476	<u>D. Ind</u>	ication of Priority, of the Reason for the Call, Id of Transmission of Radiotelegrams in Series		
MOD	8477	1020A Mar2	§ 23. (1) The calling station shall transmit the service abbreviation after the above-mentioned preparatory signals to indicate a priority message other than a distress, urgency or safety message (see No. 8361 /1496A) and to indicate the reason for the call.		
NOC	8478	1021	(2) Moreover, when the calling station wishes to send its radiotelegrams in series, it shall indicate this by adding the service abbreviation for requesting the consent of the station called.		
NOC	8479		E. Form of Reply to Calls		
MOD	8480	1022A Mar2	§ 24. The reply to calls consists of:		
			 the call sign of the calling station, not more than twice; 		
			- the word DE;		
			 the call sign of the station called, once only. 		
NOC	8481		F. Frequency for Reply		
NOC	8482	1023 Mar	§ 25. Except as otherwise provided in these Regulations, for transmitting the reply to calls and to preparatory signals, the station called shall use the frequency on which the calling station keeps watch, unless the calling station has specified a frequency for the reply.		
NOC	8483	<u>G.</u>	Agreement on the Frequency to Be Used for Traffic		
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NOC	8484	1027	§ 26. (1) If the station called is in agreement with the calling station, it shall transmit:		
NOC	8485	1028	<u>a)</u> the reply to the call;		
NOC	8486	1029	b) the service abbreviation indicating that from that moment onwards it will listen on the working frequency announced by the calling station;		
NOC	8487	1030	<u>c)</u> if necessary, the indications referred to in No. 8496 /1038;		
MOD	8488	1031 Mar2	<u>d)</u> if useful, the service abbreviation and figure indicating the strength and/or intelligibility of the signals received (see Appendix 13A);		
NOC	8489	1032 Mar2	e) the letter K if the station called is ready to receive the traffic of the calling station.		
NOC	8490	1033	(2) If the station called is not in agreement with the calling station on the working frequency to be used, it shall transmit:		
NOC	8491	1034	<u>a)</u> the reply to the call;		
NOC	8492	1035	b) the service abbreviation indicating the working frequency to be used by the calling station and, if necessary, the class of emission;		
NOC	8493	1036	c) if necessary, the indications specified in No. 8496/1038.		
NOC	8494	1037	(3) When agreement is reached regarding the working frequency which the calling station shall use for its traffic, the station called shall transmit the letter K after the indications contained in its reply.		
NOC	84 9 5	<u>H.</u>	Reply to the Request for Transmission by Series		
NOC	8496	1038	§ 27. The station called, in replying to a calling station which has proposed to transmit its radiotelegrams by series (see No. 8478/1021), shall indicate, by means of the service abbreviation, its acceptance or refusal. In the former case it shall specify, if necessary, the number of radiotelegrams which it is ready to receive in one series.		

NOC 8497 I. Difficulties in Reception 1039 § 28. (1) If the station called is unable to NOC 8498 accept traffic immediately, it shall reply to the call as indicated in Nos. 8484/1027 to 8489/1032, but it shall replace the letter K by the signal - - - -(wait), followed by a number indicating in minutes the probable duration of the waiting time. If the probable duration exceeds ten minutes (five minutes in the case of an aircraft station communicating with a station of the maritime mobile service), the reason for the delay shall be given. 8499 1040 (2) When a station receives a call without NOC being certain that such a call is intended for it, it shall not reply until the call has been repeated and understood. When, on the other hand, a station receives a call which is intended for it but is uncertain of the call sign of the calling station, it shall reply immediately using the service abbreviation in place of the call sign of this latter station. NOC Section V. Forwarding (Routing) of Traffic 8500 NOC A. Traffic Frequency MOD 8501 1041 § 29. (1) As a general rule, a station of the maritime mobile service shall transmit its traffic on one of its working frequencies in that band in which the call has been made. NOC 8502 1042 (2) In addition to its normal working frequency, printed in heavy type in the List of Coast Stations, a coast station may use one or more supplementary frequencies in the same band, in accordance with the provisions of Article N57/32. 8503 1043 MOD (3) The use of frequencies reserved for calling shall be forbidden for traffic, except distress traffic (see Chapter NIX). NOC 8504 1044 (4) If the transmission of a radiotelegram is to Mar2 take place on a frequency and/or with a class of emission other than those used for the call, the transmission of the radiotelegram shall be preceded by: the call sign of the station called. not more than twice; the word DE; the call sign of the calling station, once only.

(5) If the transmission is to be made on the 1045 NOC 8505 same frequency and with the same class of emission as the call, the transmission of the radiotelegram shall be preceeded, if necessary, by: the call sign of the station called; the word DE; the call sign of the calling station. NOC 8506 B. Numbering in Daily Series MOD 8507 1046 § 30. (1) As a general rule, radiotelegrams of all kinds transmitted by ship stations shall be numbered in a daily series; number 1 shall be given to the first radiotelegram sent each day to each separate station. 1047 NOC 8508 (2) A series of numbers which has begun in radiotelegraphy should be continued in radiotelephony and vice versa. NOC 8509 C. Long Radiotelegrams 1048 NOC 8510 § 31. (1) In cases where both stations are able to change from sending to receiving without manual switching, the transmitting station may continue to send until completion of the message or until the receiving station breaks in on the transmission with the service abbreviation BK. Before commencing, both stations normally agree on such a method of working by means of the abbreviation QSK. 8511 1049 NOC (2) If this method of working cannot be employed, long radiotelegrams, whether in plain language or in secret language, shall, as a general rule, be transmitted in sections, each section containing fifty words in the case of plain language and twenty words or groups if secret language is used. NOC 8512 1050 (3) At the end of each section the signal ---- (?) meaning "Have you received the radiotelegram correctly up to this point?" shall be transmitted. If the section has been correctly received, the receiving station shall reply by sending the letter K and the transmission of the radiotelegram shall be continued.

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NOC	8513		D. Suspension of Traffic
MOD	8514	1051	§ 32. When a ship station transmits on a working frequency of a coast station and causes interference with the transmission of such a coast station, it shall suspend working at the first request of the latter.
NOC			Section VI. End of Traffic and Work
NOC	8515		A. Signal for the End of Transmission
NOC	8516	1052	§ 33. (1) The transmission of a radiotelegram shall be terminated by the signal $$ - (end of transmission), followed by the letter K.
NOC	8517	1053	(2) In the case of transmission by series, the end of each radiotelegram shall be indicated by the signal $$ (end of transmission) and the end of the series by the letter K.
NOC	85 18		B. Acknowledgement of Receipt
NOC	8519	1054	§ 34. (1) The acknowledgement of receipt of a radiotelegram or a series of radiotelegrams shall be given by the receiving station in the following manner:
			- the call sign of the sending station;
			- the word DE;
			- the call sign of the receiving station;
			the letter R followed by the number of the radiotelegram; or
			the letter R followed by the number of the last radiotelegram of a series.
NOC	8520	1055	(2) The acknowledgement of receipt shall be transmitted by the receiving station on the traffic frequency (see Nos. 8501 /1041 and 8502 /1042).
NOC	8521		C. End of Work
NOC	8522	1056	§ 35. (1) The end of work between two stations shall be indicated by each of them by means of the signal $ -$ (end of work).

NOC	8523	1057	(2) The signal (end of work) shall also be used:
			when the transmission of radiotelegrams of general information, meteorological information and general safety notices is finished;
			 when transmission is ended in long-distance radiocommunication services with deferred acknowledgement of receipt or without acknowledgement of receipt.
NOC			Section VII. Control of Working
NOC	8524	1058	§ 36. The provisions of this section are not applicable in cases of distress, urgency or safety (see No. 8423 /1000).
MOD	8525	1059	§ 37. In communications between coast stations and ship stations, the ship station shall comply with the instructions given by the coast station, in all questions relating to the order and time of transmission, to the choice of frequency and class of emission, and to the duration and suspension of work.
MOD	8526	1060	§ 38. In communications between ship stations, the station called shall control the working in the manner indicated in No. $8525/1059$. However, if a coast station finds it necessary to intervene, these stations shall comply with the instructions given by the coast station.
NOC			Section VIII. Tests
MOD	8527	1061	§ 39. When it is necessary for a ship station to send signals for testing or adjustment which are liable to interfere with the working of neighbouring coast stations, the consent of these stations shall be obtained before such signals are sent.
MOD	8528	1062	§ 40. When it is necessary for a station in the maritime mobile service to make test signals, either for the adjustment of a transmitter before making a call or for the adjustment of a receiver, such signals shall not be continued for more than ten seconds and shall be composed of a series of VVV followed by the call sign of the station emitting the test signals.
	8529 to 8579		NOT allocated.

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ARTICLE N61

NOC		General	Procedures for Narrow-Band Direct-Printing Telegraphy in the Maritime Mobile Service ¹
NOC	A.N61		l Reference may also be made to the relevant CCIR Recommendations.
NOC			Section I. General
MOD	8580	1062AA Mar2	§ 1. Stations using narrow-band direct-printing telegraphy shall comply with the provisions of Articles N56 and N57.
NOC	8581	1062AB Mar2	§ 2. The procedures specified in the present Article should be employed except in cases of distress, urgency or safety.
NOC	8582	1062AC Mar2	§ 3. (1) The traffic may be exchanged with or without the use of error-correcting equipment.
NOC	8583	1062AD Mar2	(2) For communication between two stations the ARQ mode should be used when available.
NOC	8584	1062AE Mar2	(3) For transmissions from one coast or ship station to two or more other stations the forward-error-correcting mode should be used when available.
NOC	8585	1062AF Mar2	§ 4. The services provided by each station open to public correspondence shall be indicated in the List of Coast Stations and in the List of Ship Stations, together with information on charging.
NOC	8586	1062AG Mar2	§ 5. Where transmission over the general network of telecommunication channels is involved, the provisions of the Telegraph Regulations and the relevant CCITT Recommendations should be taken into account.

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B.5-19

NOC		S	ection II. Procedures for Manual Operation
NOC	8587		A. General
MOD	8588	1015A Mar2	§ 6. When using direct-printing telegraphy or similar systems in any of the frequency bands allocated to the maritime mobile service, the call may, by prior arrangement, be made on a working frequency available for such systems.
NOC	8589		B. Ship to Coast Station
NOC	8590	1062AH Mar2	§ 7. (1) The operator of the ship station establishes communication with the coast station by [A1] Morse telegraphy, telephony or by other means using normal calling procedures. The operator then requests direct-printing communication, exchanges information regarding the frequencies to be used and, when applicable, gives the ship station the direct-printing selective call number assigned in accordance with Appendix 20B.
NOC	8591	1062AI Mar2	(2) The operator of the coast station then establishes direct-printing communication on the frequency agreed, using the appropriate identification of the ship.
NOC	8592	1062AJ Mar2	§ 8. (1) Alternatively the operator of the ship station, using the direct-printing equipment, calls the coast station on a predetermined coast station receive frequency using the identification of the coast station assigned in accordance with Appendix 20B .
NOC	8593	1062AK Mar2	(2) The operator of the coast station then establishes direct-printing communication on the corresponding coast station transmit frequency.
NOC	8594		C. Coast Station to Ship
NOC	8595	1062AL Mar2	§ 9. (1) The operator of the coast station calls the ship station by Al Morse telegraphy, telephony or [] other means, using normal calling procedures.
NOC	8596	1062AM Mar2	(2) The operator of the ship station then applies the procedures of No. 8590 /1062AH or 8592 /1062AJ.

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B.5-20

NOC	8597		D. Intership
NOC	8598	1062AN Mar2	§ 10. (1) The operator of the calling ship station establishes communication with the called ship station by [A1] Morse telegraphy, telephony or by other means, using normal calling procedures. The operator then requests direct-printing communication, exchanges information regarding the frequencies to be used and, when applicable, gives the direct-printing selective call number of the calling ship station assigned in accordance with Appendix 20B.
NOC	8599	1062A0 Mar2	(2) The operator of the called ship station then establishes direct-printing communication on the frequency agreed, using the appropriate identification of the calling ship.
NOC		Secti	ion III. Procedures for Automatic Operation
NOC	8600		A. Ship to Coast Station
NOC	8601	1062AP Mar2	§ 11. (1) The ship station calls the coast station on a predetermined coast station receive frequency, using the direct-printing equipment and the identification signal of the coast station assigned in accordance with Appendix 20B.
NOC	8602	1062AQ Mar2	(2) The coast station's direct-printing equipment detects the call and the coast station responds directly on the corresponding coast station transmit frequency, either automatically or under manual control.
NOC	8603		B. Coast Station to Ship
NOC	8604	1062AR Mar2	§ 12. (1) The coast station calls the ship on a predetermined coast station transmit frequency, using the direct-printing equipment and the ship station direct-printing selective call number assigned in accordance with Appendix 20B .
NOC	8605	1062AS Mar2	(2) The ship station's direct-printing equipment tuned to receive the predetermined coast station transmit frequency detects the call, whereupon the reply is given in one of the following ways:

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NOC	8606	1062AT Mar2	<u>a)</u> the ship station replies either immediately on the corresponding coast station receive frequency or at a later stage, using the procedure of No. 8592 /1062AJ; <u>or</u>
NOC	8607	1062AU Mar2	b) the ship station's transmitter is automatically started on the corresponding coast station receive frequency and the direct-printing equipment responds by sending appropriate signals to indicate readiness to receive traffic automatically.
NOC			Section IV. Message Format
NOC	8608	1062AV Ma2	§ 13. Where the appropriate facilities are provided by the coast station, traffic may be exchanged with the telex network:
NOC	8609	1062AW Mar2	<u>a)</u> in a conversational mode where the stations concerned are connected directly, either automatically or under manual control; <u>or</u>
NOC	8610	1062AX Mar2	b) in a store-and-forward mode where traffic is stored at the coast station until the circuit to the called station can be set up, either automatically or under manual control.
NOC	8611	1062AY Mar2	§ 14. In the shore-to-ship direction, the message format should conform to normal telex network practice.
NOC	8612	1062AZ Mar2	§ 15. In the ship-to-shore direction, the message format should conform to normal telex network practice with the addition of a preamble as follows:
NOC	8613	1062BA Mar2	a) in the conversational mode the preamble shall consist of the characters DIRTLXyz+ transmitted in sequence and preceded by at least one carriage return and a line feed, where "y" is the telex destination code in accordance with relevant CCITT Recommendations, "z" is the land subscriber's telex number and "+" indicates end of sequence;

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NOC 8614 1062BB b) in the store-and-forward mode the Mar2 preamble shall consist of the characters TLXyz+ transmitted in sequence and preceded by at least one carriage return and a line feed, where "y" is the telex destination code in accordance with relevant CCITT Recommendations, "z" is the land subscriber's telex number and "+" indicates end of sequence. NOC Section V. Procedures for Operation in the Forward-Error-Correcting Mode 8615 1062BC § 16. NOC Messages in the forward-error-correcting Mar2 mode may be sent, by prior arrangement, from a coast station or a ship station to one or more ship stations in the following cases: NOC 8616 1062BD a) where a receiving ship station is Mar2 not able to use its transmitter or is not permitted to do so; NOC 8617 1062BE where the message is intended for b) Mar2 more than one ship; 1062BF NOC 8618 c) where unattended reception of a Mar2 message in the forward-error-correcting mode is necessary and automatic acknowledgement is not required. NOC 8619 1062BG § 17. All messages in the Mar2 forward-error-correcting mode should be preceded by at least one carriage return and a line feed signal. NOC 8620 1062BH § 18. Ship stations may acknowledge the reception Mar2 of messages in the forward-error-correcting mode by Al Morse telegraphy, telephony or by other means. 8621 NOT allocated. to 8670

ARTICLE N62

General Radiotelephone Procedure in the Maritime Mobile Service

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Section I. General Provisions

MOD 8671 1209 § 1. The procedure detailed in this Article is applicable to radiotelephone stations, except in cases of distress, urgency or safety, to which the provisions of Chapter NIX are applicable.

NOC 8672 1211 § 2. (1) The service of ship radiotelephone stations shall be performed by an operator satisfying the conditions specified in Article N52/23.

NOC 8673 1212 (2) For the call signs or other means of identification for coast or ship radiotelephone stations see Article N23/19.

NOC 8674 1213 § 3. The radiotelephone public correspondence service provided on ships should, if possible, be operated on a duplex basis.

NOC 8675 1214 § 4. (1) Devices providing for the emission of Mar2 a signal to indicate that a call is in progress on a channel may be used in this service on a non-interference basis to the service provided by coast stations.

NOC 8676 1214A (2) The use of devices for continuous or Mar2 repetitive calling or identification is not permitted.

NOC 8677 1214B (3) A station may not transmit identical Mar2 information simultaneously on two or more frequencies when communicating with only one other station.

NOC 8678 1214C (4) A station shall not emit any carrier between Mar2 calls.

8679 1215 (5) Radiotelephone stations should, as far as possible, be equipped with devices for instantaneous switching from transmission to reception and vice versa. This equipment is necessary for all stations participating in communication between ships and subscribers of the land telephone system.

MOD	8680	1216 Mar2	§ 5. (1) Stations equipped for radiotelephony may transmit and receive radiotelegrams by means of radiotelephony. Coast stations providing such service and open for public correspondence shall be indicated in the List of Coast Stations.
NOC	8681	1216A Mar	(2) To facilitate radiocommunications the service abbreviations given in Appendix 13A may be used.
NOC	8682	1216B Mar	(3) When it is necessary to spell out certain expressions, difficult words, service abbreviations, figures, etc., the phonetic spelling tables in Appendix 16 shall be used.
NOC			Section II. Preliminary Operations
NOC	8683	1217	§ 6. (1) Before transmitting, a station shall take precautions to ensure that its emissions will not interfere with transmissions already in progress; if such interference is likely, the station shall await an appropriate break in the working.
NOC	8684	1218	(2) If, these precautions having been taken, the emissions of the station should nevertheless interfere with a transmission already in progress, the following rules shall be applied:
MOD	8685	1219	 a) the ship station whose emission causes interference to the correspondence of a ship station with a coast station shall cease sending at the first request of the coast station;
MOD	8686	1220	 b) the ship station whose emission causes interference to communications already in progress between ship stations shall cease sending at the first request of one of the other stations;
NOC	8687	1221	 c) the station which requests this cessation shall indicate the approximate waiting time imposed on the station whose emission it suspends.
NOC			Section III. Calls by Radiotelephony
MOD	8688	1297A Mar2	§ 7. (1) The provisions of this Section relating to the intervals between calls are not applicable to a station operating under conditions involving distress, urgency or safety.

MOD	8689	1297B Mar2	(2) The provisions of this Section are not applicable to the maritime mobile-satellite service.
MOD	8690	1298	§ 8. (1) As a general rule, it rests with the ship station to establish communication with the coast station. For this purpose the ship station may call the coast station only when it comes within the service area of the latter, that is to say, that area within which, by using an appropriate frequency, the ship station can be heard by the coast station.
MOD	86 91	1299	(2) However, a coast station having traffic for a ship station may call this station if it has reason to believe that the ship station is keeping watch and is within the service area of the coast station.
MOD	8692	1300 Mar2	§ 9. (1) In addition, each coast station shall, so far as practicable, transmit its calls in the form of "traffic lists" consisting of the call signs or other identification in alphabetical order of all ship stations for which it has traffic on hand. These calls shall be made at specified times fixed by agreement between the administrations concerned and at intervals of not less than two hours and not more than four hours during the working hours of the coast station.
NOC	8693	1301 Mar	(2) Coast stations shall transmit their traffic lists on their normal working frequencies in the appropriate bands. The transmission shall be preceded by a general call to all stations.
NOC	8694	1302 Mar	(3) The general call to all stations announcing the traffic lists may be sent on a calling frequency in the following form:
			 "Hello all ships" or CQ (spoken as CHARLIE QUEBEC) not more than three times;
			, — the words THIS IS (or DE spoken as DELTA ECHO in case of language

- difficulties);
- "... Radio" not more than three times;
- "Listen for my traffic list on
 . . kHz".

In no case may this preamble be repeated.

NOC 8695

1302A Mar2 (4) However, in the bands between [156 and 174 MHz] [] when the conditions for establishing contact are good, the call described in No. 8694/1302 may be replaced by:

 "Hello all ships" or CQ (spoken as CHARLIE QUEBEC), once; в.5-26

 the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);

- "... Radio", twice;
- "Listen for my traffic list on channel . . . ".

In no case may this preamble be repeated.

NOC **8696** 1303 (5) The provisions of No. **8694**/1302 are obligatory when 2 182 kHz or 156.8 MHz is used.

NOC 8697 1304 (6) The hours at which coast stations transmit their traffic lists and the frequencies and classes of emission which they use for this purpose shall be stated in the List of Coast Stations.

MOD 8698 1305 (7) Ship stations should as far as possible listen to the traffic lists transmitted by coast stations. On hearing their call sign or other identification in such a list they must reply as soon as they can do so.

MOD 8699 1306 (8) When the traffic cannot be sent immediately, the coast station shall inform each ship station concerned of the probable time at which working can begin, and also, if necessary, the frequency and class of emission which will be used.

MOD 8700 1307 Mar2* § 10. When a coast station receives calls from Mar2* several ship stations at practically the same time, it decides the order in which these stations may transmit their traffic. Its decision shall be based on the priority (see No. 8361/1496A) of the radiotelegrams or radiotelephone calls that the ship stations have on hand and on the need for allowing each calling station to clear the greatest possible number of communications.

MOD 8701 1308 § 11. (1) When a station called does not reply to a call sent three times at intervals of two minutes, the calling shall cease.

MOD 8702 1308A (2) However, when a station called does not Mar reply, the call may be repeated at three-minute intervals.

MOD 8703 1308B (3) In areas where reliable VHF communication Mar2 with a called coast station is practicable, the calling ship station may repeat the call as soon as it is ascertained that traffic has been terminated at the coast station.

NOC	8704	1309 Mar	(4) In the case of a communication between a station of the maritime mobile service and an aircraft station, calling may be renewed after an interval of five minutes.
NOC	8705	1310	(5) Before renewing the call, the calling station shall ascertain that the station called is not in communication with another station.
MOD	8706	1311	(6) If there is no reason to believe that harmful interference will be caused to other communications in progress, the provisions of No. 8704 /1309 are not applicable. In such cases the call, sent three times at intervals of two minutes, may be repeated after an interval of not less than three minutes.
MOD	8707	1311A Mar	(7) However, before renewing the call, the calling station shall ascertain that further calling is unlikely to cause interference to other communications in progress and that the station called is not in communication with another station.
MOD	8708	1312	(8) Ship stations shall not radiate a carrier wave between calls.
MOD	8709	1313	§ 12. When the name and address of the administration or private operating agency controlling a ship station are not given in the appropriate list of stations or are no longer in agreement with the particulars given therein, it is the duty of the ship station to furnish as a matter of regular procedure, to the coast station to which it transmits traffic, all the necessary information in this respect.
MOD	8710	1314 Mar	§ 13. (1) The coast station may, by means of the abbreviation TR (spoken as TANGO ROMEO), ask the ship station to furnish it with the following information:
NOC	8711	1315	a) position and, whenever possible, course and speed;
NOC	8712	1316	b) next port of call.
MOD	8713	1317 Mar	(2) The information referred to in Nos. 8710 /1314 to 8712 /1316, preceded by the abbreviation TR, should be furnished by ship stations, whenever this seems appropriate, without prior request from the coast station. The provision of this information is authorized only by the master or the person responsible for the ship.

Section IV. Method of Calling, Reply to Calls NOC and Signals Preparatory to Traffic 8714 Method of Calling NOC Α. § 14. (1) 8715 1222 The call consists of: NOC Mar the call sign or other identification of the station called, not more than three times; the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties); the call sign or other identification of the calling station, not more than three times. (2) However, in the bands between [156 and 174 MHz]tł NOC 8716 1222A when the conditions for establishing contact are good, Mar2 the call described in No. 8715/1222 may be replaced by: the call sign of the station called, once; the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties); the call sign or other identification of the calling station, twice. NOC 8717 1222B (3) When calling a VHF coast station operating on Mar2 more than one channel, a ship station calling on a working channel should include the number of that channel in the call. NOC 8718 1223 (4) When contact is established, the call sign or other identification may thereafter be transmitted once only. NOC 8719 1224 (5) When the coast station is fitted with equipment for selective calling and the ship station is fitted Mar with equipment for receiving selective calls, the coast station shall call the ship by transmitting the appropriate code signals. The ship station shall call the coast station by speech in the manner given in No. 8715/1222 (see also Article N59/28A).

NOC	8720	1224A Mar	§ 15. Calls for internal communications on board ship when in territorial waters shall consist of:
NOC	8721	1224B Mar	 a) From the master station: the name of the ship followed by a single letter (ALFA, BRAVO, CHARLIE, etc.) indicating the sub-station not more than three times;
			 the words THIS IS; the name of the ship followed by the word CONTROL;
NOC	8722	1224C Mar	 b) From the sub-station: the name of the ship followed by the word CONTROL not more than three times; the words THIS IS; the name of the ship followed by a single letter (ALFA, BRAVO, CHARLIE, etc.) indicating the sub-station.
NOC	8723		B. Frequency to Be Used for Calling and for Preparatory Signals
NOC		·	B1. Bands between $\begin{bmatrix} 1 & 605 & and & 4 & 000 & kHz \end{bmatrix}$
NOC	8724	1225 Mar2	§ 16. (1) A radiotelephone ship station calling a coast station should use for the call, in order of preference:
NOC	8725	1226 Mar2	 a working frequency on which the coast station is keeping watch;
NOC	8726	1227 Mar2	b) the carrier frequency 2 182 kHz;
NOC	8727	1227A Mar	 c) in Regions 1 and 3 and in Greenland, the carrier frequency 2 191.0 kHz (assigned frequency 2 192.4 kHz) when a carrier frequency of 2 182 kHz is being used for distress.
NOC	8728	1229	(2) A radiotelephone ship station calling another ship station should use for the call:
NOC	8729	1230 Mar	a) the carrier frequency 2 182 kHz;

	8730	1231	b) an intership frequency, whenever and wherever traffic density is high and prior arrangements can be made.
NOC	8731	1233 Mar	(3) Subject to the provisions of No. 8734 /1235A, coast stations shall, in accordance with the requirements of their own country, call ship stations of their own nationality either on a working frequency or, when calls to individual ships are made, on the carrier frequency 2 182 kHz.
NOC	8732	1234 Mar	(4) However, a ship station which keeps watch simultaneously on the carrier frequency 2 182 kHz and a working frequency should be called on the working frequency.
NOC	8733	1235 Mar	(5) As a general rule, coast stations should call radiotelephone ship stations of another nationality on the carrier frequency 2 182 kHz.
NOC	8734	1235A Mar	(6) Coast stations may call ship stations equipped to receive selective calls in accordance with the provisions of Article N59 /28A.
NOC		:	B2. Bands between 4 000 and 23 000 kHz
MOD	8735	1236 Mar2	§ 17. (1) A ship station calling a coast station by radiotelephony shall use either one of the calling frequencies mentioned in No. 8221/1352 or the working frequency associated with that of the coast station, in accordance with Appendix 17 Rev., Section A.
MOD	8736	1237 Mar2	(2) A coast station calling a ship station by radiotelephony shall use one of the calling frequencies mentioned in No. 8222/1352A, one of its working frequencies shown in the List of Coast Stations, or the carrier frequency 4 125 kHz or 6 215.5 kHz, in accordance with the provisions of Nos. 8221.2/1352.2 and 8221.3/1352.3.
NOC	8737	1238	(3) The preliminary operations for the establishment of radiotelephone communications may also be carried out by radiotelegraphy using the procedure appropriate to radiotelegraphy (see Nos. 8471 /1014 and 8472 /1015).
MOD	8738	1238A Mar2	(4) The provisions of Nos. 8735 /1236 and 8736 /1237 do not apply to communication between ship stations and coast stations using the simplex frequencies specified in Appendix 17 Rev. , Section B.

SUP	8739 to 8741		§ 18.	
(becc	ome 8402 to 8404)			
NOC			B3. Bands between 156 and 174 MHz	£
MOD	8742	1239 Mar2	§ 19. (1) In the bands between 156 and 174 MHz intership and coast station to ship calling should, as a general rule, be made on 156.8 MHz. However, coast station to ship calling may be conducted on a working channel or on a two-frequency calling channel which has been implemented in accordance with No. 8235/1361. Except for distress, urgency or safety communications, when 156.8 MHz should be used, ship to coast station calling should, whenever possible, be made on a working channel or on a two-frequency calling channel which has been implemented in accordance with No. 8235/1361. Ships wishing to participate in a port operations service or ship movement service should call on a port operations or ship movement working frequency, indicated in heavy type in the List of Coast Stations.	£3
NOC	8743	1240	(2) When 156.8 MHz is being used for distress, urgency or safety communications, a ship station desiring to participate in the port operations service may establish contact on 156.6 MHz or another port operations frequency, indicated in heavy type in the List of Coast Stations.	
NOC			B4. Procedure for Calling a Station Providing Pilot Service	
NOC	8744	1240A Mar2	§ 20. A radiotelephone ship station calling a station providing pilot service should use for the call, in order of preference:	

NOC	8745	1240B Mar2		<u>a)</u>	an appropriate channel in the bands between 156 and 174 MHz;	ĒJ
NOC	8746	1240C Mar2		<u>b)</u>	a working frequency in the bands between [1 605 and 4 000 kHz] ;	ŧŀ
NOC	8747	1240D Mar2		<u>c)</u>	the carrier frequency 2 182 kHz, and then only to determine the working frequency to be used.	
NOC	8748		<u>C.</u>	Form	of Reply to Calls	
NOC	8749	1241 Mar	§ 21.	The	reply to calls consists of:	
				_	the call sign or other identification of the calling station, not more than three times;	
				-	the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);	
				-	the call sign or other identification of the station called, not more than three times.	

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NOC	8750		D. Frequency for Reply	
NOC			D1. Bands between $\begin{bmatrix} 1 & 605 \\ and & 4 & 000 \end{bmatrix}$ kHz	£Э
NOC	8751	1242 Mar	§ 22. (1) When a ship station is called on the carrier frequency 2 182 kHz, it should reply on the same carrier frequency unless another frequency is indicated by the calling station.	·
NOC	8752	1242A Mar	(2) When a ship station is called by selective calling, it shall reply on a frequency on which the coast station keeps watch.	
NOC	8753	1243	(3) When a ship station is called on a working frequency by a coast station of the same nationality, it shall reply on the working frequency normally associated with the frequency used by the coast station for the call.	
NOC	8754	1244 Mar	(4) When calling a coast station or another ship station, a ship station shall indicate the frequency on which a reply is required if this frequency is not the normal one associated with the frequency used for the call.	
NOC	8755	1245	(5) A ship station which frequently exchanges traffic with a coast station of another nationality may use the same procedure for reply as ships of the nationality of the coast station, where this has been agreed by the administrations concerned.	
NOC	8756	1246	(6) As a general rule a coast station shall reply:	
NOC	8757	1247 Mar	a) on the carrier frequency 2 182 kHz to calls made on the carrier frequency 2 182 kHz, unless another frequency is indicated by the calling station;	
NOC	8758	1248	 b) on a working frequency to calls made on a working frequency; 	
NOC	8759	1248A Mar	<u>c)</u> on a working frequency to calls made in Regions 1 and 3 and in Greenland on the carrier frequency 2 191.0 kHz (assigned frequency 2 192.4 kHz).	

NOC			D2. Bands between 4 000 and 23 000 kHz	
MOD	8760	1249 Mar2	§ 23. (1) A ship station called by a coast station shall reply either on one of the calling frequenci mentioned in No. 8221/1352 or on the working frequency associated with that of the coast station, in accordance with Appendix 17 Rev., Section A.	.es
NOC	8761	1250 Mar	(2) A coast station called by a ship station shall reply on one of the calling frequencies mentioned in No. 8222/1352A, or on one of its working frequencies shown in the List of Coast Stations.	
MOD	8762	1250A Mar2	(3) In the zone of Regions 1 and 2 south of latitude 15° N, including Mexico, and in the zone of Region 3 south of latitude 25° N, when a station is called on the carrier frequency it should reply on the same frequency unless another frequency is indicated by the calling station.	
MOD	8763	1251 Mar2	(4) In the zone of Region 3 south of latitude 25° N, when a station is called on the carrier fr 6 215.5 kHz it should reply on the same frequency unless another frequency is indicated by the calling station.	equency
MOD	8764	1251A Mar2	(5) The provisions of Nos. 8760 /1249 and 8761 /1250 do not apply to communication between ship stations and coast stations using the simplex frequencies specified in Appendix 17 Rev. , Section B.	
NOC			D3. Bands between [156 and 174 MHz]	ĒĴ
NOC	8765	1252 Mar2	§ 24. (1) When a station is called on 156.8 MHz it should reply on the same frequency unless another frequency is indicated by the calling station.	
NOC	8766	1253	(2) When a coast station open to public correspondence calls a ship station either by speech or by selective calling, using a two-frequency channel, the ship station shall reply by speech on the frequency associated with that of the coast station; conversely, a coast station shall reply to a call from a ship station on the frequency associated with that of the ship station.	

NOC	8767	E. In	dication of the Frequency to Be Used for Traffic	
NOC			El. Bands between [1 605 and 4 000 kHz]	Ē∃
NOC	8768	1254 Mar	§ 25. If contact is established on the carrier frequency 2 182 kHz, coast and ship stations shall transfer to working frequencies for the exchange of traffic.	
NOC			E2. Bands between 4 000 and 23 000 kHz	
NOC	8769	1255	§ 26. After a ship station has established contact with a coast station, or another ship station, on the calling frequency of the band chosen, traffic shall be exchanged on their respective working frequencies	ł .
NOC			E3. Bands between $[156 \text{ and } 174 \text{ MHz}]$	£Э
NOC	8770	1256 Mar2	§ 27. (1) Whenever contact has been established between a coast station, in the public correspondence service and a ship station either on 156.8 MHz or on a two-frequency calling channel (see No. 8236/1362), the stations shall transfer to one of their normal pairs of working frequencies for the exchange of traffic. The calling station should indicate the channel to which it is proposed to transfer by reference to the frequency in MHz or, preferably, to its channel designator.	
NOC	8771	1257	(2) When contact on 156.8 MHz has been established between a coast station in the port operations service and a ship station, the ship station should indicate the particular service required (such as navigational information, docking instructions, etc.) and the coast station shall then indicate the channel to be used for the exchange of traffic by reference to the frequency in MHz, or, preferably, to its channel designator.	
NOC	8772	1257A Mar2	(3) When contact on 156.8 MHz has been established between a coast station in the ship movement service and a ship station, the coast station shall then indicate the channel to be used for the exchange of traffic by reference to the frequency in MHz or, preferably, to its channel designator.	
NOC	8773	1258	(4) A ship station, when it has established contact with another ship station on 156.8 MHz, should indicate the intership channel to which it is proposed	

the frequency in MHz or, preferably, to its channel designator. 8774 (5) However, a brief exchange of traffic not to NOC 1258A exceed one minute concerning the safety of navigation Mar2 need not be transmitted on a working frequency when it is important that all ships within range receive the transmission. 1258B (6) Stations hearing a transmission concerning NOC 8775 Mar the safety of navigation shall listen to the message until they are satisfied that the message is of no concern to them. They shall not make any transmission likely to interfere with the message. NOC 8776 F. Agreement on the Frequency to Be Used for Traffic 8777 1259 § 28. (1) If the station called is in NOC agreement with the calling station, it shall transmit: 1260 8778 an indication that from that moment NOC a) onwards it will listen on the working frequency or channel announced by the calling station; an indication that it is ready to NOC 8779 1261 b) receive the traffic of the calling station. NOC 8780 1262 (2) If the station called is not in agreement with the calling station on the working frequency or channel to be used, it shall transmit an indication of the working frequency or channel proposed. (3) For communications between a coast station NOC 8781 1263 and a ship station, the coast station shall finally decide the frequency or channel to be used. 8782 1264 (4) When agreement is reached regarding the NOC working frequency or channel which the calling station shall use for its traffic, the station called shall indicate that it is ready to receive the traffic. G. Indication of Traffic 8783 NOC When the calling station wishes to exchange 1265 § 29. 8784 NOC more than one radiotelephone call, or to transmit Mar2 one or more radiotelegrams, it should indicate this when contact is established with the station called.

to transfer for the exchange of traffic by reference to

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NOC	8785		H. Difficulties in Reception
NOC	8786	1266 Mar	§ 30. (1) If the station called is unable to accept traffic immediately, it should reply to the call as indicated in No. 8749/1241 followed by "Wait minutes" (or AS spoken as ALFA SIERRA (minutes) in case of language difficulties), indicating the probable duration of waiting time in minutes. If the probable duration exceeds ten minutes the reason for the delay shall be given. Alternatively the station called may indicate, by any appropriate means, that it is not ready to receive traffic immediately.
NOC	8787	1267	(2) When a station receives a call without being certain that such a call is intended for it, it shall not reply until the call has been repeated and understood.
NOC	8788	1268	(3) When a station receives a call which is intended for it, but is uncertain of the identification of the calling station, it shall reply immediately asking for a repetition of the call sign or other identification of the calling station.
NOC		:	Section V. Forwarding (Routing) of Traffic
NOC	8789	:	Section V. Forwarding (Routing) of Traffic
NOC NOC MOD	8789 8790	1269	Section V. Forwarding (Routing) of Traffic <u>A. Traffic Frequency</u> § 31. (1) Every station should transmit its traffic (radiotelephone calls or radiotelegrams) on one of its working frequencies in the band in which the call has been made.
NOC NOC NOC	8789 8790 8791	1269 1270	Section V. Forwarding (Routing) of Traffic <u>A. Traffic Frequency</u> § 31. (1) Every station should transmit its traffic (radiotelephone calls or radiotelegrams) on one of its working frequencies in the band in which the call has been made. (2) In addition to its normal working frequency, printed in heavy type in the List of Coast Stations, a coast station may use one or more supplementary frequencies in the same band, in accordance with the provisions of Article N57/35.
NOC NOC NOC	8789 8790 8791 8792	1269 1270 1271	Section V. Forwarding (Routing) of Traffic <u>A. Traffic Frequency</u> § 31. (1) Every station should transmit its traffic (radiotelephone calls or radiotelegrams) on one of its working frequencies in the band in which the call has been made. (2) In addition to its normal working frequency, printed in heavy type in the List of Coast Stations, a coast station may use one or more supplementary frequencies in the same band, in accordance with the provisions of Article N57/35. (3) The use of frequencies reserved for calling shall be forbidden for traffic, except distress traffic (see Chapter NIX).
NOC NOC NOC NOC	8789 8790 8791 8792 8793	1269 1270 1271 1272	 Section V. Forwarding (Routing) of Traffic <u>A. Traffic Frequency</u> § 31. (1) Every station should transmit its traffic (radiotelephone calls or radiotelegrams) on one of its working frequencies in the band in which the call has been made. (2) In addition to its normal working frequency, printed in heavy type in the List of Coast Stations, a coast station may use one or more supplementary frequencies in the same band, in accordance with the provisions of Article N57/35. (3) The use of frequencies reserved for calling shall be forbidden for traffic, except distress traffic (see Chapter NIX). (4) After contact has been established on the frequency to be used for traffic, the transmission of a radiotelegram or radiotelephone call shall be preceded by:

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			 the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
			 the call sign or other identification of the calling station.
NOC	8795	1274	(5) The call sign or other identification need not be sent more than once.
NOC	8796		B. Establishment of Radiotelephone Calls and Transmission of Radiotelegrams
NOC			Bl. Establishment of Radiotelephone Calls
MOD	8797	1275	§ 32. (1) In setting up a radiotelephone call, the coast station should establish connection with the telephone network as quickly as possible. In the meantime, the ship station shall maintain watch on the appropriate working frequency as indicated by the coast station.
MOD	8798	1276	(2) However, if the connection cannot be quickly established, the coast station shall inform the ship station accordingly. The latter station shall then either:
NOC	8799	1277	<u>a)</u> maintain watch on the appropriate frequency until an effective circuit can be established; <u>or</u>
NOC	8800	1278	b) contact the coast station later at a mutually agreed time.
NOC	8801	1279	(3) When a radiotelephone call has been completed, the procedure indicated in No. 8810 /1289 shall be applied unless further calls are on hand at either station.
NOC		·	B2. Transmission of Radiotelegrams
NOC	8802	1280 Mar	§ 33. (1) The transmission of a radiotelegram should be made as follows:
			 radiotelegram begins: from (name of ship or aircraft);
			— number (serial number of radiotelegram);
			— number of words ;
			— date ;

 time . . . (time radiotelegram was handed in aboard ship or aircraft);

- service indicators (if any);

- address . . . ;

- text . . . ;
- signature . . . (if any);
- radiotelegram ends, over.
- MOD 8803 1281 (2) As a general rule, radiotelegrams of all kinds transmitted by ship stations shall be numbered in a daily series; number 1 shall be given to the first radiotelegram sent each day to each separate station.
- NOC 8804 1282 (3) A series of numbers which has begun in radiotelegraphy should be continued in radiotelephony and vice versa.
- NOC 8805 1283 (4) Each radiotelegram should be transmitted once only by the sending station. However, it may, when necessary, be repeated in full or in part by the receiving or the sending station.
- NOC 8806 1285 (5) In transmitting groups of figures, each figure Mar shall be spoken separately and the transmission of each group or series of groups shall be preceded by the words "in figures".
- NOC 8807 1286 (6) Numbers written in letters shall be spoken as they are written, their transmission being preceded by the words "in letters".

NOCB3. Acknowledgement of ReceiptNOC88081287Mar\$ 34. (1) The acknowledgement of receipt of a
radiotelegram or a series of radiotelegrams shall be
given by the receiving station in the following manner:

- the call sign or other identification of the sending station;
- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- the call sign or other identification of the receiving station;

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			 "Your No received, o spoken as ROMEO (num as KILO in case of languag or 	ver" (or R ber), K spoken e difficulties);
			 "Your No to No over" (or R spoken as ROME K spoken as KILO in case o difficulties). 	received, 0 (numbers), f language
NOC	8809	1288	(2) The radiotelegram, or series o radiotelegrams, shall not be considered a until this acknowledgement has been recei	f s cleared ved.
NOC	8810	1289 Mar	(3) The end of work between two st indicated by each of them by means of the (or \overline{VA} spoken as VICTOR ALFA in case of 1 difficulties).	ations shall be word "Out" anguage
NOC		Sec	ion VI. Duration and Control of Worki	ng
MOD	8811	1290 Mar2	§ 35. (1) Calling, and signals preparato traffic, shall not exceed one minute when carrier frequency 2 182 kHz or on 156.8 M cases of distress, urgency or safety to w provisions of Chapter NIX apply.	ry to made on the Hz, except in hich the
MOD	8812	1291	(2) In communications between coas and ship stations, the ship station shall instructions given by the coast station is relating to the order and time of transmi choice of frequency, and to the duration of work.	t stations comply with the n all questions ssion, to the and suspension
MOD	8813	1292	(3) In communications between ship the station called controls the working in indicated in No. 8812 /1291. However, if a finds it necessary to intervene, the ship comply with the instructions given by the	stations, n the manner coast station stations shall coast station.

NOC			Section VII. Tests
MOD	8814	1293	§ 36. When it is necessary for a ship station to send signals for testing or adjustments which are liable to interfere with the working of neighbouring coast stations, the consent of these stations shall be obtained before such signals are sent.
NOC	8815	1294	§ 37. (1) When it is necessary for a station to make test signals, either for the adjustment of a transmitter before making a call or for the adjustment of a receiver, such signals shall not be continued for more than ten seconds, and shall include the call sign or other identification of the station emitting the test signals. This call sign or other identification shall be spoken slowly and distinctly.
MOD	8816	1295 Mar2	(2) Any signals sent for testing shall be kept to a minimum, particularly:
			 on the carrier frequency 2 182 kHz;
			 on the frequency 156.8 MHz;
			 in the zone of Regions 1 and 2 south of latitude 15° N, including Mexico, and in the zone of Region 3 south of latitude 25° N, on the carrier frequency 4 125 kHz;
			 in the zone of Region 3 south of latitude 25° N also on the carrier frequency 6 215.5 kHz.
NOC	8817	1295A Mar2	(3) It is not permitted to send test transmissions of the radiotelephone alarm signal on the carrier frequency 2 182 kHz and the frequency 156.8 MHz, except where emergency equipment which can operate only on these frequencies is involved, in which case measures shall be taken to prevent radiation. Measures shall also be taken to prevent radiation from radiotelephone alarm tests carried out on frequencies other than 2 182 kHz and 156.8 MHz.
	8818 to 8899		NOT allocated.

ARTICLE N62A

Public Correspondence in the Maritime Mobile Service and the Maritime Mobile-Satellite Service 1

A.N62A

1 See Resolution AB.

Section I. General

8900

§ 1. The provisions of the Telegraph Regulations and the Telephone Regulations, taking into account CCITT Recommendations, shall apply to radiocommunications in so far as the relevant provisions of the Radio Regulations do not provide otherwise.

Section II. Accounting Authority

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§ 2. Charges for radiocommunications from ship-to-shore shall in principle, and subject to national law and practice, be collected from the maritime mobile station licensee:

8902 (1) by the administration that has issued the licence; or

8903 (2) by a recognized private operating agency; or

(3) by any other entity or entities designated for this purpose by the administration referred to in (1).

§ 3. The administration or the recognized private operating agency or the designated entity (or entities) is referred to in this Article as the "accounting authority".

8906 § 4. The name(s) and address(es) of the accounting authority(ies) shall be notified to the Secretary-General of the ITU for inclusion in the List of Ship Stations; the number of such names and addresses shall be limited as far as possible, taking into account CCITT Recommendations.

Section III. Accounting

8907

§ 5. The exchange and verification of accounts shall be carried out in accordance with the Telegraph Regulations and the Telephone Regulations, taking into account CCITT Recommendations.

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8908 §

§ 6. The accounts shall be sent as promptly as possible but in any case before the end of the third month following that to which they relate.

8909 § 7. In principle, an account shall be considered as accepted without the need for specific notification of acceptance to the administration *) that sent it.

8910 § 8. However, any accounting authority shall have the right to question the contents of in account for a period of six months after despatch of the account.

8911 § 9. All maritime accounts shall be paid by the accounting authority without delay and in any case within six months after despatch of the account.

- § 10. If international maritime accounts remain unpaid after six months, the administration that has licensed the mobile station shall, on request, take all possible steps, within the limits of applicable national law, to ensure settlement of the accounts from the licensee.
- 8913 § 11. In the case referred to in No. 8910 above, if the account is seriously delayed in transit, the receiving accounting authority should at once notify the originating administration *) that queries and payment may be delayed. The delay shall, however, not exceed three months from the date of receipt of the account.
- 8914

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§ 12. The debtor accounting authority may refuse the settlement and adjustment of accounts presented more than eighteen months after the date of handing in of the radiotelegrams, or the date of establishment of the radiotelephone calls or radiotelex calls to which the accounts relate.

Section IV. Payment of Balances

8915

§ 13. Payment of balances shall be carried out in accordance with the Telegraph Regulations and the Telephone Regulations, taking into account any relevant CCITT Recommendations.

*) or recognized private operating agency/agencies.

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Section V. Archives

§ 14. The originals of radiotelegrams and documents relating to radiotelegrams, radiotelephone calls and radiotelex calls shall be held by the administrations *) with all necessary precautions from the point of view of secrecy, until the settlement of the relative account and, in any case, for at least six months counting from the month in which the accounts were sent. Administrations *) may preserve the information by any other means, e.g. magnetic or electronic records.

8917

8916

§ 15. However, should an administration *) deem it desirable to destroy the originals of radiotelegrams or any other documents or records mentioned in No. 8916 before the above-mentioned period, and hence not be in in a position to carry out an inquiry in respect of the services for which it is responsible, such administration *) shall bear all the consequences both as regards refund of charges and any difference in the accounts in question that might otherwise have been observed.

^{*)} or recognized private operating agency/agencies.

CHAPTER NXII

Land Mobile Service

NOC

SUP

ARTICLE N63

Authority of the Master or Person Responsible for the Mobile Stations in the Land Mobile Service

SUP	8918	845	§ 1.
	8920	847	§ 3.
	8921		
	to 8945		NOT allocated.

ARTICLE N64/21

Inspection of Mobile Stations in the Land Mobile Service

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SUP	8946 to	838 Mar2	§ 1.
	8952 ⁻	844 Mar2	§ 3.
	8953 to 8977		NOT allocated.

ARTICLE N65

NOC			Conditions to Be Observed by Mobile Stations in the Land Mobile Service
MOD	8978	955 Mar	§ 1. Land mobile stations shall be established in such a way as to conform to the provisions of Chapter NIII/II as regards frequencies and classes of emission.
MOD	8979	957	§ 2. The frequencies of emission of land mobile stations shall be checked as often as possible by the inspection service to which these stations are subject.
NOC	8980	958	§ 3. The energy radiated by receiving apparatus shall be reduced to the lowest possible value and shall not cause harmful interference to other stations.
MOD	8981	959	§ 4. Administrations shall take all practicable steps necessary to ensure that the operation of any electrical or electronic apparatus installed in land mobile stations does not cause harmful interference to the essential radio services of stations which are operating in accordance with the provisions of these Regulations.
MOD	8982	960	§ 5. (1) Changes of frequency in the sending and receiving apparatus of any land mobile station shall be capable of being made as rapidly as possible.
MOD	8983	961	(2) Installations of any land mobile station shall be capable, once communication is established, of changing from transmission to reception and vice versa in as short as a time as possible.
	8984 to 9008		NOT allocated.

ARTICLE N66/37

Order of Priority of Communications

			in	the	Land	Mobile	Service
SUP	9009	1496					

9010 to NOT allocated. 9034
SUP

ARTICLE N67

General Radiotelegraph Procedure in the Land Mobile Service - Calls

SUP	9035	1065	§ 1.
	to		_
	9052	1094	§ 10.

9053		
to	NOT	allocated.
9077		

B.5-50

ARTICLE N68

NOC			General Radiotelephone Procedure in the Land Mobile Service — Calls
MOD	9078	1298	§ 1. (1) A land mobile station may call the land station only when it comes within the service area of the latter, that is to say, that area within which, by using an appropriate frequency, the land mobile station can be heard by the land station.
MOD	9079	1099	(2) A land station having traffic for a land mobile station may call this station if it has reason to believe that the land mobile station is keeping watch and is within the service area of the land station.
SUP	9080	1307 Mar2*	§ 2.
SUP	9081	1308	§ 3. (1)
SUP	9082	1310	(2)
SUP	9083	1311	(3)
MOD	9084	1312	§ 4. Land mobile stations shall not radiate a carrier wave between calls.
SUP	9085	1313	§ 5.
SUP	9086	1314 Mar	§ 6. (1)
SUP	9087	1315	<u>a)</u>
SUP	9088	1316	<u>b)</u>
SUP	9089	1317 Mar	(2)
	9090 to 9139		NOT allocated.

SUP

CHAPTER NXIII (Art. 69 to Art. 72)

Radiotelegrams, Radiotelephone Calls and Radiotelex Calls

(in its entirety) SUP

ADDITIONAL RADIO REGULATIONS

SUP (in its entirety)

SUP

APPENDIX 21

Mar2

Specimen Form of Statement of Account for Radiotelegrams and Radiotelephone Calls except in the Maritime Mobile Service

APPENDIX 21A

Mar2

Specimen Form of Statement of account for Radiotelegrams, Radiotelephone Calls and Radiotelex Calls in the Maritime Mobile Service

APPENDIX 22

Payment of Balance of Accounts

RESOLUTION No. Mar2 - 22

Relating to Accounting for Public Correspondence in Maritime Radiocommunications

RESOLUTION No. Mar2 - 23

Relating to the Interpretation of the Provisions affecting the Public Correspondence Services

RECOMMENDATION No. Mar2 - 18

Relating to Accounting for Public Correspondence in Maritime Radiocommunications

SUP

SUP

SUP

SUP

RESOLUTION No. Mar2 - 16

B.5-53

Relating to References in the Radio Regulations and Additional Radio Regulations to the Telegraph Regulations and the Telephone Regulations, Geneva, 1958

RESOLUTION No. Sat -10

Relating to the Possible Re-arrangement of the Radio Regulations and the Additional Radio Regulations

RECOMMENDATION No. Mar 2

SUP

Relating to a Regrouping of the Radio Regulations and the Additional Radio Regulations appertaining to the Maritime Mobile Service

RECOMMENDATION No. Mar2 - 21

SUP

Relating to the Possible Re-arrangement of the Radio Regulations and the Additional Radio Regulations

RECOMMENDATION No. Spa2 - 14

SUP Relating to a revised Presentation of the Sections of Article 1 of the Radio Regulations

SUP

RECOMMENDATION B

Relating to the Marginal Numbering of the Radio Regulations

The World Administrative Radio Conference, Geneva, 1979,

considering

a) that the Radio Regulations have a logical paragraph and sub-paragraph numbering system within each article and that consecutive marginal numbering is added to each provision mainly for ease of reference;

b) that this marginal numbering is extensively used by administrations and the permanent organs of the Union;

c) that blocks of spare marginal numbers have been made available at the end of each article of the revised Radio Regulations, Geneva, 1979, to facilitate the addition by World Administrative Radio Conferences of new provisions and in particular of new articles;

recognizing

a) that familiarization with mew marginal mumbers requires considerable effort and that, therefore, possible changes of marginal numbers by a World Administrative Radio Conference undertaking a partial revision of the Radio Regulations could cause difficulties;

b) the fact that revision of the marginal numbering system should only be necessary at a future World Administrative Radio Conference convened to undertake a general revision of the Radio Regulations;

recommends

1. that a future World Administrative Radio Conference undertaking a partial revision of the Radio Regulations should use the spare marginal numbers only when it is appropriate to insert additional provisions at the end of articles;

2. that where it is necessary to insert one or more additional provisions within an article, supplementary alpha references should be used as a suffix to existing marginal numbers;

3. that when an existing provision is suppressed, the marginal number should not be re-used.

B.5-55

RESOLUTION AB

Relating to operational provisions, charging and accounting for public correspondence in the mobile services

The World Administrative Radio Conference, Geneva, 1979,

considering

a) that the CCITT, in accordance with a request by the World Maritime Administrative Radio Conference, Geneva, 1974, has prepared two Recommendations relating to the operational provisions for the maritime mobile service, and charging, accounting, and refunds in the maritime mobile service;

b) that this Conference has accepted the overall conclusions and most of the detailed conclusions of the report of the CCITT studies carried out in accordance with the pertinent Resolutions of the World Maritime Administrative Radio Conference, Geneva, 1974, [which have now been abrogated]

c) that as a consequence, the Additional Radio Regulations and certain provisions of the Radio Regulations relating to the operation of, and charging and accounting for, public correspondence in the mobile services have been replaced by provisions governing the general application of the CCITT Recommendations;

d) that a number of the provisions which have been replaced refered to mobile services other than the maritime mobile service and the maritime mobile-satellite service;

e) that the provisions contained in the two above-mentioned CCITT Recommendations relating to public correspondence apply at present only to the maritime mobile service and the maritime mobile-satellite service;

f further, that in any revision of the relevant CCITT Recommendations full account needs also to be taken of maritime interests, ensuring adequate time for administrations to consult these interests;

recognizing

a) that there is at present no specific provision for international public correspondence in any mobile service other than the maritime mobile service and the maritime mobile-satellite service;

b) that international public correspondence might nevertheless be extended in the future to mobile services other than the maritime mobile service and the maritime mobile-satellite service;

invites the CCITT

to undertake, if the need arises, studies on the operational provisions, charging and accounting for international public correspondence in the mobile services other than the maritime mobile service and the maritime mobile-satellite service, seeking to harmonize to the maximum extent possible all such provisions for the mobile services in question;

further invites

the CCITT in continuance of its work relating to the maritime mobile service and the maritime mobile-satellite service to take particular account of maritime interests therein;

resolves

that in the case of a new international public correspondence service being established in a mobile service other than the maritime mobile service or the maritime mobile-satellite service, the new service should conform as far as practicable in its operational provisions charging and accounting with the existing provisions of the Telephone Regulations, the Telegraph Regulations and the Radio Regulations and with the relevant CCITT Recommendations, until such time as any necessary revision could be made.

RESOLUTION AC

Relating to the eventual abolition of mobile station charges for public correspondence in the maritime mobile service

The World Administrative Radio Conference, Geneva, 1979,

considering

a) that the VIth Plenary Assembly of the CCITT, Geneva, 1976, adopted a draft Recommendation relating to charging, accounting and refunds in the maritime mobile service with the exception of the points relating, inter alia, to mobile station charges for public correspondence in the maritime mobile service;

b) that the above draft Recommendation was subsequently amended, in the light of the decision of the VIth Plenary Assembly of the CCITT, Geneva, 1976, regarding mobile station charges and that this draft Recommendation has been approved by letter ballot;

c) that the amended Recommendation includes the following provisions *):

"Mobile station charges may be applied in the radiotelegram, radiotelephone, and radiotelex services, in the MF and HF bands. They shall not be applied in any of the VHF services, nor in any of the mobile-satellite services, nor in any service with automatic operation; however, mobile station charges may also be applied for radiotelegrams transmitted via VHF.",

"Mobile station charges shall be abolished for traffic exchanged after 2359 hours GMT 31 December, 1987.";

resolves

to adopt this recommended date for the abolition of mobile station charges for public correspondence in the maritime mobile service.

*) See CCITT Recommendation D.90/F.111 (paragraphs B12 and B13).

RECOMMENDATION C

Relating to the application of Chapters NX, NXI and NXII of the Re-arranged Radio Regulations

The World Administrative Radio Conference, Geneva, 1979,

considering

a) that the Radio Regulations provide the basic regulatory framework for \overline{all} the mobile services and that the provisions of the Radio Regulations should correspond as closely as possible with the needs and operational realities of these services;

b) that this Conference has adopter the Re-Arrangement of the Radio Regulations as proposed by the Group of Experts, taking into account proposals made by a number of administrations for further refinement of the Re-Arrangement;

c) that the separation of the previous mobile service provisions into specific chapters dealing with individual mobile services has highlighted certain anomalies in relation to each of the mobile services, and particularly in their applicability to the aeronautical mobile service and the land mobile service;

d) that certain of these anomalies raise substantive operational issues with which this Conference is not competent to deal;

e) that the aeronautical mobile service is concerned with the communications to ensure safe and regular operation of aircraft;

f) that towards this objective the International Civil Aviation Organisation has agreed upon Standards and Recommended Practices adapted to the needs of aircraft operation which have been proven in practice and are well established in current use;

recommends

that the next competent World Administrative Radio Conference revises Chapters NX, NXI and NXII to bring them into accord with the current needs and practices of the services concerned;

instructs the Secretary-General

to communicate the next of this Recommendation to ICAO and IMCO and to request the attention of these organizations to a study of the material contained in Chapters NX and NXI, respectively, with a view to assisting administrations in their preparations for that Conference.

INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 467-E 2 November 1979 Original: English

COMMITTEE 6

NOTE BY THE CHAIRMAN OF WORKING GROUP 6A

Working Group 6A has agreed on the following draft Note, which it requests Committee 6 to transmit to the Chairman of Committee 5:

> ¹ DRAFT NOTE FROM THE CHAIRMAN OF COMMITTEE 6 TO THE CHAIRMAN OF COMMITTEE 5

Committee 6 has taken note of the request made by Committee 5 in Document No. 312 that procedures are needed to ensure that services in bands which are re-allocated can be transferred to other bands without degrading the operational utility of the transferred services and that of the existing services in the bands which accommodate the transferred service.

Committee 6, to which proposals have been allocated concerning the establishment of transitional procedures to implement the changes which might be made in the allocations in the HF bands and a consequential review of the entries in the Master Register, has decided that such procedures would be established based on the following:

- a) that any displaced assignment of the Fixed Service would be found a suitable replacement in so far as the bands allocated to the Fixed Service are not reduced to an unrealistic extent;
- b) that any such displaced assignment would receive the same status as assignments that would not be displaced;
- c) that in the finding of replacement assignments all assignments would receive equal treatment.

Committee 6 will proceed on the assumption that a transitional procedure will be required and will continue its work on this subject but will not put forward its conclusions until Committee 5 confirms the need for such a procedure.¹

J.K. BJORNSJO Chairman of Working Group 6A

RCHIVE U.I.T. GENÈVE

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 468-E 2 November 1979 Original: English French Spanish

PLENARY MEETING

FIRST REPORT OF COMMITTEE 5

Committee 5 has adopted unanimously

- a Resolution relating to the Division of the World into Regions for the allocation of frequency bands;
- a Resolution relating to the Use of Radiotelegraph and Radiotelephone links by Red Cross, Red Crescent, Red Lion and Red Sun Organizations.

The texts of these Resolutions have been submitted to the Editorial Committee for subsequent submission to the Plenary Meeting. (See Document No. 469).

> M. HARBI Chairman of Committee 5



WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 469-E 2 November 1979 Original: English French Spanish

COMMITTEE 9

FIRST SERIES OF TEXTS FROM COMMITTEE 5 TO THE EDITORIAL COMMITTEE

The texts mentioned in Document No. 468 are hereby submitted to the Editorial Committee in Annexes 1 and 2 to the present document.

M. HARBI Chairman of Committee 5

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Annexes : 2



ANNEX 1

RESOLUTION

Relating to the division of the World into Regions for the allocation of frequency bands

The World Administrative Radio Conference, Geneva, 1979,

considering

a) that the present division of the world into Regions 1, 2 and 3 for the purposes of frequency allocations was made in 1947 and the technical bases for this division were not clearly defined;

b) that after 1947 a considerable advance in radiocommunication techniques has been made and many new countries have emerged;

being aware that the division of the world into three Regions as presently constituted, may not be appropriate to meet the requirements of all countries on an equitable basis;

regional division during the present Conference;

<u>resolves</u> that this division should be reviewed in the light of the major developments in radio technology and increase in the membership of the Union with countries at different levels of development;

<u>requests</u> the CCIR to undertake a study of the technical and operational bases for the possible revision of the division of the world for the purposes of the allocation of the radio frequency spectrum, which shall be based on all relevant factors such as radio propagation, climatic conditions, natural geographical configuration of the world, state of economic and technical development and which would permit improvement in the efficient utilization of the radio frequency spectrum by all countries, Members of the Union;

urges all Members of the Union to participate actively in the above study by contributing to its work;

<u>further requests</u> the CCIR to complete and submit this study if possible to the next Plenary Assembly of the CCIR, and in any case prepare a report for consideration by the next Plenary Assembly;

<u>invites</u> the Administrative Council to follow the conduct of the study and to furnish advice to the Plenipotentiary Conference with a view to this matter being suitably resolved at one of the future World Administrative Radio Conferences of the Union.



ANNEX 2

RESOLUTION ...

Relating to the Use of Radiotelegraph and Radiotelephone Links by Red Cross, Red Crescent, Red Lion and Red Sun Organizations

The World Administrative Radio Conference, Geneva 1979,

considering

- a) that the world-wide relief work of the Red Cross, Red Crescent, Red Lion and Red Sun Organizations is of increasing importance and often indispensable;
- b) that in such circumstances normal communication facilities are frequently overloaded, damaged, completely interrupted or not available;
- c) that it is necessary to facilitate by all possible measures the reliable intervention of these national and international Organizations;
- d) that rapid and independent contact is essential to the intervention of these Organizations;
- e) that for international relief work of the Red Cross it is necessary that the national Red Cross Societies involved be able to communicate with each other as well as with the International Committee of the Red Cross and the League of Red Cross Societies;

decides to urge Administrations

1. to take account of the possible need of the Red Cross, Red Crescent, Red Lion and Red Sun Organizations for communication by radio when normal communication facilities are disrupted or not available;

2. to assign to these Organizations the minimum number of the necessary working frequencies in accordance with the Table of Frequency Allocations; in the case of fixed circuits between 3 and 30 MHz, the frequencies shall be selected as far as possible adjacent to the amateur bands;

3. to take all practicable steps to protect such links from harmful interference.

INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 470 -E 2 November 1979 Original: English

COMMITTEE 5

NOTE FROM THE VICE-CHAIRMAN OF COMMITTEE 7 TO THE CHAIRMAN OF COMMITTEE 5

I should like to draw your attention to paragraph 3.2 of document No. 438, which states

"3.2 The addition of the word "radio" in the texts and the title relating to the Amateur Service and the Amateur-Satellite Service was approved in Committee 7, but left in square brackets as there seems to be a difference of opinion with another Committee."

> H.L. VENHAUS Vice-Chairman of Committee 7



WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 471-E 2 November 1979 Original : English

PLENARY MEETING

SIXTH REPORT OF COMMITTEE 4

Committee 4 has <u>adopted</u> part of the definitions on technical terms (Article N1) which have been transmitted to the Editorial Committee for subsequent submission to the Plenary Meeting. (See Document No. 472).

These texts were adopted unanimously.

N. MORISHIMA

Chairman of Committee 4



INTERNATIONAL TELECOMMUNICATION UNION

WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 472-E 2 November 1979 Original : English

/<u>COMMITTEE 97 *</u>)

SIXTH SERIES OF TEXTS FROM COMMITTEE 4 TO THE EDITORIAL COMMITTEE

The text mentioned in Document No. 471 (part of the definitions on technical terms (Article N1) is hereby submitted to the Editorial Committee.

N. MORISHIMA Chairman of Committee 4

Annex : 1

*) for Committee 9 consideration after coordination between Committee 4, 5 and 7.



Document N° 472-F/E	<u>2/S</u>
rage 2	
	ANEXE – ANNEX – ANNEXO
ADD	Rapport de protection (R.F.) : Valeur minimale généralement exprimée en décibels du rapport signal utile/signal indésirable à l'entrée d'un récepteur, déterminé dans des conditions spécifiées, permettant d'obtenir une qualité de réception donnée du signal utile à la sortie du récepteur.
ADD	Protection Ratio : The minimum value of the wanted-to-unwanted signal ratio usually expressed in decibels, at the receiver input determined under specified conditions such that a specified reception quality of the wanted signal is achieved at the receiver output.
ADD	Relación de protección : Valor mínimo general- mente espresado en decibelios de la relación entre la señal deseada y la no deseada a la entrada del receptor, determinada bajo condiciones especificadas, tal que se obtenga una calidad de recepción especificada de la señal deseada à la salida del receptor.
(MOD) 3137/88	Tolérance de fréquence : Ecart maxim al admissible entre la fréquence assignée et la fréquence située au centre de la bande occupée par une émission, ou entre la fréquence de référence et la fréquence caractéristique d'une émission. La tolérance de fréquence est exprimée en millionièmes ou en hertz.
MOD 3137/88	Frequency Tolerance : The maximum permissible departure by the centre frequency of the frequency band occupied by an emission from the assigned frequency or, by the characteristic frequency of an emission from the reference frequency. The frequency tolerance is expressed in parts in 10^6 or in eycles-per-second hertz.
MOD 3137/88	Tolerancia de frecuencia : Desviación máxima admisible entre la frecuencia asignada y la situada en el centro de la banda de frecuencias ocupada por una emisión, o entre la frecuencia de referencia y la frecuencia característica. La tolerancia de frecuencia se expresa en millonésimas o en eielee hertzios por segundo.

PCHIPES

MOD	3135/86	Fréquence caractéristique ¹ : Fréquence aisément identifiable et mesurable dans une émission donnée.
ADD	3135.1	Une fréquence porteuse peut, par exemple, être désignée comme fréquence caractéristique.
MOD	3135/86	Characteristic Frequency $\frac{1}{2}$: A frequency which can be easily identified and measured in a given emission.
ADD	3135.1 ´	A carrier frequency may, for example, be designated as the characteristic frequency.
MOD	3135/86	Frecuencia característica ¹ : Frecuencia que puede identificarse y medirse fácilmente en una emisión determinada.
ADD	3135.1	La frecuencia portadora puede designarse, por ejemplo, como la frecuencia característica.
NOC	3136/87	Fréquence de référence: Fréquence ayant une position fixe et bien déterminée par rapport à la fréquence assignée. Le décalage de cette fréquence par rapport à la fréquence assignée est, en grandeur et en signe, le même que celui de la fréquence caractéristique par rapport au centre de la bande de fréquences occupée par l'émission.
NOC	3136/87	Reference Frequency: A frequency having a fixed and specified position with respect to the assigned frequency. The displacement of this frequency with respect to the assigned frequency has the same absolute value and sign that the displacement of the characteristic frequency has with respect to the centre of the frequency band occupied by the emission.
NOC	3136/87	<i>Frecuencia de referencia:</i> Frecuencia que ocupa una posición fija y bien determinada con relación a la frecuencia asignada. La desviación de esta frecuencia en relación con la frecuencia asignada es, en magnitud y signo, la misma que la de la frecuencia característica con relación al centro de la banda de frecuencias ocupada por la emisión.
MOD	3147/98	Puissance apparente rayonnée (p.a.r.) (<u>dans une</u> <u>direction donnée</u>) : <u>Produit de la puissance fournie à l'antenne</u> <u>multipliée-par-le-gain-relatif-de-l'antenne par son</u> gain par rapport à un doublet demi-onde dans une direction donnée.
MOD	3147/98	Effective Radiated Power (e.r.p.) (in a given direction) : The product of the power supplied to the antenna multiplied-by-the-relative-gain-of-the-antenna and its gain relative to a half-wave dipole in a given direction.
MOD	3147/98	Potencia radiada aparente <u>(p.r.a.) (en una</u> dirección dada) : <u>El producto de la potencia suministrada a la</u> antena multiplicada-por-la-ganancia-relativa-de-la-antena por su ganancia con relación a un dipolo de media onda en una dirección

dada.4

Annex	e au Document	N° 472-F/E/S
Page 4	+	
ADD	3147A	Puissance apparente rayonnée sur antenne verticale courte (p.a.r.v.) (dans une direction donnée) : Produit de la puissance fournie à l'antenne par son gain par rapport à une antenne verticale courte dans une direction donnée.
ADD	3147A	Equivalent Monopole Radiated Power (e.m.r.p.) (in a given direction) : The product of the power supplied to the antenna and its gain relative to a short vertical antenna in a given direction.
ADD	3147A ,	Potencia radiada aparente referida a una antena vertical corta (p.r.a.v.) (en una dirección dada) : El producto de la potencia suministrada a la antena por su ganancia con relación a una antena vertical corta en una dirección dada.
MOD	3148	<u>Puissance isotrope rayonnée équivalente</u> (p.i.r.e.) : Produit de la puissance fournie à l'antenne par son gain dans une direction donnée par rapport à une antenne isotrope (gain isotrope).
MOD	3148	Equivalent isotropically radiated power (e.i.r.p.) : The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic
MOD	3148	Potencia isótropa radiada equivalente (p.i.r.e.) : Producto de la potencia suministrada a la antena por la ganancia de la antena en una dirección dada con relación a una antena isótropa.
ADD	3153C	<u>Onde à polarisation dextrogyre (sens des</u> <u>aiguilles d'une montre)</u> : Onde polarisée elliptiquement, ou circulairement, dont, pour un observateur regardant dans le sens de la propagation, le vecteur champ électrique tourne en fonction du temps, dans un plan fixe quelconque normal à la direction de propagation, dans le sens dextrorsum, c'est-à-dire dans le sens des aiguilles d'une montre.
ADD	3153C	<u>Right-hand (or Clockwise) Polarized Wave</u> : An elliptically or circularly-polarized wave, in which the electric field vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in a right-hand or clockwise direction.
ADD	3153C	<u>Onda de polarización dextrógira (en el sentido</u> <u>de las agujas del reloj</u>) : Onda polarizada, elíptica o circularmente, en la que, para un observador que mira en el sentido de la propagación, el vector campo eléctrico gira en función del tiempo, en un plano fijo cualquiera normal a la dirección de propagación, en el sentido dextrógiro, es decir, en el mismo sentido que las agujas de un reloj.

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ADD	3153D	<u>Onde à polarization lévogyre (sens inverse</u> <u>des aiguilles d'une montre)</u> : Onde (électromagnétique) polarisée elliptiquement, ou circulairement, dont, pour un observateur regardant dans le sens de la propagation, le vecteur champ électrique tourne en fonction du temps, dans un plan fixe quelconque normal à la direction de propagation, dans le sens senestrorsum, c'est-à-dire dans le sens contraire à celui des aiguilles d'une montre.
ADD	3153D	<u>Left-hand (or Anti-clockwise) Polarized Wave</u> : An elliptically or circularly-polarized wave, in which the electric field vector, observed in the fixed plane, normal to the direction of propagation whilst looking in the direction of propagation rotates with time in a left-hand or anti-clockwise direction.
ADD	3153D	<u>Onda de polarización levógira (en el sentido</u> <u>contrario al de las agujas del reloj</u> : Onda polarizada, elíptica o circularmente, en la que, para un observador que mira en el sentido de la propagación, el vector campo eléctrico gira en función del tiempo, en un plano fijo cualquiera normal a la dirección de propagación en el sentido levógiro, es decir, en sentido contrario al de las agujas de un reloj.
SUP	3153/103	
SUP	3153/103	
SUP	3153/103	
MOD	3154/103A	Température de bruit équivalente d'une liaison par satellite : température de bruit rapportée à la sortie de l'antenne de réception de la station terrienne correspondant à la puissance de bruit radioélectrique qui produit le bruit total observé à la sortie de la liaison par satellite, compte non tenu du bruit dû aux brouillages causés par des liaisons par satellite utilisant d'autres satellites et par des systèmes de Terre.
MOD	3154/103A	Equivalent Satellite Link Noise Temperature : The noise temperature referred to the output of the receiving antenna of the Earth station corresponding to the radio-frequency noise power which produces the total observed noise at the output of the satellite link excluding noise due to interference coming from satellite links using other satellites and from terrestrial systems.
MOD	3154/103A	Temperatura de ruido equivalente de un enlace por satélite : Temperatura de ruido referida a la salida de la antena receptora de la estación terrena que corresponda a la potencia de ruido de radiofrecuencia que produce el ruido total observado en la salida del enlace por satélite, con exclusión del

observado en la salida del enlace por satélite, con exclusión del ruido debido a las interferencias provocadas por los enlaces por satélite que utilizan otros satélites y por los sistemas terrenales.

INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 473-E 2 November 1979 Original : English

PLENARY MEETING

SEVENTH REPORT OF COMMITTEE 4

Committee 4 has <u>adopted</u> the texts for Articles N3 and N16, Appendices 3, 5 and 17A, a revised text for combination of old Recommendation No. 4 and old Appendix A, and a new Recommendation to Administrations. The texts have been transmitted to the Editorial Committee for subsequent submission to the Plenary Meeting (See Document No. 474).

exceptions:

These texts were <u>adopted unanimously</u> with the following Article N16, No. 4996:reservation of Iraq Article N16, No. 5002A and title:reservation of United Kingdom. Appendix 5, Part B: majority decision on the inclusion of single sideband sound broadcasting emissions.

> N. MORISHIMA Chairman of Committee 4



WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

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COMMITTEE 9

SEVENTH SERIES OF TEXTS FROM COMMITTEE 4 TO THE EDITORIAL COMMITTEE

The text mentioned in Document No. 473 (Articles N3 and N16, Appendices 3, 5 and 17A, a revised text for combination of old Recommendation No. 4 and old Appendix A, and a new Recommendation to Administrations) is hereby submitted to the Editorial Committee.

Concerning Article N3, please note that the old text of provisions 3209 - 3216 is suppressed, but that the same numbers have been re-used for the amended text.

N. MORISHIMA Chairman of Committee 4

Annex : 1



Document No. 474-E Page 2

ANNEX

MOD		ARTICLE N3
NOC		Designation of Emissions
SUP	3209 to 3216	inclusive together with associated section headings.
ADD	3209	§ 1. (1) Emissions shall be designated according to their necessary bandwidth and their classification.
		(2) Examples of emissions designated in accordance with this Article are given in Appendix 5, Part $/$ B $/$. Further examples may appear in the latest Recommendations of the CCIR. These examples may also be published in the Preface to the International Frequency List.
ADD		Section I. Necessary Bandwidth
ADD	3210	§ 2. The necessary bandwidth, as defined in No. 3140 and determined in accordance with Appendix 5, Part $[B_7]$, shall be expressed by three numerals and one letter. The letter occupies the position of the decimal point and represents the unit of bandwidth. The first character shall be neither zero nor K, M or G.
		Necessary bandwidths1:
		between .001 and 999 Hz shall be expressed in Hz (letter H),
•		between 1.00 and 999 kHz shall be expressed in kHz (letter K),
		between 1.00 and 999 MHz shall be expressed in MHz (letter M),
	•	between 1.00 and 999 GHz shall be expressed in GHz (letter G),
ADD	3210.1	L Examples :
		0.002 Hz = H0026kHz = 6K00 $1.25 MHz = 1M25$ $0.1 Hz = H100$ $12.5 kHz = 12K5$ 2 $MHz = 2M00$ $25.3 Hz = 25H3$ $180.4 kHz = 180K$ $10 MHz = 10M0$ $400 Hz = 400H$ $180.5 kHz = 181K$ $202 MHz = 202M$

180.7 kHz = 181K

5.65 GHz = 5G65

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2.4 kHz = 2K40

Annex to Document No. 474-E Page 3

ADD Section II. Classification 3211 ADD § 3. The class of emission is a set of characteristics conforming to No. 3212. ADD 3212 ġ4. Emissions shall be classified and symbolized according to their basic characteristics as given in No. 3213 and any optional additional characteristics as provided for in Appendix 5, Part [A]. ADD 3213 § 5. The basic characteristics (see Nos. 3214, 3215, 3216) are: (1) First symbol - type of modulation of the main carrier; Second symbol - nature of signal(s) modulating the (2)main carrier;

(3) Third symbol - type of information to be transmitted.

Modulation used only for short periods and for incidental purposes (such as, in many cases, for identification or calling) may be ignored provided that the necessary bandwidth as indicated is not thereby increased. ADD 3214 § 6. (1) First symbol - Type of modulation of the main carrier (1.1)N Emission of an unmodulated carrier (1.2)Emission in which the main carrier is amplitude-modulated (including cases where sub-carriers are angle-modulated). (1.2.1) Double-sideband (1.2.2)Single-sideband, full carrier H (1.2.3)Single-sideband, reduced or variable level carrier R (1.2.4)Single-sideband, suppressed carrier (1.2.5)Independent sideband B (1.2.6)Vestigial sideband С (1.3) Emission in which the main carrier is angle-modulated. (4.3.1) Frequency modulation F (1.3.2)Phase modulation G Emission in which the main carrier is amplitude- and (1.4)angle-modulated either simultaneously or in a pre-established sequence D (1.5) Emission of pulses ¹ (1.5.1) P Unmodulated sequence of pulses (1.5.2) A sequence of pulses (1.5.2.1)modulated in amplitude ĸ (* .5.2.2) modulated in width/duration L (1.5.2.3) modulated in position/phase M in which the carrier is angle-modulated during the (1.5.2.4) ٥ period of the pulse (1.5.2.5) which is a combination of the foregoing or is produced v by other means

ADD 3214.1

Emissions, where the main carrier is directly modulated by a signal which has been coded into quantized form (e.g. pulse code modulation), should be designated under (1.2) or (1.3).

A

В

		(1.6)	Cases not covered above, in which an emission consists of the Dain carrier modulated, either simultaneously or in a pre-establis sequence, in a combination of two or Dore of the following modes: Amplitude, angle, pulse	shed ¥
	ň	(1.7)	Cases not otherwise covered	x
ADD 3215	(2.)	Second Dain Ca	symbol - Mature of signal(s) modulating the arrier	
		(2.1)	No modulating signal	0
		(2.2)	A single channel containing quantized or digital information without the use of a modulating sub-carrier $^{\rm 2}$	1
		(2.3)	A single channel containing quantized or digital information with the use of a modulating sub-carrier 2	2
		(2.4)	A single channel containing analogue information	3
		(2.5)	Two or more channels containing quantized or digital Information	7
		(2.6)	Two or more channels containing analogue information	8
		(2.7)	Composite system with one or more channels containing quantized or digital information, together with one or more channels containing analogue information	9
		(2.8)	Cases not otherwise covered	X

²This excludes time division multiplex. ADD 3215.1

(3.) ADD 3216 Third symbol – Type of information to be transmitted 3(3.1) No information transmitted N (3.2) Telegraphy - for aural reception (3.3) Telegraphy - for automatic reception

ADD 3216.1

 3 In this context the word "information" does not include information of a constant, unvarying nature such as provided by standard frequency emissions, continuous wave and pulse radars, etc.

(3.4)	Facsimile	c
(3.5)	Data transmission, telemetry, telecommand	D
(3.6)	Telephony (including sound broadcasting)	E
(3 .7)	Television (video)	F
(3 [.] .8)	Combination of the above	W
(3.9)	Cases not otherwise covered	x

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ARTICLE N16

Interference

(MOD)	4996/676 ,	§ 1. elimination of harmfu facilities described Article N20/15.	Administrations shall co-operate in the detection and al interference, employing where appropriate the in Article N18/13 and the procedures detailed in
NOC		Section	I. General Interference
MOD	4997/693	§ 2.	All stations are forbidden to carry out :
			- unnecessary transmissions;
			- the transmission of superfluous signals and correspondence;
			- the transmission of false or misleading signals;
			- the transmission of signals without identification (except as provided for in Article N23/19).
SUP	4997.1/693.1		
NOC	4998/694	§ 3. necessary to ensure a	All stations shall radiate only as much power as is a satisfactory service.
MOD	4999/695 Spa 2	§ 4.	In order to avoid interference :
			- locations of transmitting stations and, where the nature of the service permits, locations of receiving stations shall be selected with particular care;
			- radiation in and reception from unnecessary directions shall be minimized by taking the maximum practical advantage of the properties of directional antennae whenever the nature of the service permits;
			- the choice and use of transmitters and receivers shall be in accordance with the provisions of Article N4/12;
			- the conditions specified under No. 6105/470V shall be fulfilled.
ADD	4999 a	§ 4A interference on dis and safety identifi	Special consideration shall be given to avoiding stress and safety frequencies and those related to distress ed in Article N35.

MOD 5000/696 § 5. The class of emission to be employed by a station should be such as to achieve minimum interference and to assure efficient spectrum utilization. In general this requires that in selecting the class of emission to meet these objectives every effort shall be made to minimize the bandwidth occupied, taking into account the operational and technical considerations of the service to be performed.

ADD 5000A § 6. The out-of-band emissions of transmitting stations should not cause harmful interference to services which operate in adjacent bands, in accordance with these Regulations and which use receivers in conformity with Nos. 3244, 3249B, 3249C, 3249D, and relevant CCIR Recommendations.

NOC 5001/697 § 7. If, while complying with the provisions of Article N4/12, a station causes harmful interference through its spurious emissions, special measures shall be taken to eliminate such interference.

MOD

MOD

5002/698

Section II. Interference from Electrical Apparatus and Installations of any Kind

§ 8. Administrations shall take all practicable and necessary steps to ensure that the operation of electrical apparatus or installations of any kind, including power and telecommunication distribution networks, does not cause harmful interference to a radio service and, in particular to a / radionavigation or any other safety service_7, operating in accordance with the provisions of these Regulations.1)

MOD

ADD

Section III. Interference from / Industrial, Scientific and Medical Equipment 7

5002A § 9. Administrations shall take all necessary steps to ensure that, as far as practicable, radiation from / industrial, scientific and medical equipment / is minimal and that, outside the bands designated for use by this equipment, radiation from such equipment is at a level that does_not cause harmful interference to radio services and, in particular to a / radionavigation or any other safety service_7, operating in accordance with the provisions of these Regulations.²)

(MOD) Section IV. Special Cases of Interference

MOD 5003/699 § 10. Administrations authorizing the use of frequencies below 9 kHz shall ensure that no harmful interference is caused thereby to the services to which the bands above 9 kHz are allocated.

5002.1 1) In this matter, Administrations should be guided by the latest relevant CCIR Recommendations.

5002A.1 2) See 5002.1.

APPENDIX 3.

Mar Mar 2 Aer 2

MOD	Table of Transmitter Frequency Tolerances
	(See Article N4)
MOD	1. Frequency tolerance is defined in Article N1 and is expressed in parts in 10 ⁶ , unless otherwise indicated.
MOD	2. The power shown for the various categories of stations is the peak envelope power for single-sideband transmitters and the mean power for all other transmitters, unless otherwise indicated. The term "power of a radio transmitter" is defined in Article N1.
ADD .	3. For technical and operational reasons, certain categories of stations may need more stringent tolerances than those shown in the Table.

Frequency Bands (lower limit exclusive, upper limit inclusive) and Categories of Stations	Tolerances applicable until 1st January, 1990 to transmitters in use and to those to be installed before 2nd January, 1985	Tolerances applicable to new transmitters installed after 1st January, 1985 and to all transmitters after 1st January, 1990
Band: 9 to / 535 7 kHz		
1. Fixed Stations: 9 to 50 kHz	1 000	100
-50 to $/535_7$ kHz	200	50
2. Land Stations:		
a) Coast Stations:		100 a)
power 200 W or less	500 A)	
- power above 200 W	200 Å)	
b) Aeronautical Stations	100	100

Band : 9 to <u>/</u> 535<u>/</u> kHz (cont.)

3. Mobile Stations : 1 000 B) a) Ship Stations 1 000 B) b) Ship's Emergency Transmitters 5 000 c) Survival Craft Stations 5 000 d) Aircraft Stations 5 000 d) Aircraft Stations 500 d) Aircraft Stations 100 s. Broadcasting Stations 100 Band: [535] to [1 6057] kHz 10 Hz Broadcasting Stations 10 Hz d) Band: [1 6057] to 4 000 kHz 100 1. Fixed Stations : - - power 200 W or less 100 - power 200 W or less 100 - power 200 W or less 100 A) C) g) - power above 200 W 50 A) C) g)	200 b) 500 c) 500 100 100 100 10 Hz
a) Ship Stations 1000 B) b) Ship's Emergency Trans- mitters 5000 c) Survival Craft Stations 5000 d) Aircraft Stations 500 4. Radiodetermination Stations 100 5. Broadcasting Stations 10 Hz Band: [535] to [1 605] kHz Broadcasting Stations 10 Hz d) Band: [1 605] to 4 000 kHz 1. Fixed Stations: - power 200 W or less 100 - power above 200 W 50 2. Land Stations - power 200 W or less 100 A) C) g) - power above 200 W 50 A) C) g)	200 b) 500 c) 500 100 100 100 100 100
b) Ship's Emergency Trans- mitters 5000 c) Survival Craft Stations 5000 d) Aircraft Stations 500 4. Radiodetermination Stations 100 5. Broadcasting Stations 10 Hz Band: [535] to [1 6057] kHz Broadcasting Stations 10 Hz d) Band: [1 605] to 4 000 kHz 1. Fixed Stations : - power 200 W or less 100 - power above 200 W 50 2. Land Stations - power 200 W or less 100 A) C) g) - power above 200 W 50 A) C) g)	500 c) 500 100 100 10 Hz
mitters 5000 c) Survival Craft Stations 5000 d) Aircraft Stations 500 4. Radiodetermination Stations 100 5. Broadcasting Stations 10 Hz Band: [535] to [1 605] kHz 10 Hz d) Band: [1 605] to 4 000 kHz 10 Hz d) I. Fixed Stations 100 power 200 W or less 100 - power 200 W or less 100 - power 200 W or less 100 A) C) g) - power above 200 W 50 A) C) g)	500 67 500 100 100 10 Hz
c) Survival Crart Stations 3 000 d) Aircraft Stations 500 4. Radiodetermination Stations 100 5. Broadcasting Stations 10 Hz Band: [535] to [1 605] kHz 10 Hz d) Band: [1 605] to 4 000 kHz 10 Hz d) Band: [1 605] to 4 000 kHz 10 Hz d) 2. Land Stations 100 - power 200 W or less 100 - power above 200 W 50 2. Land Stations 100 A) C) g) - power above 200 W 50 A) C) g)	300 100 100 10 Hz
4. Radiodetermination Stations 100 5. Broadcasting Stations 10 Hz Band: [535] to [1 6057 kHz 10 Hz d) Band: [1 6057 to 4 000 kHz 10 Hz d) I. Fixed Stations : 100 - power 200 W or less 100 - power above 200 W 50 2. Land Stations 100 A) C) g) - power above 200 W 50 A) C) g)	100 100 10 Hz
4. Radiodetermination Stations 100 5. Broadcasting Stations 10 Hz Band: [533] to [1 6057 kHz 10 Hz d) Broadcasting Stations 10 Hz d) Band: [1 6057 to 4 000 kHz 10 Hz d) I. Fixed Stations: 100 kHz - power 200 W or less 100 solution - power above 200 W 50 2. Land Stations 100 A) C) g) - power above 200 W 50 A) C) g)	100 10 Hz
5. Broadcasting Stations 10 Hz Band: [539] to [1 6057 kHz 10 Hz d) Broadcasting Stations 10 Hz d) Band: [1 6057 to 4 000 kHz 10 Hz d) I. Fixed Stations: 100 kHz - power 200 W or less 100 solution - power above 200 W 50 2. Land Stations 100 A) C) g) - power above 200 W 50 A) C) g)	10 Hz
Band: [535] to [1 6057 kHz 10 Hz d) Broadcasting Stations 10 Hz d) Band: [1 605] to 4 000 kHz 1 1. Fixed Stations: 100 - power 200 W or less 100 - power above 200 W 50 2. Land Stations 100 A) C) g) - power above 200 W 50 A) C) g)	
Broadcasting Stations 10 Hz d) Band: [1 605] to 4 000 kHz 1. Fixed Stations : - power 200 W or less - power above 200 W 2. Land Stations - power 200 W or less - power 200 W or less 100 A) C) g) - power above 200 W	
Band: [1 605] to 4 000 kHz 1. Fixed Stations : - power 200 W or less - power above 200 W 2. Land Stations - power 200 W or less 100 A) C) g) - power above 200 W 50 A) C) g)	10 Hz d)
Band: [1 605] to 4 000 kHz 1. Fixed Stations : - power 200 W or less - power above 200 W 2. Land Stations - power 200 W or less 100 A) C) g) - power above 200 W 50 A) C) g)	······································
1. Fixed Stations : 100 - power 200 W or less 100 - power above 200 W 50 2. Land Stations 100 A) C) g) - power above 200 W 50 A) C) g)	
power 200 W or less 100 power above 200 W 50 2. Land Stations	
- power above 200 W 50 2. Land Stations - power 200 W or less 100 Å) C) g) - power above 200 W 50 Å) C) g)	100 e) f)
2. Land Stations - power 200 W or less 100 Å) C) g) - power above 200 W 50 Å) C) g)	50 e) f)
- power 200 W or less 100 Å) C) g) - power above 200 W 50 Å) C) g)	
- power above 200 W $50 \text{ A}(c) g$	100 a) e) n)
	50 a) e) g)
3. Mobile Stations	
a) Ship Stations 200 B) D)	40 Hz h)
b) Survival Craft Stations 300	100
c) Emergency Position-	100
Indicating Radiobeacons 300	100
(a) Aircraft Stations 100 g)	100 g)
•) Land Mobile Stations 200	50 i)
4. Radiodetermination Stations :	
power 200 W or less 100	20 j)
power above ZUU W 50	10 j)
5. Broadcasting Stations 20	10 Hz k)

Annex to Document No. 474-E Page 11

Band: 4 to 29.7 MHz		
 Fixed Stations: power 500 W or less power above 500 W a) Single sideband and independent sideband anissions 	50 15	
 power 500 W or less power above 500 W 		50 Hz 20 Hz
b) Class FIB emissions		10 Hz
c) Other classes of emission - power 500 W or less - power above 500 W		20 10
2. Land Stations:		
 a) Coast Stations: — power 500 W or less — power above 500 W and less than or equal 	50 A) C)	20 Hz a) 1)
to 5 kW — power above 5 kW	30 A) C) 15 A) C)	
b) Aeronautical Stations: power 500 W or less power above 500 W	100 g) 50 g)	100 g) 50 g)
c) Base Stations: —power 500 W or less —power above 500 W	100 50	20 •)
3. Mobile Stations:		
a) Ship Stations:		
1) Class AlA emissions	50 E) F)	10
2) Emissions other than Class AIA	50 B) D)	50 Hz b) m)
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
b) Survival Craft Stations	200 100 g)	50 100 a)
d) Land Mobile Stations	200	40 n)
4. Broadcasting Stations	15	10 Hz k) o)
5. Space Stations		20
6. Earth Stations		20

# Annex to Document No. 474-E

Page 12

Band : 29 7 to 100 MHz		
Fixed Stations :		
-power 200 W or less	50	
power above 200 W	30	
- power 50 W or less		30
- power above 50 W		20
2. Land Stations :		20
-power 15 W or less	50	
-power above 15 W	20	
3. Mobile Stations :		20 p)
-power 5 W or less	100	
-power above 5 W	30	
4. Radiodetermination Stations	200	50
5. Broadcasting Stations		
(other than television) :		2 000 Hz q)
-power 50 W or less	50	
-power above 50 W	20	*
6. Broadcasting Stations		
(television sound and vision):	100	SUU Hz r) s)
-power 50 W or less	1 000 Hz	
7. Space Stations		2C
		20
8. Larth Stations		20,
<i>E: nd :</i> 100 to 470 MHz		
1. Fixed Stations :	50	~
-power 50 W or less	50	20 t)
-power above 50 w	20	10
2. Land Stations: -		
a) Coast Stations	20 6)	10
b) Aeronautical Stations	50	20 u)
c) Base Stations :	50	
power 3 W or less	20	· · · ·
	20	
- in the band [ i] ]		15 v)
- in the band $(2)$		7 v)
• in the band ( 3)		5 v)

<u>Editorial notes</u>: 1) specific band around / 160 MHz 7 2) specific band around / 300 MHz 7 3) specific band around / 450 MHz 7

Annex to Document No. 474-E Page 13

Band : 100 to 470 MHz (cont.) 3. Mobile Stations: a) Ship Stations and Survival Craft Stations: .- in the band [156-174] 20 G) 10 MHz outside the band 50 H) w) 50 🔹 ) [156-174]MHz 30 u) 50 **b)** Aircraft Stations c) Land Mobile Stations: ---power 5 W or less 50 20 --- power above 5 W - in the band (1)15 v) 7 v) x) - in the band [2]5 v)x) - in the band [3]50 H)y) 50 y) Radiodetermination Stations 4. 5. Broadcasting Stations (other than television) 20 2 000 Hz q) 6. Broadcasting Stations 500 Hz r) s) (television sound and vision): 100 -power 100 W or less -power above 100 W 1 000 Hz 20 7. Space Stations 20 8. Earth Stations .3and : 470 to 2 450 MHz 1. Fixed Stations : 300 1) 100 -power 100 W or less 100 J) 50 -power above 100 W 300 20 z) 2. Land Stations 300 20 z) 3. Mobile Stations 500 y) 500 y) 4. Radiodetermination Stations 5. Broadcasting Stations -100 (other than television) 100 6. Broadcasting Stations (television, sound and vision) in the band 470 960 MHz 500 Hz r) s) -power 100 W or less 100 1 000 Hz -power above 100 W 7. Space Stations 20 20 8. Earth Stations Editorial notes :

<u>notes</u>: 1) specific band around / 160 MHz 7 2) specific band around / 300 MHz / 3) specific band around / 450 MHz /
Band : 2 450 to 10 500 MHz		
1. Fixed Stations :		
-power 100 W or less	300 1)	200
-power above 100 w	100 J)	50
2. Land Stations	300	100
3. Mobile Stations	300	100
4. Radiodetermination Stations	2 000 y)	1 250 y)
E 9 94-11		
De Space Stations		50
6. Earth Stations		50
		<i>и</i> .
Read - 10-5 to 40 GHz		
1 Fixed Stations	500	300
2. Radiodetermination Stations	<b>7 5</b> 00 y)	5 000 y)
3. Broadcasting Stations		100 🔿
4. Space Stations		100
5. Earth Stations		100
		100

NOD	Transmitter
MOD	Notes referring to Table of/Frequency Tolerances
SUP	Existing notes a) to r)
ADD (= NOC ex. 1)	A) For coast station transmitters used for direct printing telegraphy and for data transmission the tolerance is 15 Hz. This tolerance is applicable to equipment installed after 1 January 1976 and to all equipment after 1 January 1985. For equipment installed before 2 January 1976 the tolerance is 40 Hz.
ADD (= NOC ex. k)	B) For ship station transmitters used for direct printing telegraphy or for data transmissions, the tolerance is 40 Hz. This tolerance is applicable to equipment installed after 1 January 1976 and to all equipment after 1 January 1985. For equipment installed before 2 January 1976 the tolerance is 100 Hz (with a maximum deviation of 40 Hz for short periods of the order of 15 minutes).
ADD (= NOC ex. h)	C)For coast station single sideband radiotelephone transmitters the tolerance is 20 Hz.
ADD (= MOD ex. i)	<ul> <li>D) For ship station single sideband radiotelephone transmitters the tolerance is:         <ol> <li>in the band [ 603] 4000 kHz:</li> <li>100 Hz for transmitters in use or to be installed before January 1982;</li> <li>50 Hz for transmitters installed after 1 January 1982, but before</li> <li>1 January 1985;</li> <li>until 1 January 1990 or those</li> </ol> </li> </ul>
	<ul> <li>2) in the band 4 000 - 23 000 kHz:</li> <li>2) 100 Hz for transmitters in use to be installed before J January 1978;</li> <li>50 Hz for transmitters installed after 1 January 1978.</li> <li>(See also Appendix 17A).</li> </ul>

(= MOD ex. p)

ADD

In AIA Applieable from + June 1977. However, in (the Ar Morse working frequency bands a E) frequency tolerance of 200 parts in 10° may be applicable to existing transmitters after + June -1977; provided that the emissions are contained within the band in question.

### AlA

ADD (= MOD ex. q) F) In the Morse calling frequency bands frequency tolerances of 40 parts in 10^a in the bands between 4 and 23 MHz and of 30 parts in 10^a in the 25 MHz band are recommended as far as possible.

ADD (= (MOD) ex. n)

G) For coast and ship station transmitters in the band 156-174 MHz put into service after 1 January 1973 a tolerance of 10 parts in 10⁶ shall apply. This tolerance is applicable to all transmitters, including survival craft stations, after 1 January 1983.

ADD (= NOC ex. d) H) This tolerance is not applicable to survival craft stations operating on the frequency 243 MHz.

ADD  $(= NOC_{\times}ex. f)$ 

1 I) For transmitters using time division multiplex the tolerance of 300 may be increased to 500.

ADD (= NOC ex. g)

J) This tolerance applies only to such emissions for which the necessary bandwidth does not exceed 3 000 kHz; for larger bandwidth emissions a tolerance of 300 applies.

ADD (= SPM 1)

a) For coast station transmitters used for direct-printing telegraphy or for data transmission, the tolerance is 15 Hz.

ADD (= SPM k)

b) For ship station transmitters used for direct-printing telegraphy or for data transmission, the tolerance is 40 Hz.

ADD (= SPM one)

c) If the emergency transmitter is used as the reserve transmitter for the main transmitter, the tolerance for ship station transmitters applies.

### countries

ADD (= MOD ex. b)

d) In the colorance of 20 Hz may continue to be applied.

ADD

ADD

(= SPM 3)

e) For single sideband radiotelephone transmitters the tolerance

- in the band / 1 605 7 to 4 000 kHz and 4 29.7 MHz for peak envelope powers of 200 W or less and 500 W or less, respectively, is 50 Hz.
- in the band / 1 605 7 to 4 000 kHz and 4 to 29.7 MHz for peak envelope powers above 200 W and 500 W, respectively, is 20 Hz.

## f) For radiotelegraphy transmitters with frequency shift keying the tolerance is 10 Hz.

ADD (= (MOD) ex. r)	g)	For single-sideband transmitters operating in the frequency bands $\begin{bmatrix} 1 & 60 \\ 5 \end{bmatrix} 4 & 000 \\ kHz$ and 4-29-7 MHz which are allocated exclusively to the aeronautical mobile (R) service, the tolerance on the carrier (reference) frequency is: 1. for all aeronautical stations 10 Hz 2. for all aircraft stations operating on international services 20 Hz 3. for aircraft stations operating exclusively on national services 50 Hz [*] * Note In order to achieve maximum intelligibility it-is suggested that adminis- trations encourage the reduction of this tolerance to 20 Hz.
ADD (= (MOD) SPM 4)	h)	For AlA emissions the tolerance is 50 parts in $10^{\circ}$ .
ADD (= SPM 5)	i)	For transmitters used for single sideband radiotelephony or for frequency shift keying radiotelegraphy the tolerance is 40 Hz.
ADD (=(MOD)SPM 6)	j)	For radiobeacon transmitters in the band $/1605$ $_7$ - 1800 kHz the tolerance is 50 parts in 10 ⁶ .
ADD (= MOD SPM 17)	k)	A3E carrier For/ transmitters with an-output power of 10 kW or less the tolerance is 20 parts in $10^6$ and 15 parts in $10^6$ in the band / 1 605 / - 4 000 kHz and 4 - 29.7 MHz respectively.
ADD (= (MOD) SPM 20)	1)	For AlA emissions the tolerance is 10 parts in $10^{6}$ .

ADD (= (MOD) SPM 7) (= (MOD) SPM 7) For ship station transmitters in the band / * 7 kHz, on board small craft, with a carrier power not exceeding 5 watts operating in/near coastal waters and utilizing (or (emissions the frequency tolerance is 40 parts in 10⁶. A3E F3E

* Editorial note : specific band around 27 120 kHz to be inserted later.

ADD (n) The tolerance is 50 Hz for single sideband radiotelephone (= (MOD) SPM 8) The tolerance is 50 Hz for single sideband radiotelephone transmitters. except for those transmitters operating in the band [ * ]kHz, and not exceeding a peak envelope power of 15 watts, for which the basic tolerance of 40 parts in 10⁶ applies.

- * Editorial note : specific band around 27 120 kHz to be inserted later.
- ADD () It is suggested that Administrations avoid carrier frequency (= SPM 15) (ifferences of a few Hertz, which cause degradations similar to periodic fading. This can be avoided if the frequency tolerance were 0.1 Hz, a tolerance which would also be suitable for single sideband emissions.

ADD p) For non-vehicular mounted portable equipment with a transmitter mean (= (MOD) SPM 9) power not exceeding 5 watts the tolerance is 40 parts in 10⁶.

### a mean power of

ADD q) For transmitters of 50 watts or less operating at frequencies below (= (MOD) SPM 18) 108 MHz a tolerance of 3 000 Hz applies.

ADD r) In the case of television stations of : (= MOD SPM 16) - 50 watts/or less in the band 29.7 to 100 MHz (vision peak envelope power)/ - 100 watts/or less in the band 100 to 960 MHz

> and which receive their input from other television stations or which serve small isolated communities, it may not, for operational reasons, be possible to maintain this tolerance. For such stations, the tolerance is 2000 Hz.

### Annex to Document No. 474-E Page 19

(vision peak envelope power)

For stations of 1 watt/or less this tolerance may be relaxed further to :

- 5 kHz in the band 100 to 470 MHz

- 10 kHz in the band 470 to 960 MHz.

ADD (= (MOD) SPM 19) s) For transmitters for system M(NTSC) the tolerance is 1000 Hz. However, for low power transmitters using this system note r) applies.

ADD t) For multi-hop radio-relay systems employing direct frequency (= (MOD) SPM 10) conversion the tolerance is 30 parts in 10⁶.

ADD u) For a channel spacing of 50 kHz the tolerance is 50 parts (= (MOD) SPM 11) in  $10^6$ .

ADD v) These tolerances apply to channel spacings equal to or greater (= MOD SPM 12) than 20 kHz.

ADD W) For transmitters used by on board communication stations a tolerance of 5 parts in 10⁶ (= NOC ex. 0) shall apply.

to the service and the indicated tolerance does not apply

ADD x) For non-vehicular mounted portable equipment with a transmitter mean power not exceeding 5 watts the tolerance is 15 parts in  $10^6$ .

ADD (= NOC ex. e)

y)

ADD

z) In applying this tolerance Administrations should be guided by the latest relevant CCIR Recommendations.

Where specific frequencies are not assigned to radar stations, the bandwidth occupied by the emissions of such stations shall be maintained wholly within the band allocated

### Annex to Document No. 474-E Page 20

NEW APPENDIX B

### APPENDIX 5

SUP

### MOD

### Additional Characteristics for the Classification of Emissions; Determination of Necessary Bandwidths including Examples for their Calculation and Associated Examples for the Designation of Emissions

(see Article N3)

### PART A

## Additional characteristics for the classification of emissions

Article N3 of these Regulations describes the basic characteristics, with three symbols, for the classification of emissions. For a more complete description of an emission, two optional, additional characteristics should be added.

The optional additional characteristics (see also Recommendation No.  $/\overline{8}$   $\overline{/}$ ) are :

Fourth symbol - Details of signal(s);

Fifth symbol - Nature of multiplexing.

Where the fourth or the fifth symbol is not used this should be indicated by a dash where each symbol would otherwise appear.

1. Fourth symbol - details of signal(s)

- 1.1 Two-condition code with elements of differing numbers and/or durations
- 1.2 Two-condition code with elements of the same number and duration without error-correction

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Annex	to	Document	No.	474-E
Page 2	21			

Two-condition code with elements of the same number and 1.3 duration with error-correction С Four-condition code in which each condition represents a 1.4 signal element (of one or more bits) D 1.5 Multi-condition code in which each condition represents a signal element (of one or more bits) Е Multi-condition code in which each condition or combination 1.6 of conditions represents a character F Sound of broadcasting quality - monophonic 1.7 G Sound of broadcasting quality - stereophonic or 1.8 quadraphonic Η Sound of commercial quality (excluding categories given in 1.9 sub-paragraphs 1.10 and 1.11) J Sound of commercial quality with the use of frequency 1.10 inversion or band-splitting Κ Sound of commercial quality with separate frequency-modulated 1.11 signals to control the level of demodulated signal L 1.12 Monochrome М Colour 1.13 N 1.14 Combination of the above W Cases not otherwise covered 1.15 Х Fifth symbol - nature of multiplexing 2.1 None Ν Code-division multiplex*) 2.2 С 2.3 Frequency-division multiplex F Time-division multiplex 2.4 ሞ Combination of frequency-division multiplex and 2.5 time-division multiplex W 2.6 Other types of multiplexing Х

*) This includes bandwidth expansion techniques.

2.

### PART B

### Determination of necessary bandwidths including examples for their calculation and associated examples for the designation of emissions

For full designation of an emission, the necessary bandwidth, indicated in four characters, shall be added just before the classification symbols. When used, the necessary bandwidth shall be determined by one of the following methods :

- 1) use of the formulae included in the following table which also gives examples of necessary bandwidths and designation of corresponding emissions;
- 2) computation in accordance with CCIR Recommendations;  $\underline{/ 1} \underline{]} \overline{/}$
- 3) measurement, in cases not covered by 1) or 2) above.

However, the necessary bandwidth so determined is not the only characteristic of an emission to be considered in evaluating the interference that may be caused by that emission.

In the formulation of the table, the following terms have been employed :

- $B_n$  = Necessary bandwidth in hertz
- B = Modulation rate in bauds
- N = Maximum possible number of black plus white elements to be transmitted per second, in facsimile
- M = Maximum modulation frequency in hertz
- C = Sub-carrier frequency in hertz
- D = Peak deviation, i.e., half the difference between the maximum and minimum values of the instantaneous frequency

The instantaneous frequency in hertz is the time rate of change in phase in radians divided by  $2\pi$ 

- t = Pulse duration in seconds at half-amplitude
- tr = Fulse rise time in seconds between 10 % and 90 % amplitude
- K = An overall numerical factor which varies according to the emission and which depends upon the allowable signal distortion
- $N_c$  = Number of baseband channels in radio systems employing multichannel multiplexing
- fp = Continuity pilot subcarrier frequency (Hz) (continuous signal utilized to verify performance of frequency division multiplex systems).

^{/1)} See also Resolution No. / / "Examples of Necessary Bandwidths". /

Description	Necessary	Bandwidth	Designation
of emission	Formula	Sample calculation	of emission
	I. No	modulating signa	1
continuous wave emission	-	-	NON
	II. Amp	litude modulatio	n
_	l. Signal with qua	ntized or digita	l information
Continuous wave telegraphy, Morse code	B _n = BK K = 5 for fading circuits K = 3 for non- fading circuits	25 words per minute; B = 20, K = 5 Bandwidth : 100 Hz	loohalaan
Telegraphy by on-off keying of a tone modu- lated carrier, Morse code	B _n = BK + 2M K = 5 for fading circuits K = 3 for non- fading circuits	25 words per minute; B = 20, M = 1000 K = 5 Bandwidth : 2 100 Hz=2.1 kHz	2K10A2AAN

Description	Necessary	Bandwidth	Designation
of emission	Formula	Sample' calculation	of emission
Selective calling signal using sequential single frequency code, single sideband, full carrier	B _n = M	Maximum code frequency is : 2 110 Hz M = 2 110 Bandwidth : 2 110 Hz = 2.11 kHz	2K11H2BFN
Direct printing telegraphy using a frequency shifted modulating sub- carrier, with error- correction, single side- band, sup- pressed carrier (single cnannel)	$B_n = 2M + 2DK$ $M = B/2$	B = 50 bauds D = 35 Hz (70 Hz shift) K = 1.2 Bandwidth : 134 Hz	134HJSBCN
Telegraphy, multi-channel with voice frequency, error-correc- tion, some channels are time-division multiplexed, single side- band, reduced carrier	$B_{n} \stackrel{\text{'}}{=} \begin{array}{l} \text{highest} \\ \text{central} \\ \text{frequency} \\ + M + DK \\ M = \frac{B}{2} \end{array}$	15 channels; highest central frequency is : 2 805 Hz B = 100 bauds D = 42.5 Hz (85 Hz shift) K = 0.7 Bandwidth : 2 885 Hz = 2.885 kHz	2K89R7BCW
	2. Telephony	y (commercial qua	lity)
Telephony, double sideband (single channel)	$B_n = 2M$	M = 3 000 Bandwidth : 6 000 Hz = 6 kHz	бкооазеји
Telephony, single sideband, full carrier (single channel)	$B_n = M$	M = 3 000 Bandwidth : 3 000 Hz = 3 kHz	3KOOH3EJN

Description	Necessary	Bandwidth	Designation
of emission	Formula	Sample . calculation	of emission
Telephony, single sideband, suppressed carrier (single channel)	B _n = M - lowest modulation frequency	M = 3 000; lowest modul- ation frequency is 300 Hz Bandwidth : 2 700 Hz = 2.7 kHz	2KJ0J3EJN
Telephony with separate frequency modu- lated signal to control the level of de- modulated speech signal, single sideband, re- duced carrier, (Lincompex) (single channel)	$B_n = M$	Maximum control frequency is 2 990 Hz M = 2 990 Bandwidth : 2 990 Hz • 2.99 kHz	2K99R3ELN
Telephony with privacy, single sideband, sup- pressed carrier (two or more channels)	$B_n = N_CM -$ lowest modulation frequency in the lowest channel	$N_c = 2$ M = 3 000 lowest modulation frequency is 250 Hz Bandwidth : 5 750 Hz = 5.75 kHz	5K75J8EKF
Telephony, independent side- band (two or more channels)	B _n = sum of M for each side- band	two channels M = 3 000 Bandwidth : 6 000 Hz = 6 kHz	6koob8ejn

Description	Decessory	Bondvidth	Designation
of caission	Formula	Sample calculation	of emission
	3. Sou	nd broadcasting	
Sound broad- casting double sideband	$B_n = 2M$ M may vary between 4 000 and 10 000 depending on the quality desired	Speech and music, M = 4 000 Bandwidth : 8 000 Hz = 8 kHz	8kooa3egn
Sound broad- casting, single sideband, reduced carrier (single channel)	B _n = M M may vary between 4 000 and 10 000 depending on the quality desired	Speech and music, M = 4 000 Bandwidth : 4 000 Hz = 4 kHz	4KOOR3EGN
Sound broad- casting, single sideband, suppressed carrier	B _n = M - lowest modulation frequency	Speech and music, M = 4 500; lowest modulation frequency = 50 Hz; Bandwidth : 4 450 Hz = 4.45 kHz	4K45J3EGN

Description	Necessary	Bandwidth	Designation
of emission	Formula	Sample , calculation	of emission
	4.	Television	
Television, vision and sound	Refer to rele- vant CCIR docu- ments for the bandwidths of the commonly used television systems	Number of lines = 625; Nominal video bandwidth : 5 MHz Sound carrier relative to video carrier = 5.5 MHz; Total vision bandwidth : 6.25 MHz; FM sound band- width including guardbands : 750 kHz RF channel band- width : 7 MHz	6m25c3f <b></b> 750kf3egn
	5.	Facsimile	
Analogue facsimile by sub-carrier frequency modu- lation of a SSB emission with reduced carrier, monochrome	$B_n = C + \frac{N}{2} + DK$ K = 1.1 (typically)	<pre>N = 1 100 corresponding to an index of cooperation of 352 and a cylinder rotation speed of 60 rpm. Index of cooperation is product of drum diameter and number of lines per unit length C = 1 900, D = 400 Bandwidth : 2 890 Hz - 2 80 kHz</pre>	2K89R3CMN

Description	Necessary	Bandwidth	Designation
of emission	Formula	Sample , calculation	of emission
Analogue fac- simile; frequency modulation of an audio frequency sub- carrier which modulates the main carrier, single sideband 'suppressed carrier	$B_{n} = 2M + 2DK$ $M = \frac{N}{2}$ $K = 1.1$ (typically)	N = 1 100 D = 400 Bandwidth : 1 980 Hz = 1.98 kHz	1K98J3C
	6. Comp	osite emissions	
Double sideband, television relay	B _n = 2C + 2M + 2D	Video limited to 5 MHz, audio on 6.5 MHz frequency modulated sub- carrier, sub-carrier deviation = 50 kHz C = 6.5 MHz D = 50 kHz M = 15 kHz Bandwidth : 13.13 x 10 ⁶ Hz = 13.13 MHz	13M1A8W
Double sideband, radio-relay system, FDM	B _n = 2M	10 voice channels occupying base-band between 1 and 164 kHz; M = 164 000 Bandwidth : 328 000 Hz = 328 kHz	328ka8e <b></b>

Description	Necessary	Bandwidth	Designation
of emission	Formula	Sample , calculation	of emission
Double sideband emission of VOR with voice	B _n = 2C +2M+2DK K = 1 (typically)	The main carrier is modulated by : - a 30 Hz sub- carrier - a carrier resulting from a 9 960 Hz tone fre- quency modu- lated by a 30 Hz tone - a telephone channel - a 1 020 Hz keyed tone for continual Morse iden- tification Cmax = 9 960 M = 30 D = 480 Bandwidth : 20 940 Hz	20K9A9WWF
Independent sidebands; several tele- graph channels with error correction to- gether with several tele- phone channels with privacy; FDM	B = sum of M for each sideband	Normally com- posite systems are operated in accordance with standardized channel arrangements (e.g. CCIR- Rec. 348-2). 3 telephone channels and 15 telegraphy channels re- quire the bandwidth 12 000 Hz • 12 kHz	12KOB9WWF

Description	Description Necessary Bandwidth		Designation
of emission	Formula	Sample 、 calculation	of emission
	III-A Fr	equency modulation	on
1.	Signal with quanti	zed or digital in	nformation
Telegraphy without error- correction (single channe)	$B_n = 2M + 2DK$ M = B/2 K = 1.2, (typically) .)	B = 100  bauds D = 85  Hz (170 Hz shift) Bandwidth : 304 Hz	304HF1BBN
Telegraphy, narrowband direct printing with error- correction (single channel)	$B_n = 2M + 2DK$ M = B/2 K = 1.2 (typically)	B = 100 bauds D = $85 \text{ Hz}$ (170 Hz shift) Bandwidth : 304 Hz	304HF1BCN
Selective calling signal	$B_n = 2M + 2DK$ M = B/2 K = 1.2 (typically)	B = 100  bauds D = 85  Hz (170 Hz shift) Bandwidth : 304 Hz	304HF1BCN
Four-frequency Diplex tele- graphy	$B_n = 2M + 2DK$ B = Modulation rate in bauds of the faster channel. If the channels are synchronized M = B/2 (other- wise $M = 2B$ ) K = 1.1, (typically)	Spacing between adjacent fre- quencies = 400Hz; Sychronized channels B = 100 bauds M = 50 D = 600 $B_n = 1$ 420 Hz Bandwidth : 1420 Hz = 1.42 kHz	1K42F7BDX
2. Telephony (Commercial quality)			
Commercial telephony	$B_n = 2M + 2DK$ K = 1 (typically, but under certain conditions a higher value may be necessary)	For an average case of commercial telephony, D = 5 000 M = 3 000 Bandwidth : 16 000 Hz = 16 kHz	16kof3ejn

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Description	Necessary Bandwidth		Designation,
of emission	Formula	Sample calculation	of emission
3. Sound broadcasting			
Sound broadcasting	B = 2M + 2DK K = 1 (typically)	Monaural D = 75 000 M = 15 000 Bandwidth : 180 000 Hz = 180 kHz	180kf3egn
4. Facsimile			
Facsimile by direct frequency modulation of the carrier; black and white	$B_n = 2M + 2DK$ $M = \frac{N}{2}$ $K = 1.1$ (typically)	N = 1 100 elements/sec; D = 400 Hz Bandwidth : 1980 Hz = 1.98 kHz	1K98F1C
Analogue facsimile	$B_{n} = 2M + 2DK$ $M = \frac{N}{2}$ $K = 1.1$ (typically)	N = 1 100 elements/sec D = $400 \text{ Hz}$ Bandwidth : 1980 Hz = 1.98 kHz	1K98F3C

Description	Necessary Bandwidth		Désignation
of emission	Formula	Sample calculation	of emission
6. C	omposite emissions	(see Table III-B)	
Radio-relay system, FDM	$B_{n} = 2f_{p} + 2DK$ K = 1 (typically)	60 telephone channels occu- pying baseband between 60 and 300 kHz; rms per-channel deviation 200 kHz; continuity pilot at 331 kHz pro- duces 100 kHz rms deviation of main carrier D = 200 x 103 x 3.76 x 2.02 = 1.52 x 106 Hz; fp = 0.331 x 106 Hz; Bandwidth : 3.702 x 106 Hz = 3.702 MHz	3M7OF8F.TF

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Annex to Document No. 474-E Page 33

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Description	n Necessary Bandwidth		Designation
of emission	Formula	Sample calculation	of emission
emission Radio-relay system; FDM	B _n = 2M + 2DK K = 1 (typically)	calculation 960 telephone channels occu- pying baseband between 60 and 4 028 kHz; rms per-channel deviation 200 kHz; continuity pilot at 4 715 kHz pro- duces 140 kHz rms deviation of main carrier D = 200 x 10 ³ x 3.76 x 5.5 = 4.13 x 10 ⁶ Hz; M = 4.028 x 10 ⁶ Hz; (2M + 2DK) > 2fp Bandwidth : 16 32 x 10 ⁶ Hz;	emission
		= 16.32 MHz	16m3F8FJF

Description	Necessary Bandwidth		Designation
of emission	Formula	Sample calculation	of emission
Radio-relay system; FDM	$B_n = 2f_p$	600 telephone channels occu- pying baseband between 60 and 2 540 kHz; rms per-channel deviation	
		200 kHz; continuity pilot at 8 500 kHz pro- duces 140 kHz	
		rms deviation of main carrier $D = 200 \times 10^3$ $\times 3.76 \times$ 4.36	
		$= 3.28 \times 10^{6} \text{ Hz};$ M = 2.54 × 10 ⁶ Hz; K = 1; fp = 8.5 × 10 ⁶ Hz;	
• • •		(2M + 2DK) < 2fp Bandwidth : 17 x 10 ⁶ Hz = 17 MHz	17mof8ejf
Stereophonic sound broad- casting with nultiplexed subsidiary telephony sub-carrier	B _n = 2M + 2DK K = 1 (typically)	Pilot tone system; M = 75 000 Hz; D = 75 000 Hz; Bandwidth : 300 000 Hz - 300 kHz	300КF8ЕНF

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III-B MULTIPLYING FACTORS FOR USE IN COMPUTING D, PEAK FREQUENCY DEVIATION, IN FM FREQUENCY DIVISION MULTIPLEX (FM/FDM) MULTI-CHANNEL EMISSIONS

For FM/FDM systems the necessary bandwidth is :

 $B_n = 2M + 2DK$ .

The value of D or peak frequency deviation in this formula for  $B_n$  is calculated by multiplying the rms value of per-channel deviation by the appropriate "Multiplying factor" shown below.

In the case where a continuity pilot of frequency  $f_p$  exists above the maximum modulation frequency, M, the general formula becomes :

 $B_n = 2f_p + 2DK$ .

In the case where modulation index of the main carrier produced by the pilot is less than 0.25, and the rms frequency deviation of the main carrier by the pilot is less than or equal to 70 % of the rms value of per-channel deviation, the general formula becomes either

 $B_n = 2f_p \text{ or } B_n = 2M + 2DK$ 

whichever is greater.

· Number of telephone	Multiplying factor 1)		
channels, $N_c$	(peak factor) x antilog $\left(-\right)$	dB above modulation reference level 20	
3 < N _c < 12	4.47 x antilog	a value in dB specified by the equipment manufacturer or station licensee, subject to administration approval	
12 < N _c < 60	$3.76 \times \text{antilog} \left(-\right)$	2.6 + 2 log N _c	
	<u> </u>	20	
60 <b>≼</b> № _c < 240	3.76 x antilog (-	$\frac{-1 + 4 \log N_c}{20}$	
N _C ≥ 240	3.76 x antilog (-	-15 + 10 log Nc 20	

1) In the above chart, the multipliers 3.76 and 4.47 correspond to peak factors of 11.5 dB and 13.0 dB, respectively.

# Annex to Document No. 474-E Page 36

Description	Necessary Bandwidtn		Designation	
of emission	Formula	Sample' calculation	of emission	
	IV]	Pulse modulation		
	l. Radar			
Unmodulated pulse emission	$B_n = \frac{2K}{t}$ K depends upon the ratio of pulse duration to pulse rise time. Its value usually falls between 1 and 10 and in many cases it does not need to exceed 6	Primary Radar Range resol- ution 150 m. K = 1.5 (tri- angular pulse where t=tr, only components down to 27 dB from the strongest are considered) Then t = 2(range res- olution) velocity of light $\frac{2 \times 150}{3 \times 10^3}$ = 1 x 10 ⁻⁶ seconds Bandwidth : 3, x 10 ⁶ Hz = 3 MHz	3MOO PON AN	
	2. Co	mposite emissions		
Radio-relay system	$B_n = \frac{2K}{t}$ K = 1.6	Pulse- position mod- ulated by 36- voice channel baseband; pulse width at half amplitude = 0.4 µs Bandwidth : 8 x 10 ⁶ Hz=8 MHz (Bandwidth independent of the number of voice channels)	ООМ7ЕЈТ	

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Annex to Document No. 474-E Page 37

### MOD APPENDIX 17A Mar Mar2 (MOD) Technical Characteristics of Single Sideband Transmitters used in the Maritime Mobile Service for Radiotelephony in the Bands between $/\mbox{1}$ 605_7 and 4 000 kHz and between 4 000 and $/\mbox{23}$ 000 7 kHz NOC 1. NOC 2. NOC 3. MOD 4. The carrier frequencies shall be maintained within the following tolerances : a) coast stations : + 20 Hz b) ship stations : Bands between $/1605_7$ and 4 000 kHz : - tolerance applicable to transmitters in use or to be installed before 2 January 1982 : + 100 Hz; the short-term limits (of the order of 15 minutes) shall be + 40 Hz; - tolerance applicable to transmitters installed after 1 January 1982 but before 2 January 1985 : + 50 Hz; - tolerance applicable to transmitters installed after 1 January 1985 and to all transmitters after 1 January 1990 : ± 40 Hz; Bands between 4 000 and $\underline{/}$ 23 000 $\overline{/}$ kHz : - tolerance applicable to transmitters in use or to-be installed before 2 January 1978 : + 100 Hz; the short-term limits (of the order of 15 minutes) shall be + 40 Hz; - tolerance applicable to transmitters installed after 1 January 1978 and to all transmitters after 1 January 1990 : + 50 Hz. NOC 5. 6. NOC

### APPENDIX A

Studies and Prediction of Radio Propagation and Radio Noise

RECOMMENDATION No. 4

to Administrations and the C.C.I.R. Relating to Studies and Prediction of Radio Propagation and Radio Noise

The World Administrative Radio Conference, Geneva, 1979,

### considering

- a) that the efficient utilization of radio frequencies depends upon the use of the most reliable technical data and standards, especially in those parts of the radio frequency spectrum which are most congested;
- b) that the satisfaction of new frequency requirements and the development of radio services can be facilitated by improvements, where these are necessary, in the technical standards at present used by the I.F.R.B.;
- c) that former Appendix A of these Regulations (Geneva, 1968), entitled, "Studies and Prediction of Radio Propagation and Radio Noise" recognized the importance of radio propagation and radio noise data as vital for the maximum utilization of radio frequencies and efficient planning of radiocommunication services;
- d) that a principal objective of the Appendix had been the establishment and operation of worldwide systems of observation stations to obtain data on radio noise and on ionospheric, tropospheric and other phenomena affecting radio propagation;
- e) that Administrations provide, by the best means possible, for the study, coordination and rapid dissemination of such data and of their predictions; and endeavour as well to promote further studies on radio propagation and radio noise through the medium of the C.C.I.R.;
- f) that the C.C.I.R. has adopted programmes of studies covering many of these problems;

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MOD

### requests the CCIR

1. to encourage and assist in initiating the study of radio propagation and radio noise in those areas where an adequate system of observation stations has not yet been established;

2. to continue the studies of radio propagation and radio noise and to take measures for the co-ordination of the results of these studies carried out in different countries;

3. to give particular attention to those studies which will assist in the further refinement of the technical standards used by the I.F.R.B.;

4. to report regularly on these matters, even if the studies have not been completed;

5. to continue regular consultation with other organizations undertaking studies of propagation such as the International Scientific Radio Union, in order to attain the maximum possible degree of co-ordination;

### and recommends to Administrations

1. to initiate the study of radio propagation and radio noise in those areas where an adequate system of observation stations has not yet been established;

2. to continue to establish and to operate a worldwide system of observation stations to obtain data on radio noise and on ionospheric, tropospheric and other phenomena affecting radio propagation;

3. to continue to provide, by the best means possible, for the study, coordination and rapid dissemination of such data and of their predictions;

4. that, in formulating and carrying out their propagation work, they take note of the relevant CCIR Recommendations, Reports, Questions and Study Programmes, particularly regarding the conclusions so far reached, the planning of future studies and the recommended forms of presentation contained in these documents.

### RECOMMENDATION No.

Relating to the improvement of protection against harmful interference of distress and safety frequencies and those related to distress and safety

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The World Administrative Radio Conference, Geneva, 1979

### considering

a) the importance of minimizing the danger of harmful interference on frequencies involving the safety of life;

b) unanimous agreement by this Conference in its consideration of Article N16 concerning Interference, that improved protection against harmful interference should be given to distress and safety frequencies and those related to distress and safety;

c) that such improved protection could be achieved, inter alia, by including provisions into the Radio Regulations ensuring that all tests on these frequencies should be accomplished on artificial antennae or with reduced power, wherever practicable;

d) that these provisions pertain to Article N35 concerning Frequencies for Distress and Safety;

### noting, however,

that this Conference is not competent to revise Article N35;

### invites

Administrations to study this matter and to submit proposals for consideration by the next competent World Administrative Radio Conference. INTERNATIONAL TELECOMMUNICATION UNION

## WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 475-E 5 November 1979 Original : English

### COMMITTEE 4

### SECOND REPORT OF WORKING GROUP 4B TO COMMITTEE 4

<u>Subject</u>: Draft Resolution relating to the propagation information used in the determination of coordination area.

The attached draft Resolution was agreed unanimously in Working Group 4B and is hereby submitted for the approval of Committee 4.

E.R. CRAIG Chairman of Working Group 4B

Annex : 1



### ANNEX

#### DRAFT RESOLUTION

### Relating to the Propagation Information used in the Determination of Coordination Area

The World Administrative Radio Conference (Geneva, 1979),

### considering

a) that Appendix 28 of these Regulations provides a method for the determination of coordination area which incorporates certain material concerned with radiowave propagation;

b) that the propagation information contained in Appendix 28 is based directly or indirectly on propagation data given in the texts of the CCIR;

c) that CCIR studies of radiowave propagation are continuing, and therefore the conclusions of these studies are subject to change and may in future show the need to revise those sections of Appendix 28 which incorporate the propagation information;

### recognizing that

a) a period of several years is generally required to accumulate sufficient data to form reliable conclusions concerning radiowave propagation;

b) for administrative reasons it is desirable that the propagation information used for the determination of coordination area should not be revised very frequently and, in any case, should be revised only if the effect of such revision on the size of the coordination area is significant;

c) in Appendix 28 the coordination area is determined without the need for detailed knowledge of the propagation characteristics of individual paths, and it is desirable that this approach be maintained;

<u>invites</u> the CCIR to continue to study propagation data concerned with the determination of coordination area, and to maintain the relevant CCIR texts in a format which would permit direct insertion into Appendix 28 in place of the existing sections 3, 4, 6 or Annex II;

### resolves that

NIHONTS. J.L.P

1. each Plenary Assembly of the CCIR should come to a conclusion as to whether, according to the propagation information given in the most recent CCIR Recommendations, any revision of sections 3, 4, 6 or Annex II of Appendix 28 of these Regulations is warranted;

2. when a Plenary Assembly of the CCIR has come to a conclusion that a revision of sections 3, 4, 6 or Annex II of Appendix 28 is warranted, the Director of the CCIR shall so inform the Secretary-General of the ITU and transmit to him the proposed amendments to Appendix 28;

### requests that

1. the Administrative Council then place, as an extraordinary item, on the agenda of the next world administrative radio conference, the consideration of the conclusion of the CCIR;

2. if the said world administrative radio conference decides that Appendix 28 is to be revised, the Secretary-General incorporate the amendments agreed at said conference in a document which contains the new text of sections 3, 4, 6 or Annex II of Appendix 28 in a form suitable for direct substitution in the version of Appendix 28 then in force, and send this document to all Administrations and to the IFRB;

and <u>decides that</u> from a date established by said radio conference, the revised text shall form the basis of all subsequent determinations of coordination area using Appendix 28.

### INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 476-E 7 November 1979 Original : English

COMMITTEE 4

### THIRD REPORT OF WORKING GROUP 4B TO COMMITTEE 4

Subject : Proposed draft revision of Appendix 28

The attached draft (in Annex 1) of the proposed revision of Appendix 28 was agreed unanimously in Working Group 4B and is hereby submitted for approval in Committee 4.

In Annex 1 (pages 2, 3, 6 and 28) are paragraphs in the text which are marked by a vertical line in the left hand margin.

The purpose of this with respect to the paragraphs on pages 2, 3 and 6 is to draw the particular attention of Committee 6 to these paragraphs which allow for Administrations to depart from the procedure given in this Appendix. Committee 6 may therefore desire to cover this point in its revision of Article Nll.

Similarly, on page 28 the vertical line is to draw the attention of Committee 6 to the draft Resolution (Document No. ...) which is proposed to provide for a mechanism by which an updating of the propagation-related elements of this Appendix is to be implemented.

A proposed note from the Chairman of Committee 4 to the Chairman of Committee 6 is attached in Annex 2 to cover these side-lined paragraphs.

Some revision of Tables I and II (pages 29 and 30 respectively) may be necessary because of decisions taken in Committee 5. For this reason, these two tables have been enclosed in square brackets.

Annexes : 2



### ANNEX 1

### PROPOSED DRAFT OF APPENDIX 28

### APPENDIX 28

Method for the Determination of the Coordination Area around an Earth Station in Frequency Bands between 1 and 40 GHz shared between Space and Terrestrial Radiocommunication Services

### Objectives

l.

The coordination area  $\underline{/}$  see No. 103D $\underline{/}$  is determined by calculating, in all directions of azimuth from the earth station, the coordination distances  $\underline{/}$  see No. 103B_, and drawing to scale on an appropriate map the coordination contour  $\underline{/}$  see No. 103C $\underline{/}$ .

It must be emphasized that the presence or installation of a terrestrial station within the coordination area of an earth station would not necessarily preclude the successful operation of either the earth station or that terrestrial station, since the procedure is based on the most unfavourable case assumptions as regards interference.

For the determination of the coordination area two cases may have to be considered :

- 1) for the earth station when it is transmitting (and hence capable of interfering with terrestrial stations).
- 2) for the earth station when it is receiving (and hence capable of being interfered with by terrestrial stations);

Where an earth station is intended to transmit a variety of classes of emissions, the earth station parameters to be used in the determination of the coordination contour shall be those which lead to the greatest coordination distances, for each earth station antenna beam and in each allocated frequency band which the earth station proposes to share with the terrestrial services.

Where an earth station is intended to receive a variety of classes of emissions, the earth station parameters to be used in the determination of the coordination contour shall be those which lead to the greatest coordination distances, for each earth station antenna beam and in each allocated frequency band which the earth station proposes to share with the terrestrial services, / except in cases where the Administration responsible for the earth station determines that a smaller coordination contour would adequately protect all the transmissions intended to be received by the earth station. When the determination of such a smaller coordination contour is based on a departure from the procedure of this Appendix, the notifying Administration shall indicate, in detail, the nature of such departure. If subsequently an Administration decides to protect its receiving earth station through notification of a coordination contour under a departure from the method of this Appendix, which is greater than the one it had notified, it must recoordinate the earth station, and any resulting greater protection shall not predate the most recent notification.

This Appendix provides methods which are suitable for either graphical or computer determination of the coordination area.

It is suggested to draw, together with the coordination contour, auxiliary contours based on less unfavourable assumptions than those chosen for the determination of the coordination contour. These auxiliary contours may be used during subsequent negotiations between the Administrations concerned with a view to eliminating from the discussions without the need for more precise calculations, the case of certain existing or planned stations located within the coordination area. The determination and use of these auxiliary contours is explained in Annex III to this Appendix.

### 2. <u>General considerations</u>

### 2.1 Concept of minimum permissible transmission loss

The determination of coordination distance as the distance from an earth station beyond which interference from or into a terrestrial station may be considered to be negligible is based on the premise that the attenuation of an unwanted signal is a monotonically increasing function of distance.

The amount of attenuation required between an interfering transmitter and an interfered-with receiver is given by the minimum permissible transmission loss (in dB) for p % of the time, a value which must be exceeded by the predicted transmission loss for all but p % of the time.

$$L(p) = P_{t} - P_{r}(p)$$
(1)

where :

- P_t^{*)}: maximum available transmitting power level (in dBW) in the reference bandwidth at the input to the antenna of an interfering station;
- Pr(p) : permissible level of an interfering emission (in dBW) in the reference bandwidth, to be exceeded for no more than p percent of the time at the output of the receiving antenna of an interfered-with station, where the interfering emission originates from a single source.

 $P_t$ , and  $P_r(p)$  are defined for the same radio frequency bandwidth (reference bandwidth) and L(p) and  $P_r(p)$  for the same percentage of the time, dictated by the performance criteria of the interfered-with system.

*) Primes refer to the parameters associated with the interfering station.

Annex 1 to Document No. 476-E

Page 4

For the small percentages of the time which are of interest here, it is necessary to distinguish between two significantly different attenuation mechanisms :

- attenuation of signals subject to tropospheric propagation via near-great circle paths; mode (1) see § 3.
- attenuation of signals subject to scatter due to hydrometeors; mode (2) see § 4.

### 2.2 Concept of minimum permissible basic transmission loss

In the case of propagation mode (1) the transmission loss is defined in terms of separable parameters, viz. : a basic transmission loss, (i.e. attenuation between isotropic antennae) and the effective antenna gains at either end of an interference path. The minimum permissible basic transmission loss may then be expressed as :

$$L_{b}(p) = P_{t}, + G_{t}, + G_{r} - P_{r}(p)$$
 (2)

where :

- L_b(p) : minimum permissible basic transmission loss (in dB) for p % of the time; this value must be exceeded by the predicted basic transmission loss for all but p % of the time.
- G_t: : gain (in dB relative to isotropic) of the transmitting antenna of the interfering station. If the interfering station is an earth station, this is the antenna gain towards the physical horizon on the azimuth considered; in the case of a terrestrial station, the maximum antenna gain is to be used;
- G_r : gain (in dB relative to isotropic) of the receiving antenna of the interfered-with station. If the interfered-with station is an earth station, this is the gain towards the physical horizon on the azimuth considered; in the case of a terrestrial station, the maximum antenna gain is to be used.

Annex 1 provides numerical and graphical methods to determine the angle between the earth station antenna main beam and the physical horizon, and of the horizon antenna gain, as functions of azimuth angle.

When considering non-geostationary satellites,  $G_t$ , or  $G_r$  (whichever pertains to the earth-station antenna) is variable with time. In such cases, an equivalent time-invariant earth-station antenna gain is to be used.*) This equivalent gain is either 10 dB less than the maximum horizon antenna gain or is that value of horizon antenna gain exceeded for no more than 10 % of the time (if available), whichever is the greater.

^{*)} This equivalent antenna gain is not to be used when the earth-station antenna points in the same direction for appreciable periods of time (e.g. when working to space probes or to satellites which are almost geostationary).

### 2.3 Derivation and tabulation of interference parameters

### 2.3.1 Permissible level of the interfering emission

The permissible level of the interfering emission (in dBW) in the reference bandwidth, to be exceeded for no more than p percent of the time at the output of the receiving antenna of a station subject to interference, from each source of interference, is given by the general formula below :

$$P_{r}(p) = 10 \log (kT_{e}B) + J + M(p) - W$$
 (3)

where :

 $M(p) \equiv M(p_0/n) = M_0(p_0)$  (4)

with :

J

- k : Boltzmann's constant,  $1.38 \times 10^{-23} \text{ J/K}$ ;
- Te : thermal noise temperature of the receiving system (K), at the output of the receiving antenna (see Note 1);
- B : reference bandwidth (in Hz) (bandwidth, of the interfered-with system, over which the power of the interfering emission can be averaged);
  - : ratio (in dB) of the permissible long term (20 % of the time) interfering emission power to the thermal noise power of the receiving system, referred to the output terminals of the receiving antenna (see Note 2);
- po : percentage of the time during which the interference from all sources may exceed the permissible value;
- n : number of expected entries of interference, assumed to be uncorrelated;
- p : percentage of the time during which the interference from one source may exceed the permissible value; since the entries of interference are not likely to occur simultaneously : p = p₀/n;
- M₆(p₀) : ratio (in dB) between the permissible power of the interfering emission, during p₀ % and 20 % of the time, respectively, for all entries of interference (see Note 3);

M(p) : ratio (in dB) between the permissible power of the interfering emission during p % of the time for one entry of interference, and during 20 % of the time for all entries of interference; : equivalence factor (in dB) relating inteference from interfering emissions to that caused by the introduction of additional thermal noise of equal power in the reference bandwidth. It is positive when the interfering emissions would cause more degradation than thermal noise (see Note 4).

Tables I and II list values for the above parameters.

In certain cases, an Administration may have reason to believe that, for its specific earth station, a departure from the values associated with the earth station, as listed in Table II, may be justified. Attention is drawn to the fact that for specific systems the bandwidths B or, as for instance in the case of demand assignment systems, the percentages of the time p and  $p_0$  may have to be changed from the values given in Table II. For further information see paragraph 2.3.2.

<u>Note 1</u> : The noise temperature, in degrees Kelvin, of the receiving system, referred to the output terminals of the receiving antenna, may be determined from :

 $T_e = T_a + (e - 1) 290 + eT_r$ 

(5a)

where

- $T_{a}$  = noise temperature, in K, contributed by the receiving antenna;
- e = numerical loss in the transmission line (e.g. a waveguide) between antenna and receiver front end;
- $T_r$  = noise temperature, in K, of the receiver front end, including all successive stages, referred to the front end input.

For radio-relay receivers and where the wave-guide loss of a receiving Earth station is not known, a value of e = 1.0 is to be used.

<u>Note 2</u> : The factor J (in dB) is defined as the ratio of total permissible long term (20 % of the time) power of interfering emissions in the system, to the long term thermal radio frequency noise power in a single receiver. In the computation of this factor, the interfering emission is considered to have a flat power spectral density, its actual spectrum shape being taken into account by the factor W (see below). For example, in a 50-hop terrestrial hypothetical reference circuit, the total allowable additive interference power is 1000 pW0p (Recommendation 357-3) and the mean thermal noise power in a single hop may be assumed to be 25 pW0p. Therefore, since in a FDM/FM system the ratio of a flat interfering noise power to the thermal noise power in the same reference band is the same before and after demodulation, J is given by the ratio 1000/25 expressed in dB, i.e. J = 16 dB. In a fixed-service satellite system, the total allowable interference power is also 1000 pW0p (Recommendation 356-4), but the thermal noise contribution of the down path is not likely to exceed 7000 pW0p, hence  $J \ge -8.5$  dB.

W
In digital systems interference is measured and prescribed in terms of the bit error rate or its permissible increase. While the bit error rate increase is additive in a reference circuit comprising tandem links, the radio frequency power of interfering emissions giving rise to such bit error rate increase is not additive, because bit error rate is not a linear function of the level of the radio frequency power of interfering emissions. Thus, it may be necessary to protect each receiver individually. For digital radio-relay systems operating above 10 GHz, and for all digital satellite systems, the long term interference power may be of the same order of magnitude as the long term thermal noise, hence J = 0 dB. For digital radio-relay systems operating below 10 GHz, long term interference power should not decrease the receiver fade margin by more than 1 dB. Thus the long term interference power and hence J = -6 dB.

Note 3 :  $M_0(p_0)$  (in dB) is the "interference margin" between the short term ( $p_0$  %) and the long term (20 %) allowable powers of an interfering emission.

For analogue radio-relay and fixed-satellite systems in bands between 1 and 15 GHz, this is equal to the ratio (in dB) between 50000 and 1000 pWOp (17 dB).

In the case of digital systems, system performance at frequencies above 10 GHz can in most areas of the world usefully be defined as the percentage of the time  $p_0$  for which the wanted signal is allowed to drop below its operating threshold, defined by a given bit error rate. During non-faded operation of the system, the desired signal will exceed its threshold level by some margin  $M_s$  which depends on the rain climate in which the station operates. The greater this margin, the greater can be the enhancement of the interfering emission which would degrade the system to threshold performance. As a first order estimate it may be assumed that, for small percentages of the time (of the order of 0.001 % to 0.003 %), the level of interfering emissions may be allowed to equal the thermal noise which exists at the demodulator input during faded conditions. Thus,  $M_0$  in Tables I and II of § 2 may, for digital systems operating above 10 GHz, be assumed to be equal to the fading margin  $M_s$  of the system. For digital radio-relay systems operating below 10 GHz it is assumed that the short term power of an interfering emission can be allowed to exceed the long term power of the interfering emission by an amount equal to the fade margin of the system minus J, i.e. 41 dB, where J = -6 dB.

<u>Note 4</u>: The factor W (in dB) is the ratio of radio frequency thermal noise power to the power of an interfering emission in the reference bandwidth when both produce the same interference after demodulation (e.g. in a FDM/FM system it would be expressed for equal voice channel performance : in a digital system it would be expressed for equal bit error probabilities). For FM signals, it is defined as follows :

	-			
	Interference power in the receiving system after demodulation		Thermal noise power at the output of the receiving antenna in the reference bandwidth	
W = 10 log <		Х		<b>(</b> 5b)
	Thermal noise power in the receiving system after demodulation		Power of the interfering emission at the radio frequency in the reference bandwidth, at the output of the receiving antenna	

The factor W depends on the characteristics of the wanted and the interfering signals. To avoid the need for considering a wide range of characteristics, upper limit values were determined for the factor W. When the wanted signal uses FM modulation with r.m.s. modulation indices which are greater than unity, W is not higher than 4 dB. In such cases, a conservative figure of 4 dB will be used for the factor W in (3), regardless of the characteristics of the interfering signal. For low-index FDM/FM systems a very small reference bandwidth (4 kHz) implies values of W not greater than 0 dB. In such cases, a conservative figure of 0 dB will be used for W in (3) regardless of the characteristics of the interfering signal.

When the wanted signal is digital, W is usually equal to or less than 0 dB, regardless of the characteristics of the interfering signal.

### 2.3.2 <u>Coordination parameters for very narrow band transmissions (receiving</u> Earth station)

### 2.3.2.1 General

Annex 1 to Document No. 476-E

Page 8

In the case of an Earth station which receives both broadband and very narrow band transmissions (e.g. SCPC transmissions) it may be desirable to draw two separate coordination contours; one for the narrow band transmissions and one for broadband transmissions, giving the specific sections of frequency bands used for very narrow band transmissions.

### 2.3.2.2 Pre-assigned narrow band transmissions

For such transmissions, it is appropriate to change the value of the reference bandwidth to the value of the bandwidth occupied by one such narrow band transmission.

### 2.3.2.3 Demand-assigned narrow band transmissions

For such transmissions, in addition, it may be appropriate to take into account the reduced probability that a particular frequency channel will be suffering interference at the time when it is actually selected for use at an Earth station. Administrations shall furnish all relevant technical data used in the determination of the coordination contour(s) for such transmissions.

### 3. Determination of co-ordination distance for propagation mode (1) - Great circle propagation mechanisms

#### 3.1 Radio-climatic zones

In the calculation of co-ordination distance for propagation mode (1), the world is divided into three basic radio-climatic regions termed Zones A, B and C. These Zones are defined as follows:

Zone A: Entirely land.

- Zone B: Seas, oceans and substantial bodies of inland water (as a criterion of a substantial body of water, one which can encompass a circle of diameter 100 km) at latitudes greater than 23.5° N or S, but excepting the Black Sea and the Mediterranean.
- Zone C: Seas, oceans and substantial bodies of inland water (as a criterion of a substantial body of water, one which can encompass a circle of diameter 100 km) at latitudes less than 23.5° N or S, and the Black Sea and the Mediterranean.

### 3.2 <u>Calculation of co-ordination distance for paths within a single radio-climatic zone</u>

### 3.2.1 General

Equation (2) provides the value of minimum permissible basic transmission loss  $L_b(p)$  for p percent of the time. From this minimum permissible basic transmission loss, the co-ordination distance in each radio-climatic zone is derived using either of two alternative methods. The first method described in § 3.2.2, is a numerical method comprising several mathematical equations, and is intended principally for use with the aid of a computer. The second method is a graphical method and is described in § 3.2.3.

Where the distance derived in §§ 3.2.2 or 3.2.3 lies entirely within the boundary of the radioclimatic zone appropriate to the earth station, that distance is taken as the actual co-ordination distance for propagation mode (1). If the distance extends beyond the boundary of one radio-climatic zone, the overall co-ordination distance is obtained using the method given in § 3.3.

#### 3.2.2 Numerical method

The minimum permissible basic transmission loss is related to co-ordination distance by the following expression:

$$L_{b}(p) = A_{0} + \beta d_{1} + A_{b}$$
 (6)

(7a)

in which:

 $A_0 = 120 + 20 \log f$  (dB)

 $\beta$ : rate of attenuation (dB/km)

 $d_1$ : co-ordination distance for propagation mode (1), (km)

 $A_b$ : horizon angle correction (dB)

f: frequency (GHz)

A, is given by :

 $A_{h} = 20 \log (1 + 4.5 f^{\frac{1}{2}}\varepsilon) + f^{\frac{1}{3}}\varepsilon$  for  $\varepsilon > 00*$ 

in which  $\varepsilon$  = horizon angle * (degrees)

Annex 1 to Document No. 476-E

Page 10

From equation (6) the co-ordination distance  $d_1$  may be found as follows:

$$d_{1} = (L_{b}(p) - A_{0} - A_{b})/\beta$$
(8)

The value of  $\beta$  depends on the radio-climatic zone and the percentage of time p, and is the sum of three components:

$$\boldsymbol{\beta} = \boldsymbol{\beta}_z + \boldsymbol{\beta}_v + \boldsymbol{\beta}_o \tag{9}$$

(7b)

(7c)

(10)

in which

 $\beta_r$ : rate of attenuation (dB/km) due to all effects except atmospheric gases.

 $\beta_{v}$ : rate of attenuation (dB/km) due to atmospheric water vapour.

 $\beta_o$ : rate of attenuation (dB/km) due to oxygen.

 $\beta_z$  depends on the radio-climatic zone, frequency and the percentage of time as follows: for Zone A,

$$\beta_{zA} = 0.154 (1 + 3.05 \log f)^{0.4} (0.9028 + 0.0486 \log p)^2$$

for Zones B and C,

$$\beta_{zB} = \beta_{zC} = (0.272 + 0.047 \log p)^2 \tag{11}$$

 $\beta_y$  depends on the frequency and the density of water vapour in the air as follows ( $\beta_y$  may be neglected when f < 15 GHz):

$$\beta_{\nu} = 3.5 \times 10^{-4} \rho \left[ \frac{1}{\left(1 - \frac{22.3}{f}\right)^2 + \frac{9}{f^2}} + \frac{1}{\left(1 + \frac{22.3}{f}\right)^2} \right] + 3 \times 10^{-6} \rho f^2$$
(12)

where  $\rho$  is the water vapour density (g/m³), and depends on the radio-climatic zone. The following values are to be used :

Zone A,  $\rho = 1 \text{ g/m}^3$ Zone B,  $\rho = 2 \text{ g/m}^3$ Zone C,  $\rho = 5 \text{ g/m}^3$  $\beta_o = 68 \times 10^{-4} \times f^2 \left\{ \frac{1}{(60-f)^2} + \frac{1}{(60+f)^2} + \frac{1}{(f^2+0.36)} \right\}$ (13)

Thus the co-ordination distance in Zone A is derived for the appropriate frequency, percentage of time and horizon angle using equations (7), (8), (9), (10), (12) and (13). Similarly, the co-ordination distance in Zone B or C is derived using equations (7), (8), (9), (11), (12) and (13).

#### 3.2.3 Graphical method

The equations given in § 3.2.2 have been converted into graphical form, to provide a second method of obtaining co-ordination distance for propagation mode (1). It is emphasized that the procedure described in this section is an alternative to that described in § 3.2.2 and each Administration should use the method which is considered most convenient.

^{*} Horizon angle is defined here as, viewed from the centre of the earth-station antenna, the angle between the horizontal plane and a ray that grazes the visible physical horizon in the direction concerned.

The minimum permissible basic transmission loss  $L_b(p)$  is obtained from equation (2). The "co-ordination loss",  $L_1$ , is obtained from the minimum permissible basic transmission loss by subtraction of the horizon angle correction  $A_b$ :

$$L_1 = L_b(p) - A_b \tag{14}$$

Values for the horizon angle correction are obtained from Fig. 1 for the appropriate frequency and horizon angle.

The co-ordination distance in each radio-climatic zone is to be obtained as follows. Taking Zone A first, the co-ordination distance for 0.01% of the time,  $d_A$  (0.01) is obtained with the appropriate value of co-ordination loss  $L_1$  and frequency from Fig. 2. The Zone A co-ordination distance for p% of the time is then obtained by multiplying the distance for 0.01% of the time by the factor  $\Delta p_A$  given in Fig. 3.

$$d_{A} = d_{A}(0.01) \times \Delta \dot{p}_{A} \tag{15}$$

In a similar manner, the co-ordination distance in Zone B is obtained using values for  $d_B(0.01)$ and  $\Delta p_{BC}$  obtained from Figs. 4 and 3 respectively. The co-ordination distance in Zone C is obtained using values for  $d_C(0.01)$  and  $\Delta p_{BC}$  obtained from Figs. 5 and 3 respectively.



FIGURE 1 - Horizon angle correction Ah as a function of horizon angle and frequency



FIGURE 2 – Coordination distance  $d_A(0.01)$  for 0.01% of the time due to propagation mode (1) as a function of frequency and coordination loss in Zone A







FIGURE 4 - Coordination distance d_B (0.01) for 0.01 % of the time due to propagation mode (1) as a function of frequency and coordination loss in Zone B





. . . . .



Percentage of time







Conversion to 0.1% (Curve A) Conversion to 0.001% (Curve B)









FIGURE 9 - Rain scatter distance as a function of frequency for 0.01% of the time - Rain Climate 1

Contours have transmission loss values shown in dB







FIGURE 11 - Rain scatter distance as a function of frequency for 0.01% of the time - Rain Climate 3 Contours have transmission loss values shown in dB

ب t 0 Document No. 476-е



FIGURE 12 - Rain scatter distance as a function of frequency for 0.01% of the time - Rain Climate 4 Contours have transmission loss values shown in dB



FIGURE 13 - Rain scatter distance as a function of frequency for 0.01% of the time - Rain Climate 5 Contours have transmission loss values shown in dB

15 Document No. 476-е

#### 3.3 Mixed zone paths

If the distance being calculated extends through more than one zone (mixed path), the prediction is made as follows:

Designating the successive path sections in different zones by use of the suffixes  $x, y, z \dots$ , it follows that:

$$L_b(p) - A_0 - A_h = \beta_x d_x \tag{16}$$

where  $\beta_{x}$  is the rate of attenuation in the first zone.

Now, in the direction considered, if the value  $d_x$  is greater than the distance  $D_x$  in the first zone, it follows that:

$$L_b(p) - A_0 - A_h - \beta_{\chi} D_{\chi} = \beta_{\gamma} d_{\gamma}$$
⁽¹⁷⁾

and so  $d_y$  is found. If the value  $d_y$  is greater than the distance  $D_y$  of the path in the second zone, it can then be stated that:

$$L_b(p) - A_0 - A_h - \beta_{\chi} D_{\chi} - \beta_y D_y = \beta_z d_z$$
(18)

from which  $d_z$  may be found. This method may be extended as necessary, and in the case given the total distance  $d_1$  may now be expressed as:

 $d_1 = D_X + D_Y + d_z \qquad \text{km} \tag{19}$ 

Annex II provides examples for the graphical application of this procedure.

### 3.4 Maximum co-ordination distance for propagation mode (1)

In the process of determining the coordination distance for propagation mode (1), if values result which exceed the appropriate value given in Figure 6 or in Table III, the coordination distance for propagation mode (1) shall be the value given in Figure 6 or in Table III. In the case of mixed zone paths, the values to be considered are those given for Zones B or C, as appropriate. In the case of mixed zone paths with more than one segment in Zone A, the total distance in Zone A shall not exceed the value given in Figure 6 or in Table III for Zone A.

### 4. <u>Determination of the coordination contour for propagation mode (2)</u> (scattering from hydrometeors)

The determination of the coordination contour for scattering from hydrometeors (rain scatter) is predicated on a path geometry which is substantially different from that of the great circle propagation mechanisms. To a first approximation, energy is scattered isotropically by rain, so that interference may result for large scattering angles, and for beam intersections away from the great-circle path. Page 24

### 4.1 Normalized transmission loss L₂ (0.01)

To determine the coordination contour associated with rain scatter it is necessary to calculate a "normalized transmission loss", given by:

$$L_2(0.01) = P_{t'} + \Delta G - P_t(p) - F(p, f)$$
⁽²⁰⁾

where:

 $\Delta G$ : difference (in dB) between the maximum gain of terrestrial station antennae in the frequency band under investigation and the value of 42 dB. When the earth station is a transmitting station, the values shown in Table I should be used; when it is a receiving station, the values shown in Table II should be used.

F(p, f): correction factor (in dB) to relate the effective percentage of the time p to 0.01% in the frequency band under consideration (see Fig. 7).

All other parameters have been defined in § 2. For terrestrial stations, values of  $P_{t}$  are listed in Table. II.

### 4.2 Rain-climatic zones

The world has been divided into five basic rain-climatic zones numbered 1 to 5 as shown in Fig. 8. Characteristics of these climates for 0.01% of the time are given in Table IV.

### 4.3 <u>Calculation of the rain-scatter distance dr</u>.

#### 4.3.1 Numerical method

The normalized transmission loss is composed of six terms :

$$L_2(0.01) = A_1 - A_2 + A_3 - A_4 - A_5 + A_6$$
(21)

in which:

 $A_{1} = 157 + 20 \log d_{r} - 20 \log f \qquad (dB)$ where d_r is the rain-scatter distance (km)
(22)

 $A_2 = 26 + 14 \log R - 5.88 \times 10^{-5} (d_r - 40)^2$  (dB) (23)

where R is the surface rainfall rate in mm/h (Table IV). The horizon distance of the terrestrial station is taken to be 40 km.

$A_3 = 0.005 (f - 10)^{1.7} R^{0.4}$	(dB),	for 10	h < f < 40  GHz	(24a)
= 0	(dB),	for	$f \le 10 \text{ GHz}$	(24b)
$A_4 = 10 \log \left[ \frac{2.17}{11 - 10} \left( 1 - 10^{-1} \right) \right]$	(Y · D)/5	( dB)fo	r f > 5 GHz	(25a)

$$= 0 \qquad (dB) \text{ for } f \le 5 \text{ GHz} \qquad (25b)$$

where D is the diameter of the rain cell in km (Table IV) and

$\gamma = 0.008 \ R(f-5)$	for $f > 5$ GHz	(26a)
= 0	for $f \leq 5$ GHz	(26b)
$A_{\rm s} = 10 \log D$ dB		(27)
$A_6 = d_0 \beta_0 + d_0 \beta_V$		(28)
where		
$d_o = 0.7 d_r + 32 \text{ km}$	for $d_r < 340$ km	<b>(29a)</b>
= 270 km	for $d_r \ge 340$ km	(29b)
$d_v = 0.7 d_r + 32 \text{ km}$	for $d_r < 240$ km	(30a)
= 200 km	for $d_r \ge 240$ km	(30b)

 $β_V$  is given in (12), where ρ is to be replaced by  $ρ_m$  (Table IV).  $β_c$  is given in (13).

Thus, for a given rain climate, the parameters in Table IV are used to calculate the rain-scatter distance  $d_r$  by an iterative process.

### 4.3.2 Graphical method

The equations of § 4.3.1 have been converted into graphical form to give an alternate method of determining rain-scatter distance  $d_{p}$ .

To obtain the rain-scatter distance for rain-climatic Zone 1, the normalized transmission loss (obtained by solving equation (20)), is used together with the appropriate frequency in Fig. 9 to yield the rain scatter distance  $d_{pr}$ .

Figs. 10 to 13 show corresponding curves for rain-climatic Zones 2 to 5. In all cases, the rain climate to be chosen is that which corresponds to the location of the earth station.

#### 4.4 Maximum rain scatter distances

In the process of determining the rain scatter distance for propagation mode (2), if values result which exceed the appropriate value given in Table V, the rain scatter distance for propagation mode (2) shall be the value given in that Table.

### 4.5 Construction of the rain-scatter coordination contour

Due to the peculiar geometry associated with rain-scatter propagation, the location of the centre of the rain-scatter coordination contour does not coincide with the location of the earth station. The distance by which these locations are separated is designated  $\Delta d$ .

The rain scatter distance  $d_r$ , together with the elevation angle  $\varepsilon$ , of the main beam of the earth station antenna are used to determine  $\Delta d$  using the equation:

$$d = 5.88 \times 10^{-5} (d_r - 40)^2 \cot \varepsilon_3 \qquad \text{km}. \tag{31}$$

Alternatively, Ad may be determined from Figure 14.

Δ

The distance  $\Delta d$  is measured on a map of appropriate scale from the earth station location along the azimuth of the main beam of the earth station antenna; a circle of radius d_r is drawn around the point so reached. The circle is the rain scatter coordination contour.

The rain scatter coordination distance, to be labelled d₂, is the distance from the earth-station site to the rain scatter coordination contour on the azimuth under consideration.





FIGURE 14 – Distance  $\Delta d$  as a function of rain scatter distance  $d_r$  and earth station antenna main beam elevation angle  $\varepsilon_s$ .

#### Absence of mixed path effects 4.6

As the only significant rain scatter is that occurring in the general area of the earth station, the question of a mixed path does not arise. The rain climate region relevant to the earth station is applied, together with the appropriate maximum rain scatter distance from Table V.

#### 5. Minimum value of co-ordination distance

If the method for determining  $d_1$ , the co-ordination distance for propagation mode (1), leads to a result less than 100 km, d₁ shall be taken equal to 100 km. Similarly, if the method for determining the rain scatter distance  $d_r$ , leads to a result less than 100 km,  $d_r$  shall be taken equal to 100 km.

### 6. The coordination distance

On any azimuth, the greater of the coordination distances  $d_1$  or  $d_2$  is the coordination distance to be used for the coordination procedure.

An example of a coordination contour is shown in Figure 15.



Main beam azimuth /

FIGURE 15 - Example of a coordination contour

ES : Earth station

----- Coordination contour

----- Contour for propagation mode (1)

----- Contour for propagation mode (2)

---- Auxiliary contours for propagation mode (1)

<u>Note</u> : If by using the auxiliary contours it is seen that a terrestrial station can be eliminated with respect to propagation mode (1) then :

- if that terrestrial station is outside the contour for propagation mode (2) it may be eliminated from any further consideration;
- if that terrestrial station is within the contour for propagation mode (2) it must still be considered, but for this mode only.

Page 28

### 7. Mobile except aeronautical mobile / and transportable / Earth stations

For the purpose of establishing whether prior agreement with another Administration under the provisions of / 4139/639AR 7 is required, it is necessary to determine the coordination area which would encompass all coordination areas determined for each location within the service area within which operation of the mobile Earth stations is proposed.

The preceding method may be used for this purpose by determining the appropriate individual coordination contours for a sufficiently large number of locations, within and on the periphery of the proposed service area and by determining from those a composite coordination area which contains all possible individual coordination areas.

### 8. Revision of data relating to propagation

The material contained in Sections 3, 4, 6 and in Annex II of this Appendix is based, directly or indirectly, on propagation data compiled, interpreted and documented in reports and Recommendations of the CCIR. The knowledge regarding propagation is subject to change as new data becomes available, and such change may require or strongly suggest corresponding amendments to the propagation-related material in this Appendix.

/ Resolution No. ... / provides for the mechanism by which an updating of the propagation related elements of this Appendix is to be implemented.

### TABLE I

Parameters required for the Determination of Co-ordination Distance for a Transmitting Earth Station

					_			_		
Space radiocor service des	nmunication ignation	Space Operation (Telecommand)	Fixed-Satellite	Fixed-Satellite	Fixed-Satellite	Fixed-Satellite	Fixed-Satellite	Fixed-Satellite	Fixed-Satellite	Fixed-Satellite
Frequency band	ds (GHz)	1-427- 1-429	2·655- 2·690	4-400- 4-700	5-850- 6-425	7·900- 7·975 8·025- 8·400	10-95- 11-20	12·50- 12·75	14·4 - 14·5	27·5 - 29·5
Modulation of station (1)	terrestrial	•	•	•	•	•	•	•	•	N
	Po (%)	0.01	0.01	0.01	0-01	0-01	0-01	0-01	0-01	0-003
	л	2	1	1	2	2	2	2	2	1
Interference	p (%)	0.005	0.01	0.01	0-005	0.005	0.005	0-005	0.005	0-003
parameters and criteria	J (dB)	16	9	9	16	16	16	16	16	0
	$M_{o}(p_{o})$ (dB)	17	17	17	17	17	17	17	17	30
	W (dB)	0	0	0	0	0	0	0	0	0
	B (Hz)	4×10ª	4×10 ³	4 × 10 ³	4 × 10 ³	4 × 10ª	4×10ª	4×10 ⁶	4 × 10 ³	1 × 10 ⁶
Terrestrial	G _r (dB) ⁽⁸⁾	35	52 (8)	52 (8)	45	47	50	50	.50	50
station parameters	$\Delta G$ (dB)	-7	10 (3)	10 (a)	3	5	8	8	8	8
	<i>T</i> _r (K)	750	500 ⁽³⁾	500 ⁽³⁾	750	750	1500	1500	1500	3200
Anvilian	S (dBW) (4)	166	192	192	176	178	178	178	178	154
parameters	$P_r(p)$ (dBW) in <b>B</b>	-131	-140	-140	-131	-131	- 128	- 128	-1 <b>28</b>	-104

(1) A = analogue modulation; N = digital modulation.

(*) Feeder losses are not included in the values for  $G_r$ .

1

(*) In these bands the parameters for the terrestrial station associated with transhorizon systems have been used.
 (4) For a definition of the parameter S see Annex III

													_							
Space Radiocomn Service desig	nunication nation	Space Operation (Telemetering) ⁽¹⁾	Meteorological- Suitellite (1)	Near Earth Space	Deep Recearch Space; Manned		r ixea-second	Eliza Canalian	- annange-baytu	E: vad. Catallite		Earth Exploration- Satellite (1)	Near Earth Space	Dep Space			Einad Satallita		Fix 3d-Satellite	Earth Exploration- Setallite (4)
Frequency band (GHz)	· · · ·	1.525- 1.535	1-670- 1-690	1.70 1.71 2.29 2.30	90 90 90	2·5 2·5	00- 35	3.4 4.2	00- 09	7·3( 7·7)	00 - 50	8-025 8-400	- 8·4 8·5	00- 00	10- 11- 11- 11-	95 20 45 70	11- 12- 12- 12- 12-	70 20 50 75	17·7- 19·7	21·2- 22-0
Modulation at earth station (*)			<u> </u>	-	-	A	N	A	N	Λ	N	[·	[ -	-	A	N	A	N	N	
	p. (%)			0.1	0.001	0.03		0.03	0.003	0.03	0.003		0.1	0.001	0.03	0.003	0.03	C-003	0.003	
	n		1	2	1	3		3	3	3	3		2	1	2	1	2	1	1	
Interformuna anternation	p (%)			0.05	0.001	0.01		0.01	0.001	0.01	0.001		0.05	0.001	0.015	0.003	0.015	0.003	0.003	
and criteria	J (dB)			-	-	-8		-8	0	-8	0		-	-	8	0	-8	0	0	
	$M_{o}(p_{o})$ (dB)			-	-	17		17	5(3)	17	5(3)		-	-	17	5 (3)	17	5 (3)	5 (3)	
	W (dB)			-	-	4		4	0	4	0		-	-	4	0	4	0	0	
~ <u></u>	E (dBW) in B ( 8)	55	<b>\$5</b>	62(4)(8)	62(4)(0)	92 (°)		55	55	55	55		25(4)	25(4)	55	55	55	55	35(5	ţ
Terrestrial station	$P_t'(dBW)$ in $B$	13	13	10(*)(*)	10(4)(4)	40 (*)		13	13	13	13		-17(*	-17(*	10	10	10	10	10(5)	
parameters .	$\Delta G$ (dB)	0	0	10 (4)	10 (*)	10 (*)		Ö	0	0	0		0	0	3	3	3	3	3	
Keference bandwidth	`B (11z)			1	1	1067		106	1067	106(7)	1067	1	1	1	100	106(7)	1067	106(7)	1067	8
Permissible interference power	P(n) (dBW) in $R$			220	- 220		l'	1			1	1	1 220	220	1	1	1			1

TABLE II Parameters required for the Determination of Co-ordination Distance for a Receiving Earth Station

(1) Parameters associated with these services may vary over a rather wide range. Further study is required before representative values become available.

(2) A = analogue modulation; N = digital modulation.

- (3) See note  $\binom{2}{1}$  in Section 2.  $M_0(p_0)$  may assume values between 5 and 40 dB, depending on frequency, rain-climatic zone and system design.
- (4) These values are estimated for 1 Hz bandwidth and are 30 dB below the total power assumed for emission.
- (5) These values assume an r.f. bandwidth of no less than 100 MHz, and are 20 dB below total power assumed per emission.
- (6) In these bands, the parameters for the terrestrial stations associated with transhorizon systems have been used.
- (7) In certain communication-satellite systems it may be desirable to choose a greater reference bandwidth B when the system requirements indicate that this may be done. However, a greater bandwidth will result in smaller coordination distances and a later decision to reduce the reference bandwidth may require recoordination of the Earth station.
- (8) For narrow band transmissions the reference bandwidth B should be assumed to be equal to the bandwidth occupied by the wanted transmissions.
- (9) For a definition of the parameter E see Annex III.

		Percentage of Time							
	p = 0.001	p = 0.01	p = 0.1	p = 1					
Zone A	375	350	300	200					
Zone B	1050	1000	900	700					
Zone C	1400	1350	1200	950					

### TABLE III - Maximum Coordination Distance for Propagation Mode (1)

 TABLE IV - Characteristic values of parameters for the five rain climates

 (0.01% of the time)

Parameter		Ra	Unit			
I di anicici	1	2	3	4	5	Unit
Surface rainfall rate (R)	75	55	37	26	14	mm/h
Rain cell diameter (D)	2.5	2.8	3	3	4.5	km
Water vapour density ( $\rho_m$ )	10	5	2	2	2	g/m³

### TABLE V - Maximum rain scatter distances (km)

Pain alimatia sono		Percentage of time	
Rain cumaric zone	$0.001 \le p < 0.01$	$0.01 \leq p < 0.1$	p = 0.1
1 2 3, 4 and 5	540 470 390	470 390 330	390 330 270

### Annexes : 3

### Annex I

## Antenna gain in the direction of the earth station horizon for geostationary satellites

### 1. <u>General</u>

The gain component of the earth-station antenna in the direction of the physical horizon around an earth station is a function of the angular separation  $\phi$  between the antenna main beam axis and the horizon direction under consideration. Therefore, knowledge of the angle  $\phi$  is required for each azimuth.

The elevation  $\varepsilon_s$  and azimuth  $\alpha_s$  of geostationary satellites as seen from an earth station at a latitude  $\zeta$  are uniquely related. Figure I-l shows the possible location arcs of geostationary satellites in a rectangular elevation/azimuth plot, each arc corresponding to an earth station latitude.

Specific relative satellite longitudes may not be known beforehand, but even when they are, the possibility of the addition of a new satellite, or the repositioning of an existing one suggests that all or a portion of the applicable arc be considered to hold satellites.

### 2. Graphical method for the determination of $\phi$ ( $\alpha$ )

With the correct arc or segment of arc chosen and suitably marked in Figure I-1, the horizon profile  $\varepsilon$  ( $\alpha$ ) is added to the plot of Figure I-1, as shown in Figure I-2, where an example is given for an earth station located at 45° N latitude for a satellite expected to be located somewhere between relative longitudes of 10° E and 45° W.

For each point on the local horizon  $\varepsilon$  ( $\alpha$ ) the smallest distance to the arc is determined and measured on the elevation scale. The example of Figure I-2 shows the determination of the off-beam angle  $\phi$  at an azimuth  $\alpha$  (= 210°) with a horizontal elevation  $\varepsilon = 4^{\circ}$ . The measurement of  $\phi$  yields a value of 26°.

When this is done for all azimuths (in suitable increments, e.g.  $5^{\circ}$ ), a relationship  $\phi(\alpha)$  results.

### 3. Numerical method for the determination of $\phi$ ( $\alpha$ )

For this purpose the following equations may be used:

 $\Psi$  = arc cos (cos  $\zeta \cdot \cos \delta$ )

 $\alpha'_s = \arccos(\tan \zeta \cdot \cot \psi)$ 

(32)

(33)

(37d)

α,	$= \alpha'_s + 180^\circ$	for earth stations located in the northern hemisphere and satellites located west of the earth station.	(34a)
α,	$= 180^\circ - \alpha'_s$	for earth stations located in the northern hemisphere and satellites located east of the earth station.	(34b)
as	$= 360^\circ - \alpha',$	for earth stations located in the southern hemisphere and satellites located west of the earth station.	(34c)
α,	$= \alpha'_s$	for earth stations located in the	

southern hemisphere and satellites located east of the earth station. (34d)

$$\varepsilon_s = \arctan\left(\frac{K - \cos\psi}{\sin\psi}\right) - \psi$$
 (35)

 $\varphi(\alpha) = \arccos \left[\cos \varepsilon \cdot \cos \varepsilon_s \cdot \cos (\alpha - \alpha_s) + \sin \varepsilon \cdot \sin \varepsilon_s\right]$ (36)

where:

- ζ: latitude of the earth station
- δ: difference in longitude between the satellite and the earth station
- ψ: great circle arc between the earth station and the sub-satellite point
- satellite azimuth as seen from the earth station α,:
- satellite elevation angle as seen from the earth station ε, :
- α: azimuth of the pertinent direction
- elevation angle of the horizon in the pertinent azimuth,  $\alpha$ £ :
- $\varphi(\alpha)$ : angle between the main beam axis and the horizon direction corresponding to the pertinent azimuth,  $\alpha$
- **K**: orbit radius/earth radius, assumed to be 6.62

All arcs mentioned above are in degrees.

#### 4. Determination of antenna gain

The relationship  $\phi$  ( $\alpha$ ) may be used to derive a function for the horizon antenna gain, G (in dB) as a function of the azimuth  $\alpha$ , by using the actual earth-station antenna pattern, or a formula giving a good approximation. For example, in cases where the ratio between the antenna diameter and the wavelength is not less than 100, the following equation should be used :

$G(\phi) = G_n$	nax - 2.5.10 ⁻³	$(\frac{D}{\lambda} \phi)^2$ for	$0 < \phi < \phi_{\rm m}$	(37a)
-----------------	----------------------------	----------------------------------	---------------------------	-------

$G(\phi) = G_{1}$	for $\phi_{\rm m} \leqslant \phi < \phi r$	(37ъ)

$G(\phi) = 32 - 25 \log \phi$	for $\phi_r \leqslant \phi < 48^{\circ}$	(37c)
$G(\phi) = -10$	for $48^{\circ} \le \phi < 180^{\circ}$	( 576 )

where : D = antenna diameter } same units  $\lambda$  = wavelength

 $G_1 = \text{gain of the first sidelobe} = 2 + 15 \log \frac{D}{\lambda}$ 

Page 34

$$\phi_{\rm m} = \frac{20\lambda}{D} \sqrt{G_{\rm max} - G_1} (\text{degrees})$$
  
$$\phi_{\rm r} = 15.85 (D/\lambda)^{-0.6} (\text{degrees})$$

When it is not possible, for antennae with  $D/\lambda$  of less than 100, to use the above reference antenna pattern and when neither measured data nor a relevant Recommendation of the CCIR can be used instead, then Administrations may use the reference diagram as described below :

 $G(\phi) = G_{\max} - 2.5.10^{-3} (\frac{D}{\lambda} \phi)^2$  for  $0 < \phi < \phi_m$  (38a)

$$G(\phi) = G_{1} \qquad \text{for } \phi_{m} \leq \phi \leq 100 \frac{\lambda}{D} \qquad (38b)$$

$$G(\phi) = 52 - 10 \log \frac{D}{\lambda} - 25 \log \phi \quad \text{for } 100 \frac{\lambda}{D} \leq \phi \leq 48^{\circ} \qquad (38c)$$

$$G(\phi) = 10 - 10 \log \frac{D}{\lambda}$$
 for  $48^{\circ} \le \phi \le 180^{\circ}$  (38d)

where : D = antenna diameter  $\lambda$  = wavelength  $\lambda$  same units

 $G_1 = \text{gain of the first sidelobe} = 2 + 15 \log \frac{D}{\lambda}$ 

$$\phi_{\rm m} = \frac{20\lambda}{D} \sqrt{G_{\rm max} - G_1} (\text{degrees})$$

The above patterns may be modified as appropriate, to achieve a better representation of the actual antenna pattern.

In cases where  $\frac{D}{\lambda}$  is not given, it may be estimated from the expression 20 log  $(\frac{D}{\lambda}) \approx G_{max} - 7.7$ , where  $G_{max}$  is the main lobe antenna gain in dB.



Azimuth at earth station (Southern Hemisphere)

Azimuth at earth station (Northern Hemisphere)

#### FIGURE 1-1 - Position arcs of geostationary catellites

Arc of geostationary satellite orbit visible from earth station at terrestrial latitude 
 Difference in longitude between earth station and the sub-satellite point:
 Satellite longitude E of earth station longitude
 Satellite longitude W of earth station longitude
 Satellite longitude equal to the earth station longitude
 Satellite longitude equal to the earth station longitude
 Satellite longitude equal to the earth station longitude
 Satellite longitude
 Sate

Azimuth at earth station (Southern Hemisphere)



FIGURE 1-2 - Example of Carination of q

Arc of crostationary satellite orbit visible from earth station at terrestrial latitude  $\zeta$ Horizon profile  $\varepsilon(\alpha)$ 

Difference in longitude between earth station and the sub-estellite point:

Satellite longitude E of earth station longitude

----- Satellite longitude W of earth station longitude

------ Satellits longitude equal to the carth station longitude

### Annex II

# <u>Graphical method for the determination</u> of coordination distance for mixed paths

### 1. Two zones

The procedure to be followed in the case of a mixed path involving two zones is illustrated by the example shown in Figure II-1(a). The earth station is situated in Zone A at a distance of 75 km from Zone B. The graphical presentation described below is particularly useful where more than one boundary between zones may be involved, as in this example.

In the example given below, the coordination loss is assumed to be 180 dB, the frequency 20 GHz, and the percentage of time 0.01 %. The procedure is as follows :

1.1 determine the distance entirely in Zone A that would give the coordination loss. Mark this distance (in this case it is 160 km) from the origin along the abscissa axis of linear graph paper as indicated by the point A (Figure II-1(b));



FIGURE ||-| - Example of determination of coordination distance for mixed paths involving Zones A and B

1.2 determine the distance entirely in Zone B that would give the same coordination loss. Mark this distance (in this case it is 530 km) from the origin along the ordinate axis of the chart as indicated by the point B;

1.3 draw a straight line between points A and B representing these distances from the origin;

Page 38

1.4 starting from the origin, the distance of 75 km from the earth station to Zone B is set off along the abscissa axis of the chart as indicated by the point  $A_1$ ;

1.5 starting from point  $A_1$  the Zone B path length of 150 km is then set off parallel to the ordinate axis of the chart as indicated by the point  $B_1$ ;

1.6 the further distance in the next Zone A region is then measured parallel to the abscissa axis from the point  $B_1$  to the point of intersection of the mixed path curve as indicated by X. In Figure 18b, this distance is 40 km;

1.7 the coordination distance is the sum of the distances  $OA_1$ ,  $A_1B_1$  and  $B_1X$  and is equal to :

75 + 150 + 40 = 265 km.

### 2. Three zones

In some special cases, the mixed path involves all three radio-climatic Zones A, B and C. A solution to this problem can be found in adding a third dimension to the procedure to be followed for mixed paths involving only two zones. Theoretically, it means that the third coordinate has to be determined for a point having coordinates corresponding to the known distances in the first two zones and lying in a plane defined by three points on the axes X, Y and Z, corresponding to distances in Zones A, B and C, respectively, that would give the required basic transmission loss.

In practice, the procedure can be reduced to a simple graphical method shown in Figure II-2(a) assuming for example a coordination loss  $(L_1)$  of 180 dB at a frequency of 20 GHz. It is required to find the coordination distance from the earth station in the direction given in Figure II-2(a). Here an earth station is situated in Zone A at a distance of 75 km in a given azimuthal direction from Zone B. In the same azimuthal direction Zone B is 150 km long and followed by an unknown portion in Zone C (Figure II-2(a)).

In this case, the procedure to be applied should be as follows (Figure II-2(b)):

2.1 repeat the same procedure as for mixed paths involving only two zones, given in steps 1.1 to 1.5 above, and continue as follows :

2.2 from the point  $B_1$  draw a line parallel to the line AB to intersect the abscissa axis as indicated by the point D;

2.3 determine the distance entirely in Zone C that would give the coordination loss. Mark this distance (in this case it is 350 km) from the origin along the ordinate axis of the chart as indicated by the point C. Draw a straight line between the points C and A;

2.4 at the point D draw a line parallel to the ordinate axis to intersect the line CA as indicated by X;

2.5 the distance between the points D and X, which is the unknown distance in Zone C, is found to be 85 km;

75 + 150 + 85 = 310 km.

2.6 the coordination distance is then the sum of the distances  $OA_1$ ,  $A_1B_1$ , and DX and in this example is equal to :



FIGURE II-2(b) - Example of determination of coordination distance for mixed paths including Zones A, B and C

### Annex III

### Determination and use of auxiliary contours

#### Introduction

l.

For great circle propagation mechanisms, mode 1, auxiliary contours are of great value in eliminating certain existing or planned terrestrial stations falling within the coordination area without recourse to precise and arduous calculations. The work of both the Earth station administration and the effected administrations is therefore eased during subsequent negotiations if these auxiliary contours are supplied.

### 2. Determination of the auxiliary contours

Two types of contours can be determined, depending on whether the Earth station is used for transmission or reception.

### 2.1 Transmitting Earth station

From equation (2) one can isolate the terms  $G_r - P_r(p)$  and define a sensitivity factor S (in dBW) of the interfered-with terrestrial stations:

### $\boldsymbol{S} = \boldsymbol{G}_{\boldsymbol{r}} - \boldsymbol{P}_{\boldsymbol{r}}(\boldsymbol{p}) \tag{39}$

Table I shows values of this factor for various types of terrestrial stations.

The co-ordination contour is associated with a (maximum) sensitivity factor S and labelled with its value.

The auxiliary contours are determined in the same way as the corresponding coordination contour for propagation mode 1, but using terrestrial station interference sensitivity factor S values (in dBW) which are 5, 10, 15, 20 dBW, etc. lower than the value (given in Table I of Appendix 28) corresponding to the coordination contour.

### 2.2 Receiving Earth station

From equation (2) one may, likewise, isolate the terms  $P_{t'} + G_{t'}$  and define the equivalent isotropically radiated power E (in dBW) of the interfering terrestrial stations:

 $E = P_{t'} + G_{t'}$ 

(40)

values for which are listed in Table II.

The coordination contour is associated with a maximum value for E and labelled with this value.

The contours are determined in the same way as the corresponding coordination contour, for propagation mode 1, but using terrestrial station e.i.r.p. values E (in dBW) which are 5, 10, 15, 20 dB, etc. lower than the value (given in Table II of Appendix 28) corresponding to the coordination contour.

### 3. Use of auxiliary contours

The auxiliary contours, the coordination contour for great circle propagation (mode 1) and the coordination contour for rain scatter (mode 2) are all plotted on the same diagram for a given shared band. An illustrated example is given in Figure 15.

For each terrestrial station situated within the coordination area, a two stage procedure may be applied, one for the great circle propagation mechanism and the other for rain scatter.

### 3.1 <u>Great circle propagation mechanism (mode 1)</u>

If a transmitting terrestrial station is outside the coordination area corresponding to mode 1, it need not be considered further with respect to mode 1.

For each transmitting terrestrial station situated within the coordination area corresponding to mode 1, the e.i.r.p. value in the direction of the Earth station is determined. If this value is less than the value associated with the nearest contour defining an area outside of which the station is situated, the station may be considered not to cause more than a permissible level of interference and therefore may be eliminated from further consideration with respect to mode 1.

For each receiving terrestrial station, the analogous procedure may be applied using the interference sensitivity factor instead of the e.i.r.p. value.

# 3.2 Elimination of a terrestrial station and rain scatter mechanism (mode 2)

Terrestrial stations eliminated by the above procedure from further consideration with regard to propagation mode 1 need, nevertheless, be further considered with regard to propagation mode (2) when they lie within the rain scatter coordination area.

### ANNEX 2

# DRAFT NOTE FROM THE CHAIRMAN OF COMMITTEE 4 TO THE CHAIRMAN OF COMMITTEE 6

In the proposed revision of Appendix 28 (Document No. 475) paragraphs on pages 2, 5 and 27 have been marked by a vertical line in the left hand margin.

The purpose of this is to draw the particular attention of your Committee to these paragraphs in connection with the consideration of Article N11.

With respect to the paragraphs on pages 2 and 5, the proposed revision of Appendix 28 allows for Administrations to depart from the procedure contained therein.

With respect to the paragraph on page 27, the attention of your Committee is drawn to the draft Resolution in Document No. ... relating to up-dating of the propagation information used in the determination of coordination area.
(Geneva, 1979)

Document No. 477-E 2 November 1979 Original : English

COMMITTEE 6

NOTE FROM THE CHAIRMAN OF COMMITTEE 4 TO THE CHAIRMAN OF COMMITTEE 6

While, in the process of preparation the texts for the two definitions namely, "coordination distance" and "coordination area" by applying the same station separation criteria for both; the term "or another earth" appears in square brackets. It was considered opinion of the Working Group 4A, that it is not within its competence to study the case when there is a bidirectional frequency re-use and that this matter should be referred to Committee 6 to seek their guidance.

> N. MORISHIMA Chairman of Committee 4



# INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. <u>478-E</u> 2 November 1979 <u>Original</u> : English

COMMITTEE 6

NOTE FROM THE CHAIRMAN OF COMMITTEE 4 TO THE CHAIRMAN OF COMMITTEE 6

1. Referring to your note in Document No. 372 about the term 'acceptable level of interference', Committee 4 wishes to re-state that it had already considered <u>three</u> levels of interference :

- harmful interference

- accepted interference
- permissible interference.

This was done on the basis that :

- <u>harmful</u> interference, a well known term which can be found also in the Convention, relates to a level of serious degradation of the system (Document No. 429);
- <u>accepted</u> interference relates to a level of interference agreed upon by <u>two or more</u> Administrations concerned, without prejudice to other Administrations (Document No. 460):
- <u>permissible</u> interference relates to a level of interference agreed upon by <u>all</u> Administrations or by a special agreement! (Document No. 429).

It follows that the level of "accepted" interference is normally <u>above</u> the level for "permissible" interference.

2. Committee 4 considers that your request of a definition of the term 'acceptable level of interference', which is necessary for clarification of the provision 4170/492D, sub paragraph c), falls into the category of 'accepted' interference.

3. 'Unaccepted' or 'unacceptable' interference clearly relates to interference that exceeds a level that could be 'accepted'. If therefore 'accepted interference' is defined there is no need to define 'unaccepted interference', 'acceptable level of interference' or 'unacceptable level of interference'.

4. However you may wish to consider modifying No. 4170/492D, sub-paragraph c) to read :

c)

there is disagreement between the Administration seeking coordination and an Administration with which coordination is sought on the <u>level of interference</u> that can be accepted."

This may make it clearer that the provision refers to "accepted intereference", as defined in Article N1.

N. MORISHIMA Chairman of Committee 4



# INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Addendum No. 1 to <u>Document No. 479(Rev.1)-E</u> 10 November 1979 <u>Original</u> : English

### COMMITTEE 5

SIXTH REPORT OF WORKING GROUP 5E TO COMMITTEE 5

Add, on page 3 :

- in the box 252 - 265 GHz : <u>3814CA</u> against MOBILE

- at the bottom of the page, the following footnote :

ADD 3814CA

In the bands 43.5 - 47 GHz, 66 - 71 GHz, 95 - 100 GHz, 134 - 142 GHz, 190 - 200 GHz and 252 - 265 GHz, the use of stations in the land mobile service is subject to not causing harmful interference to the satellite services to which these bands are allocated (see No. 3442/148).

> A.W. ADEY Chairman of Working Group 5E



(Geneva, 1979)

Document No. 479(Rev.1)-E -9 November 1979 Original : English

COMMITTEE 5

### SIXTH REPORT FROM WORKING GROUP 5E TO COMMITTEE 5 (ALLOCATIONS)

Subject : Frequency band between 217 and 275 GHz

1. The Working Group examined all the proposals for this band of frequencies and <u>decided unanimously</u> to recommend the adoption of the revised Table of Allocations as shown in the Annex.

2. The Working Group agreed to designate frequency 245 GHz to be used for ISM applications and has used standard text No. 6.2 of Document No. 239(Rev.2) for this purpose.

A.W. ADEY Chairman of Working Group 5E

Annex : 1



### ANNEX

### GHz 217 - 248

Region 1	Region 2	Region 3
217 - 231	EARTH EXPLORATION-SATELLITE	(Passive)
	RADIO ASTRONOMY	
	SPACE RESEARCH (Passive)	
	3815/412J 3679A	
231 - 235	FIXED	· ·
	FIXED-SATELLITE (Space-to-Ea	arth)
	MOBILE	
	Radiolocation 3816H	
235 - 238	EARTH EXPLORATION-SATELLITE	(Passive)
	FIXED	
	FIXED-SATELLITE (Space-to-Ea	urth)
	MOBILE	
	SPACE RESEARCH (Passive)	
238 - 241	FIXED	
	FIXED-SATELLITE (Space-to-Ea	arth)
	MOBILE	
	Radiolocation 3816H	
241 - 248	RADIOLOCATION	
	Amateur	
	Amateur-satellite	
	38161	

MOD 3815/412J

In the bands 51.4 - 54.25 GHz, 58.2 - 59 GHz, 64 - 65 GHz, 86 - 92 GHz, 105 - 116 GHz and 217 - 231 GHz all emissions are prohibited. In these bands the use of passive sensors by other services is also authorized.



Annex to Document No. 479(Rev.1)-E Page 3

ADD 3679A

ADD

In the bands /1400 - 1727 MHz, /101 - 120 GHz, and 197 - 220 GHz, passive research is being conducted by some countries in a programme for the search for intentional emissions of extra-terrestrial origin.

Different category of service : in the United States of America and Japan, the allocation of the bands 231 - 235 GHz and 238 - 241 GHz to the radiolocation service is on a primary basis.

ADD 38161

3816н

The band 244 - 246 GHz is designated for industrial, scientific and medical (ISM) applications (centre frequency 245 GHz). The use of this frequency band for ISM applications shall be subject to special authorization by the Administration concerned in agreement with other Administrations whose radiocommunication services might be affected. In applying this provision Administrations shall have due regard to the latest CCIR Recommendations.

Region 1	Region 2	Region 3		
248 - 250	AMATEUR			
	AMATEUR-SATELLITE			
250 - 252	EARTH EXPLORATION-SATELLI	TE (Passive)		
	SPACE RESEARCH (Passive)			
	3816J			
252 - 265	MOBILE			
	MOBILE-SATELLITE			
	RADIONAVIGATION			
•	RADIONAVIGATION-SATELLITE			
	3814C 3816J 3816K 3816L			
265 - 275	FIXED			
	FIXED-SATELLITE (Earth-to-	-space)		
	MOBILE			
	RADIO ASTRONOMY			
	3816M			

GHz 248 - 275

ADD 3814C

In the bands 43.5 - 47 GHz, 66 - 71 GHz, 95 - 100 GHz, 134 - 142 GHz, 190 - 200 GHz and 252 - 265 GHz satellite links connecting land stations at specified fixed points are also authorized when used in conjunction with the mobile-satellite service or the radionavigation-satellite service.

3816J

3816K

3816L

ADD

ADD

The bands 250 - 251 GHz and 262.24 - 262.76 GHz are also allocated to the radio astronomy service on a primary basis for spectral line observations. In making assignments to stations of other services to which these bands are allocated, Administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 3280/116, 3281/116A and Article N33A).

The band 257.5 - 258 GHz is also allocated to the radio astronomy service on a secondary basis for spectral line observations. In making assignments to stations of other services to which the band is allocated, Administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 3280/116, 3281/116A and Article N33A).

In the Federal Republic of Germany, Argentina, Spain, France, Finland, India, the Netherlands and Sweden, the band 261 - 265 GHz is also allocated to the radio astronomy service on a primary basis. In making assignments to stations of other services to which the band is allocated, Administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 3280/116 and 3281/116A and Article N33A).

381.6M ADD

In making assignments to stations of other services to which the band 265 - 275 GHz is allocated, Administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference, especially in the bands 265.64 - 266.16 GHz, 267.34 - 267.86 GHz and 271.74 - 272.26 GHz, which are used for spectral line observations. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 3280/116, 3281/116A and Article N33A).

ADD

# INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. <u>479-E</u> 5 November 1979 <u>Original</u> : English

COMMITTEE 5

## SIXTH REPORT FROM WORKING GROUP 5E TO COMMITTEE 5 (ALLOCATIONS)

Subject : Frequency band between 217 - 275 GHz

1. The Working Group examined all the proposals for this band of frequencies and decided to recommend the adoption of the revised Table of Allocations shown in the Annex. All allocations were decided unanimously.

2. The Working Group agreed with the Recommendation (Document No. 374(Rev.l)) of the Working Group 5/ad hoc 3 regarding the designation of ISM at 245.0 GHz  $\pm$  1 GHz. It was noted that the document had not yet been approved by Committee 5. The footnote is in square brackets pending a decision in Committee 5 on both the frequency and the standard text.

A.W. ADEY Chairman of Working Group 5E

<u>Annex</u> : 1



### ANNEX

GHz217 - 248

Region 1	Region 2	Region 3				
217 - 231	EARTH EXPLORATION-SATELLI	EARTH EXPLORATION-SATELLITE (Passive)				
	RADIO ASTRONOMY	``				
	SPACE RESEARCH (Passive)					
and the second secon	3815/412J 3679A	· · · · · · · · · · · · · · · · · · ·				
231 - 235	FIXED					
	FIXED-SATELLITE (Space-to	-Earth)				
	MOBILE					
and a start of the	Radiolocation 3816H					
235 - 238	EARTH EXPLORATION-SATELLI	TE (Passive)				
	FIXED					
	FIXED-SATELLITE (Space-to-Earth)					
	MOBILE					
· · · · · · · · · · · · · · · · · · ·	SPACE RESEARCH (Passive)					
238 - 241	FIXED					
	FIXED-SATELLITE (Space-to	-Earth)				
	MOBILE					
	Radiolocation 3816H					
241 - 248	RADIOLOCATION					
	Amateur					
	Amateur-satellite					
	<u>/</u> _38161_7					

MOD 3815/412J

In the bands 51.4 - 54.25 GHz, 58.2 - 59 GHz, 64 - 65 GHz, 86 - 92 GHz, 105 - 116 GHz and 217 - 231 GHz all emissions are prohibited. In these bands the use of passive sensors by other services is also authorized,

Annex to Document No. 479-E Page 3

ADD 3679A

3816н

In the bands / 1 400 - 1 727 MHz, / 101 - 120 GHz, and 197 - 220 GHz, passive research is being conducted by some countries in a programme for the search for intentional emissions of extra-terrestrial origin.

Different category of service : in the United States of America and Japan, the allocation of the bands 231 - 235 GHz and 238 - 241 GHz to the radiolocation service is on a primary basis.

The band 244 - 246 GHz is designated for industrial, scientific and medical applications (centre frequency 245 GHz), ISM equipment operating in this band shall not cause harmful interference to radio services operating inside or outside this band in accordance with the provisions of these Regulations. In applying this provision Administrations shall have due regard to the latest relevant CCIR Recommendations. /

	·	·····				
Region 1	Region 2 Region 3					
248 – 250	AMATEUR					
	AMATEUR-SATELLITE					
250 - 252	EARTH EXPLORATION-SATELLITE (Passive)					
	SPACE RESEARCH (Passive)					
	3816J					
252 - 265	MOBILE					
	MOBILE-SATELLITE 3815E					
	RADIONAVIGATION					
	RADIONAVIGATION-SATELLITE 3815E					
	3816к 3816Ј 3816м					
265 - 275	FIXED					
	FIXED-SATELLITE (Earth-to-	-space) ·				
	MOBILE					
	RADIO ASTRONOMY					
· · · · · · · · · · · · · · · · · · ·	3816N					

GHz 248 - 275

ADD 3816J

The bands 250 - 251 GHz and 262.24 - 262.76 GHz are also allocated to the radio astronomy service on a primary basis for spectral line observations. In making assignments to stations of other services to which the bands are allocated, Administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 3280/116, 3281/116A and Article N / 7).

ADD

/ ADD 3816I

# Annex to Document No. 479-E

Page 1	l
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ADD	3816K	The band 257.5 - 258 GHz is also allocated to the radio astronomy service on a secondary basis for spectral line observations. In making assignments to stations of other services to which the band to allocated, Administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 3280/116, 3281/116A and Article N $/$ _7).
ADD	3815E	In the bands 43.5 - 47 GHz, 66 - 71 GHz, 95 - 100 GHz, 134 - 142 GHz, 190 - 200 GHz and 252 - 265 GHz satellite links connecting land stations at specified fixed points are also authorized when used in conjunction with the mobile-satellite service or the radionavigation-satellite service.
ADD	3816М	Additional allocation : in the Federal Republic of Germany, Argentina, Spain, France, Finland, India, the Netherlands and Sweden, the band 261 - 265 GHz is also allocated to the radio astronomy service on a primary basis.
ADD	.3816N	In making assignments to stations of other services to which the band 265 - 275 GHz is allocated, Administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference, especially in the bands $265.64 - 266.16$ GHz, $267.34 - 267.86$ GHz and $271.74 - 272.26$ GHz, which are used for spectral line observations. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 3280/116, 3281/116A and Article N $(-7)$ .

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# INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 480-E 3 November 1979 Original : English

#### COMMITTEE 5

### Greece

#### MF/HF BAND REQUIREMENTS FOR THE MARITIME MOBILE SERVICE

In IMCO Document No. 208 the present difficulties in ship-to-shore communication have been highlighted. More precisely, the existing lack of an adequate number of channels in the MF and HF bands puts serious contraints on ships' communications. Delays of many hours are experienced in achieving contact between ships and coast stations. To meet the requirements of crews, ships and ship enterprises is therefore difficult or impossible.

In Greece in the last ten years telegraph traffic increased by about 10 % and telephone traffic by about 20 % on average per year.

In absolute figures, the picture is as follows (HF traffic only) :

Year	No. of telegrams exchanged	No. of calls handled			
1978	970,000	353,000			
1968	452,000	77,000			
Difference	528,000	276,000			
Increase	117 %	358 %			

It has to be noted that the above traffic corresponds to about 40 % of the actual demand. The remaining 60 % cannot be handled due to the lack of HF channels and to the continuing increase of congestion in the existing channels. Furthermore, for the above traffic the average waiting time to establish contact today amounts to about 3 hours during normal days and to about 6 hours during holidays (Christmas etc.). For that reason more than 25 % of the telephone traffic which could be handled is cancelled leading to severe economical impacts (e.g. many unnecessary miles of ships' running).

The above picture is certainly not a Greek phenomenon. Ship-to-shore traffic follows the same rules of expansion as every other kind of telecommunication traffic. All countries which already have merchant and fishing fleets have certainly experienced a similar increase in ship-toshore traffic demand and the corresponding constraints caused by the lack of channels to satisfy this demand. Also all countries intending to have a merchant fleet or to expand it will experience the same difficulty.

Last but not least the maritime-satellite service cannot, for a number of well-known reasons, replace the existing conventional means for the majority of ships. This new service will barely serve some of the further increase of ship-to-shore traffic. The only possible solution to the problem lies in the increase of the HF maritime mobile bands. Some of the major reasons for that are :

a) The cost of HF equipment remains low compared to other facilities.

b) A large number of ships, e.g. most of the fishing vessels, cannot support sophisticated and expensive equipments.



c) The number of countries participating in maritime trade continuously increases and an immediate solution for the corresponding ship-to-shore communication has to be found.

d) The number of countries sharing the same HF telephone channel, according to Appendix 25, is between 15 and 30 and this of course is unacceptable.

e) New countries wanting to establish or expand their ship-to-shore communications have the right to do that on an equitable basis.

The answer to the question of where the additional spectrum will be found is not too difficult if the problem is seen in its real dimensions and in the long run. Greece considers that the solution is feasible if some simple and practicable steps are taken :

1) Countries which do not make very extensive use of HF fixed connections can return part of their HF assignments for the benefit of other countries which really need them for that purpose and for the satisfaction of the maritime mobile service. Greece, like many other countries has already for that purpose ceased to use more than 80 % of such assignments and has notified that to the IFRB.

2) The HF spectrum from the Fx service which will be given to the maritime mobile service could be used on a shared basis for some years. During those years a dynamic conversion from fixed to maritime mobile can take place.

3) After the above-mentioned period the Fx service would have a secondary status and the Fx assignments could be used to solve problems of domestic communication using low power equipments.

Certainly the above ideas are not new. Many countries have already put them forward explicitly in their proposals to past and present World Administrative Radio Conferences. The reason for repeating them here is to stress the imperative requirement of the maritime mobile service in obtaining new MF and HF spectrum and that this requirement can be met.

Greece therefore makes the following proposals :-

a) That a general discussion take place as quick as possible in Working Groups 5BA and 5BB to re-examine the requirements and the probable solutions and

b) an ad hoc group be set up to examine the problem in detail and to propose feasible solutions for the benefit of all.

(Geneva, 1979)

Document No. 481-E 5 November 1979 Original : French

COMMITTEE 6

Document No.

SUMMARY RECORD

OF THE

SIXTH MEETING OF COMMITTEE 6 (REGULATORY PROCEDURES)

Monday, 29 October 1979, at 1400 hrs

Chairman : Dr. M. JOACHIM (Czechoslovakia)

### Subjects discussed

1.	First Report of Working Group 6A	278, 340
2.	Second Report of Working Group 6B	287
3.	Third Report of Working Group 6B	357, 397
4.	Resolutions and Recommendations allocated to Committee 6	DT/88, 210(Add.1)
5.	Allocation of documents to Committee 6	149, 153, 345(Rev.1), 356, 358, 359, 376
6.	- Consideration of documents submitted to Committee 6	369, 370, 371, 372, 373

- Work plan for Groups 6A and 6B

U.I.T. GENEVE Document No. 481-E Page 2

1. First Report of Working Group 6A (Documents Nos. 278 and 340)

1.1 The <u>Chairman</u> invited the Committee to consider the Annex to Document No. 278 paragraph by paragraph.

1.2 The <u>Chairman of the IFRB</u> said that in the French version the words "défavorablement influencés" had been put in square brackets because Committee 9 was currently considering the possibility of replacing them by the word "affectés".

Nos. ADD 001, 002, 003 and 004 were approved.

No. ADD 005 was <u>approved</u>, subject to the words "défavorablement influencés" in the French version being placed in square brackets.

Nos. ADD 006, 007, 008, 009, 010, 011, 012, 013, 014, 015 and 016 were approved.

1.3 The <u>Chairman of the IFRB</u> said that the footnote on page 4 would probably be redrafted since it was intended to insert a similar footnote in other Articles.

Subject to that reservation, Document No. 278 was approved.

1.4 The <u>delegate of Morocco</u> said that, because it was so useful to <u>Administrations</u>, he hoped that the diagram reproduced in Document No. 340 would be inserted in Article N13A.

1.5 The <u>delegate of Algeria</u> said that it would be more appropriate merely to make the diagram available to Administrations which asked for it.

1.6 The <u>Chairman of the IFRB</u> recalled that the question of diagrams had been the subject of a proposal by Greece and a draft Resolution by Australia on which no decision had yet been taken.

1.7 The <u>Chairman of Working Group 6A</u> observed that the diagram was only included as an example, and the Committee agreed to <u>take note</u> of Document No. 340 pending its consideration by Working Group 6A.

2. <u>Second Report of Working Group 6B</u> (Document No. 287)

2.1 The <u>Chairman of Working Group 6B</u>, introducing Document No. 287, said that, in the French version, the word "nuisibles" had been put in square brackets at the request of the French delegation pending a decision by Committee 4. Similarly, in the English version, the words "in particular" on page 2 of the Annex had been put in square brackets : the Editorial Group had to agree on a suitable expression in the three languages.

2.2 The <u>Chairman</u> invited the Committee to consider the Annex to Document No. 287 paragraph by paragraph.

2.3 With reference to No. 5059/679, the <u>delegates of the Syrian Arab Republic</u> and of <u>Algeria</u> said that they would submit a more suitable text at the next meeting of the Committee.

2.4 The <u>delegates of Morocco</u> and of <u>Jordan</u> said that they also intended to revert to the text of the document.

In the light of those remarks, the Committee took note of Document No. 287.

3. <u>Third Report of Working Group 6B</u> (Documents Nos. 357 and 397)

3.1 The <u>Chairman of Working Group 6B</u>, introducing Document No. 357, said that, in paragraph 2, the reference to "N20/13" should read "N20/15". After having considered Resolution Mar 20, Sub-Group 6A2 had decided to recommend its retention.

3.2 The <u>Chairman</u> invited the Committee to consider the Annex to Document No. 357 paragraph by paragraph?

3.3. Replying to a question by the <u>delegate of Iran</u>, the <u>Chairman of Working Group 6B</u> said that, in No. 5134, the dots would be replaced by the existing text of No. 711A.

3.4 The <u>delegate of Roumania</u>, referring to No. 5136, said that the word "harmful" should be put in square brackets in accordance with the decision that had been taken on the subject.

3.5 The <u>delegate of the United Kingdom</u> said that his delegation reserved the right to revert to the Article at a later stage.

There being no other comments, Document No. 357 was approved.

3.6 The <u>Chairman of Working Group 6B</u>, introducing Document No. 397, said that it was a revised version of the draft Resolution submitted by Algeria in Document No. DT/72(Rev.1).

3.7 The <u>delegate of Morocco</u> proposed that the words "an appropriate radio frequency management unit" in preambular paragraph b) should be replaced by the words "an administrative unit specializing in radio frequency management".

3.8 The <u>delegate of Brazil</u> said that the paragraph on page 2 starting "<u>recommends</u> that developing countries ..." was not fully in accordance with the facts, because it should be clearly stated that, in the developing countries, the use of funds was planned. He was not opposed to the publication of the text, but would submit a number of comments concerning the drafting of the document as a whole to the Drafting Group.

3.9 The <u>Chairman</u> asked the <u>delegate of Brazil</u> to take part in the work of the Drafting Group which would prepare the final text of the draft Resolution for Committee 9.

3.10 The <u>delegate of Argentina</u> asked whether it would not be appropriate to study Document No. 397 in conjunction with draft Resolution BB on page 13 of Document No. 149 submitted by the Argentine delegation, which dealt in fact with the same question. If the Committee so decided, he would submit an amendment to paragraph 4.

3.11 The <u>Chairman</u> said that the draft Resolution in Document No. 149 had been allocated to Committee 7. He asked the delegate of Argentina whether he wished the two draft Resolutions to be considered by the same Committee - either Committee 6 or Committee 7 - but hoped that the Resolutions would be considered by the Committees to which they had been allocated.

After an exchange of views, it was decided to study the two draft Resolutions separately.

- 4. <u>Resolutions and Recommendations allocated to Committee 6</u> (Documents Nos. DT/88 and 210(Add.1))
- 4.1 Resolutions 1, 2 and 4

The deletion of those Resolutions was approved.

4.2 Resolution Mar 4

The <u>delegate of the United Kingdom</u> said that some of the information in this Resolution was still useful so that it should be kept in force.

It was so decided.

### 4.3 Resolutions Mar 11 and Mar 15

The deletion of those Resolutions was approved.

4.4 Resolution Spa2 - 2

The <u>delegate of Australia</u>, supported by the <u>delegates of the United States</u> and <u>of the</u> United Kingdom, thought that that Resolution should be kept in force.

It was so <u>decided</u>.

Document No. 481-E Page 4

### 4.5 Resolutions Mar2 - 2 and Mar2 - 3

The deletion of these Resolutions was approved.

#### 4.6 Resolution Mar2 - 4

At the request of the <u>delegate of the United Kingdom</u>, it was <u>decided</u> to keep the Resolution in force.

#### 4.7 <u>Resolutions Mar2 - 6, Mar2 - 9, Mar2 - 10, Mar2 - 11 and Mar2 - 12</u>

The deletion of those Resolutions was approved.

### 4.8 Resolutions 1, 2, 3, 4, 5, 6 and 9 - Rad, Recommendations 1 and 4 - Rad

The <u>delegate of the United Kingdom</u> said that the Conference was not competent to delete or amend Resolutions and Recommendations adopted by regional administrative conferences. The <u>delegate of France</u> said that he withdrew his delegation's proposal for the deletion of Resolutions 1, 2 and 4 - Rad.

4.9 After considering the above-mentioned Resolutions and Recommendations of the Regional Administrative LF/MF Broadcasting Conference, the Committee <u>decided</u> that no particular action was called for in their regard.

4.10 The <u>Chairman</u> said that the Secretariat was preparing a new document containing a list of all the Resolutions and Recommendations allocated to Committee 6 and stating the reasons for which some of them should be deleted.

5. <u>Allocation of documents to Committee 6</u> (Documents Nos. 149, 153, 345(Rev.1), 356, 358, 359 and 376)

#### Document No. 149

5.1 The <u>Chairman</u> said that it had been decided that the Committee should not consider the document, but should simply take note of it. If necessary, Committee 7 could inform Committee 6 of its decisions.

#### Document No. 153

5.2 The <u>Chairman</u> said that it had been decided in the Steering Committee that Committee 6 should examine the document together with Document No. 359 submitted by the delegation of Iraq. The two documents dealt, in fact, with the same question, namely, the planning of fixed-satellite services

5.3 The <u>delegate of China</u> asked that all questions relating to the same subject should be considered by the same Committee.

It was so decided.

Document No. 345(Rev.1)

5.4 The <u>delegate of the Syrian Arab Republic</u> asked that the Committee should postpone its decision because his delegation intended to propose a new revised text.

#### Document No. 356

5.5 The <u>Chairman</u> said that the document submitted by Australia on the regulatory principles for the use of the geostationary satellite orbit should be studied by Committee 6.

#### Document No. 358

5.6 The <u>delegate of the United Kingdom</u> hoped that Committee 6 would agree to the document. It was a very simple proposal aimed at finding a solution to certain problems. If there were any difficulties, the document could be examined by Working Group 6A or Working Group 6B.

5.7 The <u>delegate of Denmark</u> agreed with the delegate of the United Kingdom.

5.8 The <u>delegate of Jordan</u> proposed that a Group 6 ad hoc 1 should be set up to consider the proposal and report to the next meeting of Committee 6.

5.9 The <u>Chairman</u> entirely agreed with the delegate of Jordan. He proposed that the delegates of Denmark, Jordan and the United Kingdom and a representative of the CCIR should take part in the work of the Group, the Chairman of which might be the delegate of Denmark.

5.10 The <u>delegate of Algeria</u> said that he entirely agreed with the proposal, but thought that a representative of the IFRB should also work with the Group.

It was so decided.

5.11 The <u>Chairman</u> requested the Group 6 ad hoc 1 to submit a white document to the meeting of the Committee to be held on Friday, 2 November.

#### Document No. 359

5.12 The <u>delegate of Iraq</u> said that he had nothing to add to what the delegate of China had said. There were several proposals on the same subject and he hoped that they would all be considered together by the same Committee.

#### Document No. 376

5.13 The <u>Chairman</u> said that the document consisted of a note from the Chairman of Committee 5 to the Chairman of Committee 6 asking for the views of Committee 6 on the definitions of the terms "Standard Earth Station" and "Transportable Earth Station".

He asked whether Working Group 6A could undertake the study of that question.

5.14 The <u>Chairman of Working Group 6A</u> answered in the affirmative and said that the Working Group would prepare a reply for the Chairman of Committee 5.

5.15 The <u>Chairman</u> drew attention to the fact that China, Australia, Iraq, Afghanistan and India had all submitted proposals relating to the planning of fixed-satellite services or to the problem of equitable access to the geostationary orbit for all countries; the latter question did not directly fall within the terms of reference of a Committee 6 Working Group. He accordingly proposed to set up a Group 6 ad hoc 2 consisting of delegates of the above mentioned countries to study the points in question.

#### That proposal was approved.

5.16 The <u>delegates of the United Kingdom</u>, the United States, the USSR, Kenya, Japan, France, <u>Colombia</u>, <u>Iran</u>, <u>Indonesia</u>, <u>Nigeria</u>, <u>Canada</u>, <u>Brazil</u>, <u>Australia</u>, <u>China</u>, <u>Iraq</u>, <u>Afghanistan</u> and <u>the</u> <u>Netherlands</u> announced their intention to take part in the work of the Group.

5.17 The <u>Chairman</u> said that the Group just set up should prepare a draft Resolution on the questions referred to for the next meeting of the Committee. He suggested that the Vice-Chairman of Committee 6 should be Chairman of the ad hoc Group.

That suggestion was <u>approved</u>, subject to acceptance by the Vice-Chairman who was not present at the meeting.

5.18 The <u>delegate of Australia</u> drew participants' attention to the importance of the question dealt with in Document No. 356 and requested that the text should be examined not only by Group 6 ad hoc 2 but also by Working Group 6A.

#### It was so <u>agreed</u>.

5.19 At the request of the <u>delegate of the United Kingdom</u>, it was <u>agreed</u> that representatives of the CCIR and the IFRB should also form part of the ad hoc Group.

5.20 The <u>Chairman</u> drew the Committee's attention to the existence of a World Plan Committee administered by the CCITT and proposed that a representative of that body also should take part in the work of the ad hoc Group.

#### It was so decided.

5.21 At the request of the <u>Deputy Secretary-General</u>, it was <u>decided</u> that a representative of the General Secretariat of the ITU should also cooperate in the work of the ad hoc Group.

5.22 In reply to the <u>delegate of Colombia</u>, who suggested that Group 6 ad hoc 2 should likewise consider Document No. 75 submitted by Uganda, the <u>Chairman</u> said that he would talk with the delegation concerned and report on the result to the next meeting of the Committee.

#### 6. - Consideration of documents from Committee 6 (Documents Nos. 369, 370, 371, 372 and 373)

The Committee took note of the various notes contained in the above-mentioned documents.

#### - Plan of work of Groups 6A and 6B

6.1 The <u>Chairman of Working Group 6A</u> said that the Group had considered Articles Nll and Nl3 but still had to deal with Article Nl2. Since some of the proposals submitted to the Group were very detailed, it was not easy to forecast how long the work would take, but he felt that five further meetings would certainly be required for the Working Group to complete its task. Article Nll could be considered by the Committee at its next meeting.

6.2 In reply to a question by the <u>Chairman</u> on Article N13, the <u>Chairman of Working Group 6A</u> said that the Group had to complete its consideration of the relevant proposals and that France and China had submitted documents concerning the life-time of satellites. The Group should continue its study of the proposals and submit the results of its work to Committee 6 which would have to take a decision on the subject.

6.3 At the suggestion of the <u>delegate of Algeria</u>, supported by the <u>delegates of Iran</u> and <u>Cuba</u>, it was <u>decided</u> that Article N12, which had given rise to a large number of proposals, should be dealt with at the next meeting of Committee 6.

6.4 The <u>Chairman of Working Group 6B</u> said that the last report to be submitted by the Group to the Committee was almost completed as a result of the excellent work done by all participants and by the Technical Secretariat. The report would be submitted to the Committee at its plenary meeting on Friday, 2 November.

6.5 The <u>Chairman of Working Group 6A</u> said that his Group also would submit the results of part of its work to that meeting.

#### The meeting rose at 1700 hours.

The Secretary :

The Chairman :

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M. JOACHIM

R. PLUSS

(Geneva, 1979)

Document No. <u>482-E</u> 5 November 1979 Original : English

COMMITTEE 6

### FIRST REPORT OF AD HOC GROUP 2 TO COMMITTEE 6

1. The ad hoc Group was established to examine all proposals related to the use of the geostationary orbit and to the planning of space services utilizing it.

2. The Group has held two meetings to date and will meet again on Monday, 5 November.

3. The terms of reference of the Group, which were unanimously accepted, are set out in Document No. DT/150(Rev.l).

4. A total of thirteen documents are being studied by the Group. Twelve of these documents have been introduced and discussed.

5. Completion of the introduction and discussion of documents is planned for the next meeting, after which the agreement of the Group to a text(s) for submission to Committee 6 will be pursued.

6. At this juncture it seems that the ad hoc Group will require at least five meetings to complete its work.

E.J. WILKINSON Chairman of ad hoc Group 2 of Committee 6



INTERNATIONAL TELECOMMUNICATION UNION

# WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 483-E 5 November 1979 Original : Spanish

WORKING GROUP 5BB

## NOTE FROM THE CHAIRMAN OF WORKING GROUP 5BA TO THE CHAIRMAN OF WORKING GROUP 5BB

With reference to the frequency bands below 4 000 kHz, this Working Group has adopted footnotes 3495/201A and 3500/205A.

Footnote 3498/203A has been retained unchanged for the 2 501 - 2 502 kHz band. Footnote 3496/202 has been retained unchanged for the bands below 4 000 kHz to which it applies.

Since these footnotes apply also to bands above 4 000 kHz, this information is forwarded for coordination purposes.

L. COOK Chairman of Working Group 5BA



(Geneva, 1979)

Document No. 484-E 5 November 1979 Original : Spanish

WORKING GROUP 5BB

## NOTE FROM THE CHAIRMAN OF WORKING GROUP 5BA TO THE CHAIRMAN OF WORKING GROUP 5BB

During discussion of the proposals relating to the 3 950 - 4 000 kHz band in Region 3, it was agreed to include a footnote proposed by the Japanese delegation on the use of frequency 4 000 kHz (3 998.2 - 4 002 kHz) by the standard frequency and time signal service on a primary basis. These emissions will be protected against harmful interference, so that the service will have preferential status in the 3 998.2 - 4 002 kHz band.

Since this note also concerns your Working Group, this information is forwarded for discussion.

L. COOK Chairman of Working Group 5BA



INTERNATIONAL TELECOMMUNICATION UNION

# WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. <u>485-E</u> 5 November 1979 Original : Spanish

WORKING GROUP 5C

## NOTE FROM THE CHAIRMAN OF WORKING GROUP 5BA TO THE CHAIRMAN OF WORKING GROUP 5C

With regard to the frequency bands below 4 000 kHz, Working Group 5BA adopted footnote 3495/201A.

As this footnote applies also to frequency bands dealt with in your Working Group, this information is forwarded for coordination purposes.

L. COOK Chairman of Working Group 5BA



(Geneva, 1979)

Document No. 486-E 5 November 1979 Original: English

### COMMITTEE 6

### THIRD REPORT OF WORKING GROUP 6A

The Working Group has considered the existing Resolutions and Recommendations referred to it by Committee 6.

The decisions taken by the Working Group on each Resolution and Recommendation are given in <u>Annex 1</u>. The attention of the Editorial Committee has been drawn, by means of footnotes, to comments relating to certain Resolutions and Recommendations.

The Working Group has decided, in principle, to abrogate <u>Resolution No. Mar2 - 13</u> but to request Committee 7 to decide whether it should be maintained in view of the operational problems involved.

The Working Group has decided to abrogate Resolution No. Sat - 2 and to replace it by a new Resolution No.  $\sqrt{6}A-1$  which appears in Annex 2.

Working Group 6A has decided to maintain <u>Resolution No. Sat 3</u> until a decision is made by Committee 7 on Resolution No. Sat 4.

Finally, it has been decided to refer <u>Recommendation No. Spa2 - 1</u> to the Ad Hoc Group 2 of Committee 6.

J.K. BJÖRNSJÖ Chairman of Working Group 6A

Annexes: 2



#### ANNEX 1

The following Resolutions and Recommendations should be maintained:

Resolution No. 151) 2) Resolution No. Mar 5¹⁾ 2) 3) Resolution No. Mar 19 Resolution No. Spa2 - 1 Resolution No. Mar2 - 7 Resolution No. Mar2 - 8 Resolution No. Mar2 - 14 Resolution No. Sat - 5 Resolution No. Sat - 6 Resolution No. Sat - 9 Resolution No. Aer2 - 2¹⁾ Resolution No. Aer2 - 3¹⁾ Resolution No. Aer2 - 4¹⁾ Resolution No. Aer2 -  $5^{1}$ Recommendation No. 211) Recommendation No. Spa2 - 1 Recommendation No. Aer2 - 31) Recommendation No. Aer2 - 4¹⁾

2. Resolution No. Sat - 1 should be abrogated.

3. <u>Resolution No. Mar2 - 13</u> should be <u>abrogated in principle</u>, but <u>Committee 7</u> should be requested to take the final decision in view of the operational problems involved.

4. <u>Resolution No. Sat - 2</u> should be abrogated and replaced by a new Resolution No. <u>/6A-1/</u> given in Annex 2.

5. <u>Resolution No. Sat - 3</u> should be maintained until Committee 7 has decided on <u>Resolution No. Sat - 4</u>.

 <u>Note to Editorial Committee</u>: This Resolution should be brought in line with the decisions taken in other Committees of this Conference, in particular with respect to decisions taken in Committee 5 with respect to frequency allocations.

- 2) It was noted in the Sub-Working Group that final consideration of this Pesolution should best occur at the next appropriate specialist Conference.
- 3) Note to Editorial Committee:

The Working Group noted proposals made to this Conference relating to the use of A3J emissions on the carrier frequency 2182 kHz (e.g. NZL/51/168 to 173). When a decision is made on this matter at WARC-79 it may be necessary to modify this Resolution accordingly.

1.

### ANNEX 2

RESOLUTION No.  $/ 6A - 1_7$ 

Relating to the use of frequency assignments to terrestrial and space radiocommunication stations in the band 11.7 - 12.2 GHz in Region 3 and in the band 11.7 - 12.5 GHz in Region 1

The World Administrative Radio Conference, Geneva, 1979,

#### considering

a)		that the Wo	rld Broad	lcastir	ig-Satel]	lite	Adminis	strat	tive	Radio
	. `	Conference,	Geneva,	1977,	adopted	Resc	lution	No,	Sat-	-2;

- b) that No. 405BA of the Radio Regulations provides that in the band 11.7-12.2 GHz in Region 3 and in the band 11.7-12.5 GHz in Region 1, existing and future fixed, mobile and broadcasting services shall not cause harmful interference to broacasting-satellite stations operating in accordance with the decisions of that Conference;
- c) that the decisions of that Conference included a Plan for stations in the Broadcasting-Satellite Service;
- d) that the coordination procedures described in Resolution No. Spa2 - 3 are to be applied only until the entry into force of plans pursuant to Resolution No. Spa2 - 2;

#### resolves

- 1. that all administrations using or intending to use frequency assignments to terrestrial stations in the bands covered by the Plan shall decide as soon as possible, whether or not these assignments will affect frequency assignments in accordance with the Plan (if necessary, with the assistance of the IFRB);
- 2. that administrations may continue to use frequency assignments which are not in accordance with the Plan, provided that agreement is reached with the administration whose broadcasting-satellite stations are affected;
- 3. that the administrations seeking agreement shall inform the IFRB of the terms of the agreement reached;
- 4. that, upon receipt of such information, the IFRB shall insert a symbol in the Remarks column of the Master Register indicating the duration specified in the agreement. The duration specified shall also be published in a special section of its weekly circular;

# Annex 2 to Document No. 486-E

Page 4

# 5. that Resolution No. Sat-2 is abrogated and superseded by the present Resolution;

#### invites the IFRB

to assist administrations in implementing the provisions of this Resolution.

### Note to Editorial Committee :

The drafting of the present Resolution does not prejudge a decision by this Conference concerning the form in which existing Resolutions are maintained, wholly or in part.

### Explanatory Note

This Resolution contains the sections of Resolution No. Sat-2 that remain relevant. In particular, "considerings" b) and d) of the present Resolution follow from "considerings" b) and c) of Resolution No. Sat-2, respectively; "resolves" 1, 2, 3 and 4 follow from "resolves" 1, 3, 4 and 5 of Resolution No. Sat-2, respectively.

# INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 487(Rev.1)-E 13 November 1979 Original : French

COMMITTEES 5 AND 6

#### Republic of Upper Volta

#### PROPOSALS FOR THE WORK OF THE CONFERENCE

RESERVATION OF TROPICAL BROADCASTING BANDS FOR EXCLUSIVE USE IN COUNTRIES BELONGING TO THE TROPICAL ZONE WITH A VIEW TO FUTURE PLANNING OF THESE FREQUENCY BANDS

Almost all the HF broadcasting bands are exclusively allocated to broadcasting. All the conferences convened to revise the broadcasting frequency bands have endeavoured to change the regional allocation of frequency bands to broadcasting services into a world allocation.

The newly independent countries found themselves allocated the so-called "tropical" bands for their immediate broadcasting needs. These bands used for tropical broadcasting not only have to be shared with other services such as the fixed service and the mobile service, which are already using them, but are also subject to certain restrictions, which at first sight seemed to be imposed on all the services operating in those bands.

Although the broadcasting service has priority status in relation to the other services operating in those bands, the power of national broadcasting transmitters had to be relatively weak in order not to cause harmful interference to previous assignments operating in other regions in those parts of the radio frequency spectrum.

Furthermore, when the criteria for planning the MF and LF broadcasting bands were established, emphasis was placed on the high noise levels in the Tropical Zone. High power levels, entailing the use of LF waves in the essentially underdeveloped Tropical Zone, had the effect of depriving the region of that type of broadcasting.

This same region is once again obliged to adopt low power levels in order to permit tropical broadcasting.

This contradiction, which is essentially due to the fact that the original users of these bands do not want to surrender them to the newly independent countries, should be eliminated by WARC-79.

In order to allow this type of broadcasting to develop, WARC-79 should draw up a draft resolution envisaging the use of the tropical bands exclusively for broadcasting activities and solely in the countries situated in the Tropical Zone.



# INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. <u>487-E</u> 5 November 1979 <u>Original</u> : French

COMMITTEES 5 AND 6

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(Geneva, 1979)

Document No. 488-E 5 November 1979 Original : French

WORKING GROUP 6A

### REPORT OF SUB-WORKING GROUP 6A4

### TO WORKING GROUP 6A

Sub-Working Group 6A4 held three meetings at which it examined Document No. DL/180 containing suggestions for the general principles to be applied in the revision of Article N12. Its findings appear in the Annex hereto and are submitted to Working Group 6A for consideration.

Sub-Working Group 6A4 wishes to draw special attention to the following points :

- 1) all the proposals relating to Article N12 made at the Conference should be considered by the Drafting Group when the principles set out in the Annex are applied;
- 2) these principles relate to the fixed service in the HF band; in shared bands, it will be necessary to examine their implications for services other than the fixed service;
- 3) as far as possible the wording of the provisions of Article N12 should be sufficiently precise to preclude any need for the IFRB to interpret provisions whose application might prove delicate; for example, the question of deciding which assignments may be downgraded by the IFRB.

N. BOUHIRED Chairman of Sub-Working Group 6A4

Annex : 1



### A N N E X

GENERAL PRINCIPLES TO BE APPLIED TO THE FIXED SERVICE

#### IN DECAMETRIC WAVE BANDS (HF)

#### IN THE REVISION OF ARTICLE N12

1. When an Administration of a developing country is in difficulties, it addresses itself to the IFRB:

- the IFRB should apply the following principles :

- a) to give priority treatment to this special case;
- b) to find a possible assignment by downgrading the status of a prior assignment and possibly by suppressing that assignment if necessary.
- While seeking the solution, the IFRB considers the oldest assignments of countries which have satisfactory alternative means of communication.

2. To envisage the possibility of reducing considerably the number of assignments in the Master Register with a view to identify the parts of the spectrum the less loaded, then all the remaining assignments should begin on the same date.

3. The IFRB must be authorized to choose and propose new assignments, preferably in parts of the spectrum the less loaded.

4. The IFRB must be limited to suggesting technical solutions leaving the decisions to Administrations. Consequently, new functions of the IFRB must be defined exactly.

5. The Register must reflect the actual times of use of assignments to eliminate an unnecessary reason for unfavourable and unreal findings.

6. Stand-by assignments should have a lower degree of protection than that normally given to assignments in regular operational use.

7. The identification of sources of interference, particularly those affecting developing countries, should be made more dynamic and rapid. The IFRB should be able to use the International Monitoring system for this purpose; moreover, the exchange of corresponding information should be made by the most rapid means (for example : telex).

TIN )

#### To introduce provisions :

- a) enabling an Administration in difficulties to ask the Board to examine the risks of interference from existing assignments to its new assignment;
- b) enabling the Board to consider this new assignment as one requiring special consideration and action to ensure its protection against interference.

9. To make sure that the Administrations which might be affected by a new assignment (made upon insistence - Radio Regulation 515, etc.) are duly informed of this risk.

10. To envisage improvement of the status of an assignment obtained on insistence of an Administration and which has worked without causing harmful interference during a certain time, taking into account, where appropriate, the seasonal and solar cycles.

11. To provide within the IFRB measures aimed at helping developing countries by proposing appropriate solutions.

12. To intervene within the Administrative Council to increase the aid to developing countries in the field of frequency management.

8.

(Geneva, 1979)

Document No. 489-E 5 November 1979 Original : English

COMMITTEE 4

<u>Fiji</u>

#### RECOMMENDATION No. ...

# Relating to Heterodyne Interference in the MF Broadcasting Bands

The World Administrative Radio Conference, Geneva, 1979,

#### considering

a) that heterodyne interference is possible when different radio frequency spacings are used in adjacent areas and within interference range of each other;

b) that Regions 1 and 3 have introduced a 9 kHz channelling plan whereas Region 2 now uses 10 kHz;

c) that Region 2 will hold a Regional Administrative Radio Conference in 1980 and 1981 to develop a plan for the MF broadcasting bands;

in view of the provisions of No. 3282/117 of the Radio Regulations;

recommends that Region 2 consider :

i) the introduction and implementation of a 9 kHz channelling plan based on the frequency allocation plan agreed to in the Regional (1 and 3) Agreement (Geneva 1975); and

ii) refraining from any increases in field strengths until such time as i) above has been implemented.



(Geneva, 1979)

Document No. 490-E 5 November 1979 Original : Spanish

COMMITTEE 4

### NOTE FROM THE CHAIRMAN OF COMMITTEE 5 TO THE CHAIRMAN OF COMMITTEE 4

In the course of the discussion of the band 2 065 - 2 107 kHz in Regions 2 and 3, it was decided to include a footnote in order to allow the frequencies in this band (which has been allocated to the maritime mobile service on an exclusive basis) to be used by fixed service stations which communicate only within national frontiers and cause no harmful interference to the maritime mobile service.

Two possible methods of ensuring the protection of the maritime mobile service were considered : to limit the mean power of fixed service stations (500 watts) (see IND/83/25) or to limit the distance to the coast (500 km).

It was decided to refer the decision on which method should be adopted to Committee 4.

M. HARBI Chairman of Committee 5



## (Geneva, 1979)

в.б

Corrigendum No. 1 to Document No. 491 24 November 1979

Z

### PLENARY MEETING

Pages B.6-12 and B.6-13

Replace the text of Resolution AD by the following:

P. BASSOLE Chairman of the Editorial Committee

Annex: 2 pages



### B.6-12 (Corr. 1 to Doc. No. 491)

#### RESOLUTION AD

### Relating to the Development of National Radio Frequency Management

The World Administrative Radio Conference, Geneva, 1979,

### considering

<u>a)</u> that the Radio Regulations contain, inter alia, procedures for the coordination, notification and registration of frequencies which specify the rights and obligations of Member countries;

b) that the application of the above-mentioned procedures necessitates an appropriate radio frequency management unit in each Member country;

<u>c)</u> that the existence of such a unit helps Member countries to safeguard their rights and to discharge their obligations under the Radio Regulations;

 $\underline{d}$  that the application of the Radio Regulations through the agency of such units is in the interest of the international community as a whole;

#### noting

that such a unit requires an adequate number of suitably qualified staff;

#### noting further

that the administrations of many developing countries need to create or to strengthen such a unit, appropriate to their administrative structure, with responsibility for the application of the Radio Regulations at the national and international levels;

#### recommends

that the administrations of such countries take appropriate action;

#### resolves

1. that meetings shall be organized between representatives of the IFRB, the CCIR and the personnel involved in frequency management matters from administrations of developing and developed countries;

2. that such meetings shall be aimed at designing standard structures suitable for administrations of developing countries and include discussions concerning the establishment and operation of radio frequency management units;
# (Corr. 1 to Doc. No. 491)

3. that such meetings should also identify the particular needs of developing countries in establishing such units, and the means required to meet those needs;

## recommends

that developing countries when planning the use of funds, particularly those received from international sources, make provision for participation in these meetings as well as for the introduction and development of such units;

## invites the Administrative Council

to take the necessary measures for the organization of such meetings;

## instructs the Secretary-General

<u>a)</u> to circulate this Resolution to all Members of the Union, drawing their attention to its importance;

b) to circulate the results of such meetings, particularly to the developing countries;

c) to inform the developing countries of the types of assistance the ITU can provide in setting up the desired structure;

## draws the attention of the next Plenipotentiary Conference to

a) the particular problems identified in this Resolution;

b) the need for prompt and effective action to resolve them;

 $\underline{c}$ ) the need to take all practicable measures to ensure that resources are made available for this purpose.

# WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

**B.6** 

Document No. 491 5 November 1979

## PLENARY MEETING

# 6th SERIES OF TEXTS SUBMITTED BY THE EDITORIAL COMMITTEE TO THE PLENARY MEETING

The following texts are submitted to the Plenary Meeting for <u>first</u> reading:

Source	Document	No.

## Title

C.6 411(Rev.) + 412

Art. 13A; Art. 18 to Art. 20 Recommendation D (ex No. 5) Resolution AD Resolutions Nos. Mar 4; Mar 20 Resolution No. Spa2 - 2 Resolutions Nos. Mar2 - 4; Mar2 - 15 Recommendation No. 16

SUP

Resolutions Nos. 1; 2; 4; Mar 11; Mar 15 Mar2 - 2; Mar2 - 3; Mar2 - 6 Mar2 - 9; Mar2 - 10; Mar2 - 11 Mar2 - 12

> P. BASSOLE Chairman of the Editorial Committee

Annex: 14 pages



# ARTICLE N13A

# Supplementary Procedure to be applied in Cases where a Footnote in the Table of Frequency Allocations requires an Agreement with an Administration

ADD	4730	§ 1. (1) Before an administration notifies to the Board a frequency assignment in accordance with any footnote in the Table of Frequency Allocations which makes reference to this Article, it shall obtain the agreement of any other administration whose services may be affected. In the case of a footnote concerning a space radiocommunication service, this procedure may be initiated before or at the same time as the application of the provisions of Article N11.
ADD	4731	(2) The administration seeking such an agreement shall, sufficiently early before the planned date of putting the assignment into service, send to the Board:
ADD	4732	a) for terrestrial radiocommunication services, the basic characteristics of the planned assignment listed in the appropriate Section of Appendix 1;
ADD	4733	b) for space radiocommunication services, the characteristics of the planned assignment listed in Appendix <b>1B</b> or Appendix <b>1A</b> when the latter is available. 1
ADD	4733.1	l The information in Appendices <b>1A</b> or <b>1B</b> submitted to the Board under Article <b>N11</b> may also be used for the purpose of this procedure.
ADD	4734	(3) The administration seeking agreement may, when sending its information to the Board, also identify those other administrations that are believed to have services which may be affected.
ADD	4735	§ 2. (1) The Board shall publish the information sent under Nos. 4731 to 4734 in a special section of its weekly circular ¹ and shall also, when the weekly circular contains such information, so advise administrations by circular telegram.
ADD	4735.1	¹ In the case of a space radiocommunication service, the administration submitting the information listed in Appendices <b>1A</b> or <b>1B</b> in accordance with the provisions of Article <b>N11</b> may also ask the Board

ADD

and the Board shall indicate in the appropriate special section of its weekly circular that agreement under this Article is also sought. ADD 4736 (2) The Board shall endeavour to identify administrations whose services may be affected, and shall include the names of those administrations it is able to identify in the special section of its weekly circular and in the circular telegram mentioned under No. 4735. ADD 4737 § 3. (1) Any administration, upon receipt of this information and believing that the planned assignment may affect its services operating in accordance with the Talbe of Frequency Allocations or planned to be so operated, shall, within one hundred and twenty days of the date of the relevant weekly circular, so inform the administration requesting agreement and the Board. (2) Any administration not having ADD 4738 commented within the period specified in No. 4737 shall be regarded as unaffected by the planned assignment. Any administration responding ADD 4739 (3) under No. 4737 to a request for agreement shall, if possible at the same time, give at least the relevant basic characteristics of its services which may be affected and shall make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem. A copy of all this information shall simultaneously be sent to the Board. ADD 4740 § 4. The administration requesting agreement under Nos. 4731 to 4733 and the administration responding under No. 4737 shall together 1 make every possible effort to resolve the problem before the date of bringing into use of the planned assignment. ADD 4740.1 ¹ In the absence of appropriate CCIR Recommendation or IFRB Technical Standards, the technical criteria to be used in such a case shall be agreed between the administrations involved. 4741 § 5. Either administration may request ADD from the other additional information which may be required to resolve the problem. A copy of such a request and of any information given in response shall be sent to the Board. 4742 § 6. ADD Either administration may request the assistance of the Board in an attempt to resolve the problem. ADD 4743 § 7. Following resolution of the problem, the administration which sought agreement shall inform the Board to that effect.

to apply this information in pursuance of this procedure

ADD	4744	§ 8. An administration having sought agreement under Nos. 4731 to 4733 and having received no response under No. 4737 from any administration shall inform the Board thereof and shall then be regarded as having successfully completed the procedure of this Article.
ADD	4745	§ 9. An administration having sought agreement under Nos. 4731 to 4733, having received one or more responses under No. 4737 and having informed the Board under No. 4743 of the resolution of the problem, shall be regarded as having obtained agreement in accordance with the relevant footnote in the Table of Frequency Allocations.
ADD	4746	§ 10. The Board, following receipt of advice under No. 4744 or No. 4745 as to the completion of this procedure, shall publish this information in the appropriate special section of the weekly circular.
ADD	4747	§ 11. An administration seeking agreement or an administration with which agreement is sought or any other administration whose services might be affected may request the assistance of the Board in applying any of the steps of this procedure, particularly in:
ADD	4748	a) identifying administrations whose services might be affected;
ADD	4749	b) evaluating the levels of interference;
ADD	4750	<u>c)</u> defining, with the agreement of the administrations involved, the technical criteria to be used. 1
ADD	4750.1	l In the absence of appropriate CCIR Recommendations or IFRB Technical Standards, the technical criteria to be used in such a case shall be agreed between the administrations involved.

## ARTICLE N18

## International Monitoring

MOD 5058 678 § 1. To assist to the extent practicable in the implementation of these Regulations, in particular to help ensure efficient and economical use of the radio frequency spectrum and to help in the prompt elimination of harmful interference, administrations agree to continue the development of monitoring facilities and, to the extent practicable, to co-operate in the continued development of the international monitoring system. 5059 679 § 2. MOD The international monitoring system comprises only those monitoring stations which have been so nominated by administrations in the information sent to the Secretary-General in accordance with No. 5065/685. These stations may be operated by an administration; or, in accordance with an authorization granted by the appropriate administration, by a public or private enterprise, by a common monitoring service established by two or more countries, or by an international organization.

MOD 5060 680 § 3. Administrations will, as far as they consider practicable, conduct such monitoring of both a general and a specific nature as may be required of them by the International Frequency Registration Board or by other administrations. In requesting monitoring observations, the Board and administrations should take into account the monitoring facilities set forth in the List of International Monitoring Stations (List VIII, see Article N24/20), and should clearly specify both the purpose for which the observations are requested and the parameters of the requested monitoring work (including appropriate schedules). The results of such monitoring forwarded to other administrations may also be sent to the Board, if appropriate.

NOC 5061 681 § 4. Each administration or common monitoring service established by two or more countries, or international organizations participating in the international monitoring system, shall designate a centralizing office to which all requests for monitoring information shall be addressed and through which monitoring information will be forwarded to the Board or to centralizing offices of other administrations.

NOC

NOC	5062	682	§ 5. Administrations agree that monitoring requests from international organizations not participating in the international monitoring system should be co-ordinated by the Board and, if appropriate, forwarded by it to administrations.
NOC	5063	683	§ 6. However, these provisions shall not affect private monitoring arrangements made for special purposes by administrations, international organizations, or public or private enterprises.
NOC	5064	684	§ 7. The technical standards recommended by the CCIR to be observed by monitoring stations shall be recognized by the Board as the optimum practicable technical standards for monitoring stations participating in the international monitoring system. However, to meet some needs for monitoring data, stations observing lower technical standards may participate in the international monitoring system at the discretion of their administrations.
MOD	5065	685	§ 8. Administrations having determined whether the monitoring stations meet adequate technical standards, shall notify to the Secretary-General pertinent information on the centralizing office and on the stations they wish to have included in List VIII, clearly identifying those stations which may participate in the international monitoring system (see Article N24/20 and Appendix 9).
NOC	5066	686	§ 9. (1) Results of measurements forwarded to the Board or other administrations shall indicate the estimated accuracy obtained at the time the measurements were made.
NOC	5067	687	(2) Where the results supplied by any monitoring station appear to be doubtful or insufficient for its purposes, the Board shall advise the administration or international organization concerned giving the appropriate details.
NOC	5068	688	§ 10. When rapid action is required, communications between the Board and centralizing offices should be transmitted by the most expeditious means available.
MOD	5069	689	§ 11. Administrations shall make every effort to arrange for monitoring observations (see Appendix 6) to be submitted to the Board as soon as possible.

NOC 5070 690 § 12. Centralizing offices may request the help of other centralizing offices in order to implement the provisions of this Article and of Article N20/15.

MOD 5071 691 § 13. The Board shall record the results supplied by the monitoring stations participating in the international monitoring system, and shall prepare periodically, for publication by the Secretary-General, summaries of the useful monitoring data received by it including a list of the stations contributing the data.

ADD 5071A § 13A. When an administration, in supplying monitoring observations from one of its monitoring stations taking part in the international monitoring system, states to the Board that a clearly identified emission is not in conformity with these Regulations, the Board shall draw the attention of the administration concerned to those observations.

SUP 5072 (included in 5071)

§ 14.

# ARTICLE N19/16

# Reports of Infringements

NOC	5098	719	§ 1. Infringements of the Convention or Radio Regulations shall be reported to their respective administrations by the control organization, stations or inspectors detecting them. For this purpose they shall use forms similar to the specimen given in Appendix 7.
NOC	5099	720	§ 2. Representations relating to any serious infringement committed by a station shall be made to the administration of the country having jurisdiction over the station, by the administrations which detect it.
(MOD)	5100	721	§ 3. If an administration has information of an infringement of the Convention or Radio Regulations, committed by a station over which it may exercise authority, it shall ascertain the facts, fix the responsibility and take the necessary action.
	5101 to 5125		NOT allocated.

NOC

## ARTICLE N20/15

## NOC

## Procedure in a Case of Harmful Interference

- (MOD) 5126 704 § 1. It is essential that Members exercise the utmost goodwill and mutual assistance in the application of the provisions of Article 35 of the Convention and of this Article to the settlement of problems of harmful interference.
- (MOD) 5127 705 § 2. In the settlement of these problems, due consideration shall be given to all factors involved, including the relevant technical and operating factors, such as: adjustment of frequencies, characteristics of transmitting and receiving antennae, time sharing, change of channels within multichannel transmissions.
- (MOD) 5128 706 § 3. When a case of such harmful interference is reported by a receiving station, it shall give to the transmitting station whose service is being interfered with all possible information which will assist in determining the source and characteristics of the interference.
- MOD 5129 707 § 4. Where practicable, and subject to agreement by administrations concerned, the case of harmful interference may be dealt with directly by their specially designated monitoring stations or by direct coordination between their operating organizations.
- ADD 5129A § 4A. For the purpose of this Article, the term "administration" may include the centralizing office designated by the administration, in accordance with No. 5061/681.
- MOD 5130 708 § 5. If a case of harmful interference so justifies, the administration having jurisdiction over the receiving station experiencing the interference shall inform the administration having jurisdiction over the transmitting station whose service is being interfered with, giving all possible information.
- MOD 5131 709 § 6. If further observations and measurements are necessary to determine the source and characteristics of and to establish the responsibility for the harmful interference, the administration having jurisdiction over the transmitting station whose service is being interfered with may seek the co-operation of other administrations, particularly of the administration having jurisdiction over the receiving station experiencing the interference, or of other organizations.

MOD	5132	710	§ 7. Having determined the source and characteristics of the harmful interference, the administration having jurisdiction over the transmitting station whose service is being interfered with shall inform the administration having jurisdiction over the interfering station, giving all useful information in order that this administration may take such steps as may be necessary to eliminate the interference.
MOD	5133	711	§ 8. When a safety service suffers harmful interference, or in other cases with the prior approval of the administration having jurisdiction over the transmitting station whose service is being interfered with, the administration having jurisdiction over the receiving station experiencing the interference may also approach directly the administration having jurisdiction over the interfering station.
ADD	5133 <u>a</u>		§ 8A. An administration receiving a communication to the effect that one of its stations is causing harmful interference to a safety service shall promptly investigate the matter and take any necessary remedial action.
MOD	5134	711A Spa	§ 9. When the service rendered by an earth station suffers harmful interference, the administration having jurisdiction over the receiving station experiencing such interference may also approach directly the administration having jurisdiction over the interfering station.
ADD	5134A		§ 9A. On being informed that a station over which it has jurisdiction is believed to have been the cause of harmful interference, an administration shall, as soon as possible, acknowledge receipt of that information by telegram. Such acknowledgement shall not constitute an acceptance of responsibility.
MOD	5135	711B Spa	§ 10. When cases of harmful interference occur as a result of emissions from space stations, the administrations having jurisdiction over these interfering stations shall, upon request from the administration having jurisdiction over the station experiencing the interference, furnish current ephemeral data necessary to allow determination of the positions of the space stations when not otherwise known.
MOD	5136	712	§ 11. In cases of harmful interference where rapid action is required, communications between administrations shall be transmitted by the quickest means available and, subject to prior authorisation by the administrations concerned in such cases, information may be exchanged directly between specially designated stations of the international monitoring system.
ADD	5136 <b>A</b>		§ 11A. Recognizing that transmissions on the distress and safety frequencies (see Article N35) require absolute international protection and that the elimination of

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harmful interference to such transmissions is imperative, administrations undertake to act immediately when their attention is drawn to any such harmful interference.

MOD 5137 713 § 12. Full particulars relating to harmful interference shall, whenever possible, be given in the form indicated in Appendix 8.

MOD 5138 714 § 13. If the harmful interference persists in spite of the action taken in accordance with the procedures outlined above, the administration having jurisdiction over the transmitting station whose service is being interfered with may address to the administration having jurisdiction over the interfering station a report of irregularity or infraction in accordance with the provisions of Article N19/16.

MOD 5139 715 § 14. If there is a specialized international organization for a particular service, reports of irregularities and of infractions relating to harmful interference caused or suffered by stations in this service may be addressed to such organization at the same time as to the administration concerned.

NOC 5140 716 § 15. (1) If it is considered necessary, and particularly if the steps taken in accordance with the procedures described above have not produced satisfactory results, the administration concerned shall forward details of the case to the International Frequency Registration Board for its information.

(MOD) 5141 717 (2) In such a case, the administration Spa2 concerned may also request the Board to act in accordance with the provisions of Sections VII and VIII of Article N12/9 and Sections VII and VIII of Article N13/9A; but it shall then supply the Board with the full facts of the case, including all the technical and operational details and copies of the correspondence.

(3)

SUP **5142** 718

5143	
to	NOT allocated.
5192	

## RECOMMENDATION D 1

## to the CCIR and to Administrations Relating to International Monitoring

The World Administrative Radio Conference, Geneva, 1979,

## considering

a) the desirability of achieving a more effective use of the radio spectrum in order to assist administrations to satisfy their frequency requirements, and, to that end, the desirability of taking steps to make the International Frequency List reflect more accurately the actual use being made of the radio spectrum;

b) the provisions of the Radio Regulations, Geneva, 1979, under which the Internatinal Frequency Registration Board shall review the entries in the Master International Frequency Register with a view to bringing them into conformity, to the maximum extent practicable, with the actual use being made of the radio spectrum;

c) that monitoring information should assist the Board in discharging that function;

## recognizing

a) that an international monitoring system cannot be fully effective unless it covers all areas of the world;

b) that, at present, in certain areas of the world, monitoring facilities are either non-existent or insufficient to provide effective coverage;

## invites the CCIR

in collaboration with the Board, to study and make technical Recommendations concerning the additional facilities required to provide adequate coverage of the world with a view to implementing the Radio Regulations, more especially Articles N9, N11, N12, N13, N13A and N18; and

## invites administrations

1. to make every effort to develop monitoring facilities as envisaged in Article N18 of the Radio Regulations bearing in mind the means which may be made available through the appropriate technical assistance organs of the United Nations;

2. to inform the Board of the extent to which they are prepared to co-operate in such monitoring programmes as may be requested by the Board.

1 Replaces Recommendation No. 5 of the Administrative Radio Conference, Geneva, 1959.

## RESOLUTION AD

## Relating to the Development of National Radio Frequency Management

The World Administrative Radio Conference, Geneva, 1979,

## considering

<u>a)</u> that the Radio Regulations contain, inter alia, procedures for the coordination, notification and registration of frequencies which specify the rights and obligations of Member countries;

b) that the application of the above-mentioned procedures necessitates an appropriate radio frequency management unit in each Member country;

<u>c)</u> that the existence of such a unit helps Member countries to safeguard their rights and to discharge their obligations under the Radio Regulations;

<u>d)</u> that the application of the Radio Regulations through the agency of such units is in the interest of the international community as a whole;

## noting

133-

that such a unit requires an adequate number of suitably qualified staff;

## noting further

that the administrations of many developing countries need to create or to strengthen such a unit, appropriate to their administrative structure, with responsibility for the application of the Radio Regulations at the national and international levels;

### recommends

that the administrations of such countries take appropriate action;

### resolves

1. that meetings should be organized between representatives of the IFRB, the CCIR and the personnel involved in frequency management matters from administrations of developing and developed countries;

2. that such meetings should be aimed at designing standard structures suitable for administrations of developing countries, and should include discussions concerning the establishment and operation of radio frequency management units; 3. that such meetings should also identify the particular needs of developing countries in establishing such units, and the means required to meet those needs;

### recommends

that developing countries when planning the use of funds, particularly those received from international sources, should make provision for participation in these meetings as well as for the introduction and development of such units;

## invites the Administrative Council

to take the necessary measures for the organization of such meetings;

## instructs the Secretary-General

a) to circulate this Resolution to all Members of the Union, drawing their attention to its importance;

 $\underline{b}$  to circulate the results of such meetings, particularly to the developing countries;

 $\underline{c}$  to inform the developing countries of the types of assistance the ITU can provide in setting up the desired structure;

# draws the attention of the next Plenipotentiary Conference to

a) the particular problems identified in this Resolution;

b) the need for prompt and effective action to resolve them;

 $\underline{c}$  the need to take all practicable measures to ensure that resources are made available for this purpose.

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Re	so	1u	ti	ons

SUP	No. 1
SUP	No. 2
SUP	No. 4
NOC	No. Mar 4
SUP	No. Mar 11
SUP	No. Mar 15
NOC	No. Mar 20
NOC	No. Spa2 - 2
SUP	No. Mar2 - 2
SUP	No. Mar2 — 3
NOC	No. Mar2 — 4
SUP	No. Mar2 — 6
SUP	No. Mar2 — 9
SUP	No. Mar2 - 10
SUP	No. Mar2 — 11
SUP	No. Mar2 - 12
NOC	No. Mar2 - 15

# Recommendations

MOD	1	No.	5	(replaced	by	Recommendation	D)
NOC		No.	16	5			

# WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 492-E 5 November 1979 Original : English

COMMITTEES 4, 6, 7, 9

Note by the Secretary General

COORDINATED UNIVERSAL TIME (UTC)

I have pleasure in transmitting to the Conference the attached note by the Director of the CCIR.

- .C

M. MILI

Secretary-General

Annex: 1



# ANNEX

## NOTE BY THE DIRECTOR, CCIR

. Considering that the Conference may adopt Coordinated Universal Time (UTC) to replace GMT in the Radio Regulations, the following clarification of terms in the various languages is offered.

The abbreviation UTC is used in all languages, while the corresponding verbal titles are :

• • English : Coordinated Universal Time (UTC)

* <u>1</u>5

French : Temps universel coordonné (UTC)

Spanish : Tiempo Universal Coordinado (UTC)

The above expressions have been recommended by the CCIR corresponding with the usage of the Bureau International de l'Heure (BIH) and the General Conference of Weights and Measures (CGPM). The same terms have been adopted for use by the International Astronomical Union (IAU) and the International Union of Radio Science (URSI). Thus it would be advantageous for ITU to maintain the expressions in three languages, consistent with other international usage. 

Of course, the date associated with UTC is the date at the prime meridian, as for GMT.

# INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 493-E 5 November 1979 Original : English

WORKING GROUP 4B

## REPORT FROM DRAFTING GROUP 4B8

Drafting Group 4B8 met on 5 November 1979 to consider the request from Committee 6 (Document No. 371). In addition, Drafting Group 4B8 also considered the request from Working Group 4B to consider the appropriate wording for Section 2.2 of Appendix 29, Document No. 334.

Drafting Group 4B8 considered the various matters raised by Committee 6 in its Document No. 371, and a suggested reply to Committee 6 is attached as an <u>Annex</u> to this Report.

With respect to Appendix 29, paragraph 2.2, the Drafting Group 4B8 recommends that the last sentence of the present paragraph 2.2 be replaced by the following :

"If, in a given direction, there is no overlap of the assigned frequency bands of the two networks the corresponding value  $(\Delta T_s \text{ or } \Delta T_e)$  is taken to be equal to zero. For cases where there has been no publication of the Appendix 1A data, the assigned frequency band for that network shall be considered as being the <u>/</u> frequency range_/ as provided for in Appendix 1B."

G.C. BROOKS Chairman of Working Group 4B8

Annex : 1



## ANNEX

## DRAFT

# NOTE FROM THE CHAIRMAN OF COMMITTEE 4 TO THE CHAIRMAN OF COMMITTEE 6

Committee 4 has examined the request from Committee 6 (Document No. 371) for a definition of the phrase "in the same band". It is recommended that this expression not be used in No. 4114A (Document No. 440), since it is open to different interpretation; therefore, Committee 4 recommends that the first indent of No. 4114A be replaced by

"whose assigned frequency bands overlap that of the new frequency assignment, and".

Committee 4 has examined a similar problem raised in 4138/639AN and Committee 4 sees no problem, from a technical point of view, in the interpretation of this provision.

With respect to the Committee 6 request contained in paragraph 3 of Document No. 371, Committee 4 is not in a position to define a specific numerical value of the frequency separation between frequency assignments such that coordination would not be necessary.

> N. MORISHIMA Chairman of Committee 4

# WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 494-E 5 November 1979 Original : English

COMMITTEE 5

# Islamic Republic of Iran

PROPOSAL FOR THE WORK OF THE CONFERENCE

The assignments of frequencies to new stations or any change in the power and frequency of the existing stations in the band 150 - 285 kHz for broadcasting service in Region 1 shall be subject to coordination with countries of Region 3.



# WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 495-E 8 November 1979 Original : English

WORKING GROUP 5A

Report of Sub-Working Group 5A1

## DRAFT ARTICLE ON RADIO ASTRONOMY

The group was convened following a decision by Committee 5 that a draft Article on radio astronomy should be prepared for further consideration. Four meetings were held and the following delegations participated.

Argentina, Australia, Canada, France, Germany (Federal Republic), India, Nigeria, Netherlands, United Kingdom, USSR and the United States. Observers from IUCAF also participated.

The discussion was based on the draft Article in the proposals from the Netherlands, Document No. 89. It was agreed that the Article was intended to supplement the footnotes, pertaining to radio astronomy, by providing further guidance on the measures required for the protection of the service.

The group was informed that the suppression or modification of Recommendation No. 32 was under consideration by another committee. The text of paragraph 2 of this draft Article (in square brackets) is considered to be an appropriate way of preserving the essence of item 4 of Recommendation No. 32. It should be noted that a proposed new Recommendation under USA/49/790 also deals with this topic. It is intended as a replacement for Recommendation No. 32.

The proposal by the USSR to transfer RR No. 116A to an article (Document No. 63A) was considered by the group. During the discussion the delegate of the USSR modified the proposal to the provision of cross-references to that regulation, and this has been done.

A draft Article prepared by the group is presented in an Annex. It represents the best compromise which could be reached in the time available and it was considered that further progress towards a text which might be agreed by all delegations could not be made without hearing views of a larger number of delegations on Working Group 5A. Several delegations therefore will probably wish to raise matters in Working Group 5A, irrespective of their participation in the Sub-Group.

> F. HORNER Chairman of Sub-Working Group 5A1

<u>Annex</u> : 1



## ANNEX

#### DRAFT

### PROPOSED ARTICLE N33A

### Radio Astronomy Service

### Section I. General Provisions

§ 1. Administrations shall cooperate in protecting the radio astronomy service from interference, bearing in mind

- a) the exceptionally high sensitivity of radio astronomy stations,
- b) the frequent need for long periods of observation without harmful interference, and
- c) that the small number of radio astronomy stations in each country and their known locations often make it practicable to give special consideration to the avoidance of interference.

/ § 2. The locations of the radio astronomy stations and their frequencies of observation shall be notified to the Secretary-General for communication to Members of the Union. /

Section II. Measures to be taken in the Radio Astronomy Service

§ 3. The locations of radio astronomy stations shall be selected with regard to the possibility of harmful interference to these stations.

§ 4. All practicable technical means shall be adopted at radio astronomy stations to reduce susceptibility to interference. The development of improved techniques for reducing susceptibility to interference shall be pursued, including participation in cooperative studies through the CCIR.

Section III. Protection of the Radio Astronomy Service

§ 5. The status of the radio astronomy service in the various frequency bands is specified in the Table of Frequency Allocations, Article N7/5. Administrations shall provide protection from interference for stations in the radio astronomy service at least in accordance with its status in those bands. (See also RR No. 116A.)

§ 6. In providing protection from interference to the radio astronomy service on a temporary or permanent basis, Administrations, as appropriate, shall, for example, use such means as geographical separation, site shielding, antenna directivity and the use of time-sharing and the minimum practicable transmitter power. (See also RR No. 116A.)

§ 7. In bands adjacent to those in which observations are carried out in the radio astronomy service, operating in accordance with the Radio Regulations, Administrations shall, when assigning frequencies to stations of other services, take all practicable steps to protect the radio astronomy service from harmful interference. In addition to the measures referred to in § 6, technical means for minimizing the power radiated at frequencies within the band used for radio astronomy shall be given special consideration. (See also RR No. 116A.)

Annex to Document No. 495-E Page 3

§ 8. Administrations, when assigning frequencies to stations in other bands shall, as far as is practicable avoid harmonic and other spurious emissions which could cause harmful interference to the radio astronomy service operating in accordance with the Radio Regulations.

§ 9. In applying the measures outlined in this section, Administrations shall bear in mind that the radio astronomy service is extremely susceptible to interference from space and airborne transmitters.

§ 10. Administrations shall take note of the relevant CCIR Recommendations with the aim of limiting interference to the radio astronomy service from other services.

# CONFERENCE ADMINISTRATIVE MONDIALE DES RADIOCOMMUNICATIONS

(Genève, 1979)

Corrigendum N^o 1 au Document N^o 496-F/E/S 7 novembre 1979

SEANCE PLENIERE PLENARY MEETING SESIÓN PLENARIA

## DEUXIEME RAPPORT DE LA COMMISSION 5

Aux alinéas 1, 2, 3 et 4 du premier paragraphe <u>supprimer</u> le texte entre parenthèses.

SECOND REPORT OF COMMITTEE 5

This correction does not affect the English text.

SEGUNDO INFORME DE LA COMISIÓN 5

En los sub-párrafos 2 y 3 del párrafo l suprimase el texto entre paréntesis.



# INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 496-E 6 November 1979 Original : English French Spanish

## PLENARY MEETING

## SECOND REPORT OF COMMITTEE 5

Committee 5 has adopted

- a Resolution relating to the protection of radiocommunication services against interference caused by radiation from industrial, scientific and medical (ISM) equipment;
- a Recommendation relating to the convening of a World Administrative Radio Conference for planning of HF broadcasting bands;
- a Recommendation to CCIR relating to the preparation of the technical information necessary for the World Administrative Radio Conference on HF broadcasting;
- a Recommendation to CCIR relating to the preparation of the technical information necessary for the World Administrative Radio Conference on HF broadcasting - Studies for the introduction of single sideband technique in the HF broadcasting bands.

The texts of the Resolution and the Recommendations have been submitted to the Editorial Committee for subsequent submission to the Plenary Meeting. (See Document No. 497).

> M. HARBI Chairman of Committee 5



# WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 497-E 6 November 1979 Original : English French Spanish

COMMITTEE 9

SECOND SERIES OF TEXTS FROM COMMITTEE 5 TO THE EDITORIAL COMMITTEE

The texts mentioned in Document No. 496 are hereby submitted to the Editorial Committee in Annexes 1-4 to the present document.

- a Resolution relating to the protection of radiocommunication services against interference caused by radiation from industrial, scientific and medical (ISM) equipment (Annex 1);
- a Recommendation relating to the convening of a World Administrative Radio Conference for planning of HF broadcasting bands (Annex 2);
- a Recommendation to CCIR relating to the preparation of the technical information necessary for the World Administrative Radio Conference on HF broadcasting (Annex 3);
- a Recommendation to CCIR relating to the preparation of the technical information necessary for the World Administrative Radio Conference on HF broadcasting - Studies for the introduction of single sideband technique in the HG broadcasting bands (Annex 4).

M. HARBI Chairman of Committee 5

Annexes : 4



## ANNEX 1

### RESOLUTION

## Relating to the Protection of Radiocommunication Services against Interference caused by Radiation from Industrial, Scientific and Medical (ISM) Equipment

The World Administrative Radio Conference, Geneva, 1979,

## <u>considering</u>

a) that ISM equipment generates and uses locally radio frequency energy, whereby outward radiation cannot always be avoided;

b) that there is an increasing number of ISM equipment working on various frequencies throughout the spectrum;

c) that in some cases a considerable part of the energy may be radiated by ISM equipment outside its working frequency;

d) that some radio services, especially those using low field strengths, may suffer interference caused by radiation from ISM equipment, a danger which is unacceptable particularly in the case of radionavigation or other safety services;

e) that, in order to avoid the risk of uncontrolled interference to radiocommunication services :

i) the preceding Radio Conferences of Atlantic City, 1947 and Geneva, 1959 have designated some frequency bands within which the radiocommunication services must accept harmful interference produced by ISM equipment;

ii) the present Conference accepted to increase the number of bands to be designated for ISM equipment, but only on the condition that limits of radiation from such equipment be specified within the bands newly designated for world-wide use and outside all the bands designated for ISM equipment;

<u>resolves</u> that studies are urgently required on the limits to be imposed for the radiation of ISM equipment in the entire radio spectrum, particularly in the newly designated bands, in order to ensure that radio services are adequately protected;

## invites the CCIR

1. to continue, in collaboration with the CISPR/IEC, its studies relating to radiation from ISM equipment in the entire radio spectrum in order to ensure adequate protection of radiocommunication services;

2. to specify as soon as possible, in the form of Recommendations, the limits to be imposed on radiation by ISM equipment inside and outside the bands designated for their use in the Radio Regulations.

Priority should be given to the studies which would permit the formulation of a Recommendation relating to frequency bands newly designated for use by ISM equipment by the present Conference, which are listed below.

7 <u>/</u>_ _7 [ _7 ;

<u>invites</u> the next competent World Administrative Radio Conference to resolve the problem of interference from ISM equipment to radiocommunication services taking into account these CCIR Recommendations. Document No. 497-E Page 4

## ANNEX 2

#### RECOMMENDATION No.

Relating to the Convening of a World Administrative Radio Conference for the Planning of the HF bands Allocated to the Broadcasting Service

The World Administrative Radio Conference, Geneva, 1979,

## considering

a) that the existing situation in the HF bands allocated exclusively to the broadcasting service is not satisfactory;

b) that it is important to ensure that all countries are guaranteed free and equal rights to the use of these bands;

### recommends

1. that the use of the exclusive / and shared / HF bands allocated to the broadcasting service (excluding those bands reserved for broadcasting in the Tropical Zone) should be the subject of planning by a World Administrative Radio Conference;

2. that the planning be based on DSB emissions. Consideration should also be given to the manner in which an SSB system could be introduced progressively without impairing the DSB emissions;

3. that this Conference should be held in two sessions;

4. that the first session

4.1 is to establish the technical parameters to be used for planning and the principles governing the use of the HF bands allocated to the broadcasting service and in particular :

4.1.1 the power appropriate to HF broadcasting in conjunction with the other relevant technical factors,

4.1.2 the needs of each country for national broadcasting,

4.1.3 the maximum number of frequencies to be used for the broadcasting of the same programme to the same zone,

4.1.4 a specification of an SSB system suitable for future use for HF broadcasting;

4.2 should also decide the planning principles to be used and the method of planning to be adopted by the second session;

5. that at its second session, to be held not sooner than 12 months nor later than 18 months after the first session, the Conference :

5.1 should carry out the planning according to the principles and the method established at the first session;

5.2 should review and, where necessary, revise the relevant provisions of the Radio Regulations relating to broadcasting in the HF bands;

<u>urges Administrations</u>, until the Conference is held, to use no greater transmitter power than that required for satisfactory reception and to ensure that the number of frequencies used is the minimum necessary;

draws the attention of the Administrative Council to the urgency of this Conference; and

invites the Administrative Council to take all necessary steps for the convening of the Conference, the first session of which shall be held as soon as possible after the next CCIR Plenary Assembly and with the least possible delay as defined in Article 58 (No. 303) of the Convention;

requests the IFRB to carry out the necessary engineering studies and preparations, including those envisaged in No. 4894/657 of the Radio Regulations;

<u>requests the CCIR</u> to accelerate the studies described in Recommendations No.  $\underline{/}$  Annex 3 $\underline{/}$  and No.  $\underline{/}$  Annex 4 $\underline{/}$ .

## ANNEX 3

#### RECOMMENDATION No.

Relating to the Preparation of the Technical Information Necessary for the World Administrative Radio Conference on HF Broadcasting

The World Administrative Radio Conference, Geneva, 1979,

considering that a considerable amount of technical information relating to HF broadcasting is already available in CCIR texts, nevertheless there are some subjects needing further studies and, in some cases, adaptation to make them suitable for use in planning;

## noting in particular

a) that the CCIR has recommended a method of estimating field strength and transmission loss in band 7 (HF) based on the best information available, and is developing a new computerized method which incorporates the special elements considered necessary for improving the accuracy of these estimations at medium and long distances and in equatorial and high latitude regions;

b) that there is insufficient information relating to propagation predictions in many equatorial areas;

c) that the use of directional antennae is essential for efficient use of the spectrum in band 7 (HF) and that radiation in directions other than the desired direction may cause interference;

### requests the CCIR

 to complete its work in respect of the improved computerized prediction method (Recommendation No. 533) paying special attention to medium and long distance transequatorial paths and to high latitude regions;

2. to adapt the present method of propagation predictions in order to make it more suitable for broadcasting and to recommend suitable values of solar indices for use in planning;

3. to make recommendations where these do not already exist concerning appropriate protection ratios to be adopted, including cases where the unwanted transmissions are of a different type, and the appropriate values of channel spacing; and the minimum signal-to-noise ratio required for satisfactory reception;

4. to ensure that the CCIR Book of Antenna Diagrams includes all principal types of antennae in common use;

5. to prepare data on the practical performance of directional antennae in a form suitable for planning purposes;

<u>invites Administrations</u> to participate actively in these studies and to provide the CCIR with available data on the questions listed above and especially on field strength observations in band 7 (HF) for comparison with predicted values.

## ANNEX 4

### RECOMMENDATION No.

Relating to the Preparation of the Technical Information Necessary for the World Administrative Radio Conference on HF Broadcasting

Studies for the introduction of single sideband techniques in the HF bands allocated to the Broadcasting Service

The World Administrative Radio Conference, Geneva, 1979,

### considering

a) that the use of SSB leads to a more efficient utilization of the spectrum;

b) that the introduction of this technique for broadcasting in the HF bands creates both technical and economic problems;

requests the CCIR to accelerate the appropriate studies regarding the introduction of the SSB technique for broadcasting in the HF bands and the specification of a suitable SSB system, paying particular attention to the economic problems associated with transmitters and receivers;

invites Administrations to provide the CCIR with information on this subject.

INTERNATIONAL TELECOMMUNICATION UNION

# WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 498-E 6 November 1979 Original : English

WORKING GROUP 5A

NOTE FROM THE CHAIRMAN OF WORKING GROUP 5E TO THE CHAIRMAN OF WORKING GROUP 5A

Consideration of a number of proposals related to Earth Exploration and the related term "Active" has been deferred, or decisions have been reached only on a tentative basis, pending a decision in Working Group 5A on related definitions.

An early decision on this point is necessary to enable Working Group 5E to finalize its work.

Dr. A.W. ADEY Chairman of Working Group 5E



# WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 499(Rev.1)-E 9 November 1979 Original : English

COMMITTEE 5

# SEVENTH REPORT OF WORKING GROUP 5E TO COMMITTEE 5

(ALLOCATIONS)

Subject : Frequency bands above 275 GHz, including optical bands

1. All of the proposals for these bands were examined and Working Group 5E <u>decided</u> unanimously to recommend the adoption of the Table of Allocations as shown in the <u>Annex</u>.

2. The Working Group decided to recommend that no allocations be made to any services for frequency bands above 275 GHz. However, since the band up to 400 GHz may be used for experimentation with, and development of, various active and passive services, an appropriate footnote was included for the frequency band 275 - 400 GHz, as shown in the <u>Annex</u>.

A.W. ADEY Chairman of Working Group 5E

Annex : 1



Page 2

# A N N E X

GHz 275 - 400

Region 1	Region 2	Region 3
275 - 400	(Not allocated)	
	3816N	

ADD 3816N

The frequency band 275 GHz to 400 GHz may be used by Administrations for experimentation with, and development of, various active and passive services. In this band a need has been identified for the following spectral line measurements for passive services :

Radio Astronomy Service : 278 - 280 GHz and 343 - 348 GHz.

Space Research Service (passive) and Earth Exploration-Satellite Service (passive) : 275 - 277 GHz, 300 - 302 GHz, 324 - 326 GHz, 345 - 347 GHz, 363 - 365 GHz and 379 - 381 GHz.

Future research in this largely unexplored spectral region may yield additional spectral lines and continuum bands of interest to the passive services. Administrations are urged to take all practicable steps to protect these passive services from harmful interference until the next competent World Administrative Radio Conference.
# INTERNATIONAL TELECOMMUNICATION UNION

# WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 499-E 7 November 1979 Original : English

COMMITTEE 5

# SEVENTH REPORT OF WORKING GROUP 5E TO COMMITTEE 5 (ALLOCATIONS)

Subject : Frequency bands above 275 GHz, including optical bands

1. All of the proposals for these bands were examined and Working Group 5E <u>decided</u> <u>unanimously</u> to recommend to Committee 5 the Table shown in the <u>Annex</u>.

2. The Working Group decided to recommend that no allocations be made to any services for frequency bands above 275 GHz. However, since the band up to 400 GHz may be used for experimentation with, and development of, various active and passive services, an appropriate footnote was included for the frequency band 275  $\approx$  400 GHz, as shown in the <u>Annex</u>.

A.W. ADEY Chairman of Working Group 5E

Annex : 1



# ANNEX

GHz 275 - 400

Region 1	Region 2	Region 3
275 - 400	(Not allocated)	
	3816P	

3816P

The frequency band 275 GHz to 400 GHz may be used by Administrations for experimentation with and development of various active and passive services. In this band a need has been identified for the following spectral line measurements for passive services :

Radio Astronomy Service : 278 - 280 GHz, 343 - 348 GHz.

Space Research Service (passive) and Earth Exploration-Satellite Service (passive) : 275 - 277 GHz, 300 - 302 GHz, 324 - 326 GHz, 345 - 347 GHz, 363 - 365 GHz and 379 - 381 GHz.

Future research in this largely unexplored spectral region may yield additional spectral lines and continuum bands of interest to the passive services. Administrations are urged to take all practicable steps to protect these passive services from harmful interference until the next competent World Administrative Radio Conference.

ADD

# WORLD ADMINISTRATIVE RADIO CONFERENCE

(Geneva, 1979)

Document No. 500-E 6 November 1979 Original : English

COMMITTEE 4

## SEVENTH REPORT OF WORKING GROUP 4A

TO COMMITTEE 4

Working Group 4A has examined the proposals submitted by Administrations for several terms in Section VI of Article N1. For the following terms, texts have been drafted as shown in Annex 1 :

> Coordination Area = 3157 Coordination Contour = 3156 Coordination Distance = 3155 Assigned Frequency Band = 3138 Assigned Frequency = 3134

The square brackets in MOD 3157 and MOD 3155 can be removed after receipt of the advice from Committee 6 concerning "bidirectional frequency re-use" (see Document No. 477, Note from Committee 4 to Committee 6).

Concerning MOD 3138, the delegation of United States expresses its reservation.

On the other hand, the following additional terms did  $\underline{not}$  receive sufficient support for inclusion in Article N1 :

Period of electromagnetic radiation

Radio frequency spectrum

Frequency

Frequency channel

Channel

Frequency band

"in the same band"

Frequency allocation

Allocated frequency band

Frequency allotment



Allotted frequency

Frequency assignment

Assigned channel

Collective frequency

Bandwidth

Interfering emission

Tolerable interference

Intolerable interference

Radio frequency signal-to-noise + interference ratio

Coverage area

Service area

However, two draft Recommendations to CCIR have been discussed and approved by majority 20 : 13 concerning the terms "coverage area, service area and channel" (see Annex 2).

> A.R. BASTIKAR Chairman of Working Group 4A

Annexes : 2



Document No. 500-E Page 3

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#### ANNEX 1

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MOD	3157	Zone de coordination : Zone associée à une station terrienne à l'extérieur de laquelle une autre station de Terre / ou une autre station terrienne / partageant la même bande de fréquences, ne peut produire ni subir aucun brouillage supérieur à la valeur admissible.
MOD	3157	<u>Coordination Area</u> : The area associated with an Earth station, outside of which, a terrestrial / or another Earth / station sharing the same frequency band, neither causes nor is subject to that a permissible level of interference. <u>interfering emissions greater</u>
MOD	3157	Zona de coordinación: Zona asociada a una estación terre- na fuera de la cual otra estacion terrenal <u>/</u> u otra estación terrena_7 que comparte la misma banda de frecuencias no puede producir ni sufrir ninguna interferencia superior al valor admisible.
MOD	3156	<u>Contour de coordination</u> : Ligne limitant la zone de coordination.
MOD	3156	<u>Coordination Contour</u> ; The line enclosing the coordination area.
MOD	3156	Contorno de coordinación: Línea que limita la zona de coordinación.
		Distance de coordination :
MOD	3155	Distance à partir de la position d'une station_terrienne dans un azimut donné et au-delà de laquelle une station de Terre / ou une autre station terrienne / partageant la même bande de fréquences, ne peut produire ni subir aucun brouillage supérieur à la valeur admissible.
KOD	3155	<u>in a given azmith</u> <u>Coordination Distance</u> : Distance from an Earth station beyond which a terrestrial (or another Earth / station sharing the same frequency band, neither causes nor is subject to corro than a permissible level of inverference. <u>interfering emissions greater</u>
MOD	3155	<u>Distancia de coordinación</u> : Distancia a partir de la posi- ción de una estación terrena en un acimut determinado más allá de la cual una estación terrenal / u otra estación terrena 7 que comparte la misma banda de frecuencias no puede producir ni sufrir ninguna interferencia superior al valor admisible.

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MOD	3138	<u>Bande de fréquences assignée</u> : <u>Canal assigné</u> : Bande de fréquences à l'intérieur de laquelle l'émission d'une station donnée est autorisée; la largeur de cette bande est égale à la largeur de bande nécessaire, augmentée du double de la valeur absolue de la tolérance de fréquence. <u>Dans le cas des stations spatiales radio</u> <u>étectriques, la bande de fréquences assignée comprend le double du</u> <u>décalage dû à l'effet Doppler pouvant se produire par rapport à un</u> <u>point quelconque à la surface de la Terre.</u> <u>inclut</u>
MOD	3138	Assigned frequency band : The frequency band within which the emission of a station is authorized; the width of the band equals the necessary bandwidth plus twice the absolute value of the frequency tolerance. Where space radio stations are concerned, the assigned frequency band comprises twice the maximum Doppler shift that may occur in relation to any point of the Earth's surface.
MOD	3138	Banda de frecuencias asignada : Banda de frecuencias en el interior de la cual se autoriza la emisión de una estación determinada; la anchura de esta banda es igual a la anchura de banda necesaria más el doble del valor absoluto de la tolerancia de frecuencia. <u>Cuando se trata de estaciones de</u> <u>radiocomunicaciones espaciales, la banda de frecuencia asignada</u> <u>comprende dos veces la desviación Doppler máxima que puede ocurrir con relación a un punto cualquiera de la superficie de la Tierra.</u> <u>incluye</u>
NOC	3134 85	Fréquence assignée : Centre de la bande de fréquences assignée à une station.
NOC	3134 85	Assigned frequency : The centre of the frequency band assigned to a station.
NOC	3134 85	Frecuencia asignada : Centro de la banda de frecuencias asignada a una estación.

## ANNEX 2

#### DRAFT RECOMMENDATION

Concerning the Definitions of "Service Area" and "Coverage Area"

The World Administrative Radio Conference, Geneva, 1979,

#### <u>considering</u>

a) that in the official texts of the ITU reference is made very often to the terms "service area" and "coverage area";

b) that these two terms are used with the same meaning or with different meaning according to the different services;

c) that there exists no definition of the terms "service area" and "coverage area" in Article N1 of the Radio Regulations;

### noting

a) that the term service area is already used in the texts of the Appendices 1, 1A, 1B, 1C and 25 of the Radio Regulations;

b) that a definition of "service area" for broadcasting exists in Recommendation 499-1 of CCIR which is based on the usable field strength;

c) that a definition very similar to that of Recommendation 499-1 is to be found in Annex 2 of the Final Acts of the Regional Administrative LF/MF Broadcasting Conference (Regions 1 and 3), Geneva, 1975;

d) that a definition of "service area" for satellite broadcasting is to be found in Annex 8 of the Final Acts of the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977. This definition contains above all administrative provisions. The technical definition is given in a note, in which reference is made to an appropriate power flux density and a protection against interference based on the agreed protection ratio;

e) that technical and administrative aspects are sometimes involved in the definition of "service area" which might not be separated easily;

f) that a definition of "coverage area" for the satellite broadcasting service is to be found in the same Annex 8 of the Final Acts of the WARC BC-SAT, Geneva, 1977, based on the value of a certain power flux-density which permits the wanted quality of reception in the absence of interference;

## Annex 2 to Document No. 500-E Page 6

<u>recognizing</u> that the existing definitions of "service area" and "coverage area" are related to the definitions of usable field strength or usable power flux-density either in the presence or in the absence of interference;

#### invites the CCIR

1. to specify a general definition for "coverage area";

2. to specify the technical basis for a general definition of "service area" which takes into account the present usage of this term throughout all official ITU texts so that the administrative aspects of this definition could be established by future Administrative Conferences.

#### DRAFT RECOMMENDATION No. ...

Relating to the Use of the Term "Channel" in the Radio Regulations

The World Administrative Radio Conference, Geneva, 1979,

#### considering

a) that the term "channel" has been used extensively in the Radio Regulations in the frequency allotment plans of Appendices 15, 17, 18, 25, 26, and 27;

b) that the term channel has a different meaning in other provisions of the Radio Regulations and for the various radiocommunication services;

c) that there should not be any ambiguity in the meaning of the term "channel" in its usage throughout the Radio Regulations;

<u>invites</u> the CCIR to define the term channel so that it may be used consistently and without confusion in the Radio Regulations in all working languages of the ITU.