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INTERNATIONAL TELECOMMUNICATION UNION

# RADIO REGULATIONS

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## A NOTE FROM THE ITU LIBRARY & ARCHIVES SERVICE

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### *Update Pages to the Radio Regulations*

This PDF includes only the update pages. It does not represent a complete edition of the *Radio Regulations*.



# COVERING NOTE

GENERAL SECRETARIAT INTERNATIONAL TELECOMMUNICATION UNION

Geneva, November 1994

## Subject : 1994 updating of the 1990 edition of the Radio Regulations

The attached texts of the 1994 updating of the 1990 edition of the Radio Regulations (RR) result from the partial revision of the latter by the World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum, Malaga-Torremolinos, 1992 (WARC-92). The table below lists those text which are to be inserted in the Radio Regulations and those no longer valid or published separately which are to be removed.

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INTERNATIONAL TELECOMMUNICATION UNION

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# Radio Regulations

Edition of 1990

Revised in 1994

**1**

***Radio  
Regulations***

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Geneva 1994

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### **Note by the Secretary-General**

Following the decisions of the Additional Plenipotentiary Conference (Geneva, 1992) contained in Chapter II of the ITU Constitution and Chapter I of the ITU Convention relating to the restructuring of the Union, actions previously performed by the Secretary-General and the International Frequency Registration Board (IFRB) under the provisions of the Radio Regulations are now carried out by the Radiocommunication Bureau and by the Radio Regulations Board.

Relevant provisions in the present edition of the Radio Regulations still refer to the IFRB, the Board, the CCIR, CCITT, etc. Required changes in the Radio Regulations consequential to the restructuring of the Union will have to be adopted by a future competent world radiocommunication conference (WRC) and will then be reflected in the next edition of the Radio Regulations.

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## FOREWORD

1. This edition of the Radio Regulations is published under the authority of the Secretary-General of the International Telecommunication Union. It is a consolidated document, which incorporates the provisions (Volume 1), the Appendices (Volume 2), and the Resolutions and Recommendations (Volume 3) of the Radio Regulations.

1.1 This edition includes the edition of 1982 of the Radio Regulations as adopted by the World Administrative Radio Conference, Geneva, 1979, as well as the partial revisions adopted respectively by the following Conferences:

- a)* World Administrative Radio Conference for the Mobile Services, Geneva, 1983 (Mob-83).
- b)* First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985 (Orb-85).
- c)* World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service, Geneva, 1987 (HFBC-87).
- d)* World Administrative Radio Conference for the Mobile Services, Geneva, 1987 (Mob-87).
- e)* World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1988 (Orb-88).
- f)* World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum, Malaga-Torremolinos, 1992 (WARC-92).

1.2 The Final Protocols (reservations and counter-reservations of signatory delegations) to the Final Acts of the above-mentioned World Administrative Radio Conferences (see items I and 1.1) have not been reproduced in the Radio Regulations.

2. Pages are separately numbered for each Article, Appendix, Resolution, Recommendation, etc. The following symbols have been used for this numbering, which appears at the top of each page:

- |    |   |
|----|---|
| AT | = Analytical Table                                    |
| AI | = Analytical Index of Resolutions and Recommendations |
| N  | = Notes   |



RR	= Radio Regulations
AP	= Appendix
RES	= Resolution
REC	= Recommendation.

Examples:

AT-6	= Analytical Table, page 6
AI-3	= Analytical Index of Resolutions and Recommendations, page 3
N-2	= Notes, page 2
RR8-14	= Article <b>8</b> of the Radio Regulations, page 14
API6-5	= Appendix <b>16</b> , page 5
RES500-2	= Resolution <b>500</b> , page 2
REC604-1	= Recommendation <b>604</b> , page 1.

2.1 The Foreword bears arabic page numbers and the Table of Contents bears roman page numbers.

2.2 In the Table of Contents the total number of pages for each category of information is indicated.

For example:

RR1-1/23	shows that Article <b>1</b> has 23 pages;
RR3-1	shows that Article <b>3</b> has only one page.

2.3 The addition, modification or deletion of a Provision, Appendix, Resolution or Recommendation is indicated by a symbol in **bold** type particular to each World Administrative Radio Conference, these are given below:

- a) The symbol **Mob-83** for the World Administrative Radio Conference for the Mobile Services, Geneva, 1983.
- b) The symbol **Orb-85** for the First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985.
- c) The symbol **HFBC-87** for the World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service, Geneva, 1987.
- d) The symbol **Mob-87** for the World Administrative Radio Conference for the Mobile Services, Geneva, 1987.

- e) The symbol **Orb-88** for the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1988.
- f) The symbol **WARC-92** for the World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum, Malaga-Torremolinos, 1992 (WARC-92).

2.4 In the case of a deletion the symbol SUP is used and the conference having made the decision is indicated.

3. The Secretary-General and the General Secretariat have furnished, in addition to several short notes in the body of the text, the following notes:

- in the Part “Notes”:
    - a note referring to the formation and use of call signs;
    - a note listing the provisions of the Radio Regulations that contain references to ITU-R Recommendations, together with the reference numbers and titles of the ITU-R Recommendations;
    - flowcharts on Radio Regulatory Procedures (see Resolution 6);
  - in Appendix 42:
    - a note listing former country designations as contained in the Table of Appendix 42 and the corresponding new country designations as notified to the Secretary-General of the ITU.
    - a note listing the international call sign series allocated by the Secretary-General on a provisional basis between the end of the World Administrative Radio Conference, Geneva, 1979, and 15 March 1994.
  - preceding the Resolutions, a note indicating the manner in which the Resolutions have been grouped and listing all the Resolutions abrogated by the World Administrative Radio Conferences held since 1979;
  - preceding the Recommendations, a note indicating the manner in which the Recommendations have been grouped and listing all the Recommendations abrogated by the World Administrative Radio Conferences held since 1979.
-

**ANALYTICAL TABLE \***

**RADIO REGULATIONS**

**APPENDICES TO THE RADIO REGULATIONS**

**Edition of 1990**

**Revised in 1994**

*ABBREVIATIONS AND SYMBOLS*

Anx - Annex

AP - Appendix

Art - Article

Sec - Section

= - used in order to avoid repeating a heading or subheading

\* For Resolutions and Recommendations of the Radio Regulations, please see the "Analytical Index of Recommendations and Resolutions".

## A

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## ANALYTICAL INDEX OF RESOLUTIONS AND RECOMMENDATIONS

The Analytical Index of Resolutions and Recommendations is presented as a set of eight tables. Each table groups Resolutions and Recommendations bearing the same numbers.

The table on page IA-2 covers the numbers 1 - 22,  
     that on page IA-3, the numbers 30 - 69,  
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     that on page IA-5, the numbers 200 - 315,  
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     that on page IA-8, the numbers 514 - 607,  
     and that on page IA-9, the numbers 620 - 719.

The Resolution numbers are entered along the top of the table and the Recommendation numbers along the bottom. The absence of a number in the series indicates that the corresponding Resolution and/or Recommendation does not exist.

The key words or subjects relating specifically to the group of Resolutions and Recommendations in each separate table are listed in alphabetical order on the right-hand side of each page. These key words or subjects may be of primary or secondary importance for a particular Resolution or Recommendation.

For Resolutions, the symbol "O" denotes a primary key word or subject and the symbol "@" denotes a secondary one. For Recommendations, the symbol "=" denotes a primary key word or subject and the symbol "#" denotes a secondary one.

To determine the main subject of a Resolution or Recommendation, simply trace down the column bearing the relevant Resolution and/or Recommendation number until the symbol "O" or "=" is encountered. From that position trace towards the right of the table to find the subject concerned. The same procedure applies for determining a secondary subject where the relevant symbols are "@" for Resolutions and "#" for Recommendations.

**Example:** On page AI-3 grouping numbers 1 to 22, the symbols "O" and "@" are entered for Resolution 5 - by tracing to the right along a horizontal line from the primary symbol "O", the subject "Technical Cooperation and Assistance", for example, is found. Using the same method for the symbol "@", a secondary subject "UNDP" is found.

To determine the Resolutions or Recommendations to which a particular subject refers, begin on the right-hand side of the table at the appropriate subject and trace across towards the left until one (or more) of the relevant symbols is encountered. Then trace up or down the columns for Resolutions or Recommendations, as the case may be.

**Example:** "Technical Cooperation and Assistance" is listed on the right-hand side of the table on page AI-3. By tracing towards the left it becomes evident that "Technical Cooperation and Assistance" is a primary subject for Resolutions 5, 7, 14, 15, 16, 20 and Recommendation 6, and a secondary one for Recommendation 5.

1	2	4	5	7	8	10	13	14	15	16	17	18	19	20	21	22	RESOLUTIONS (O, @)
					O		O		=						O	O	Call Signs
O		O	#		O	@									O	O	Frequency - Allocation
@		#	=												O	O	- Assignment
	O =																- Management
	O	O															- Use
					=		O	=				O					Geostationary-Satellite Orbit
						@											Identification of Stations
			@														Interference (Harmful)
												@		@			International Organisations - APTU/PATU/URTNA
												@					- ICAO
									@	@	@						- IMO
																	- UN
															@		- UNCTAD
			@											@			- UNDP
=	@						=	#	=	#		O		@			ITU - Administrative Conferences
#		@		@				#	@	#	@	@		@		@	- Administrative Council
																	- BDT
#	@		@	@	#			@	#	@	@	@					- CCIR
@									@	@	@						- CCITT
@	@		#	@	@				#		@				O	@	- IFRB
				@		#	#	@	@	#	@	@	@		@	@	- Plenipotentiary Conference
	@		@	@				@	@	#	@	@	@				- Secretary-General
@	#	@			@												Licences
			O														Master International Frequency Register (MIFR)
																	Medical Transports
																	Propagation (Tropical Areas)
#		@		#	@	#	=	=	=	#	=		@	O		O	Radiocommunication Circuits, Links and Networks
=							O										Radio Regulations
													@		O		Relief Operations and Organizations
																	Services - Aeronautical Mobile
							O	@							O		- Broadcasting
															@		- Fixed
												@					- Maritime Mobile
							O								@		- Mobile
=	O =	@								O =							- Space
							/			=							- Terrestrial
												O					Ships & Aircraft of States not Parties to an Armed Conflict
			O #	=	O				O	O	O			O			Technical Cooperation and Assistance
1	2	4	5	6	7	8	9	10	11	13	14	15					RECOMMENDATIONS (=, #)

		32	33	34	35	37	38	39	42	44	45	46	60	61		63		65			69	RESOLUTIONS (O, @)		
												O				=						Bandwidth		
	#					O						O	O									Computers		
														O								Coordination		
														O			=	=		=		Division of the World - Climatic Zones/Regions		
		=									O						O				#	Emissions		
																						Equipment		
																						Feeder links		
			O	@			O			@		@	O	#								Frequency - Assignment		
		=	O	O	@	O	O			@		O		#			=	=				- Management		
=		=						O														- Monitoring		
				O								O						=				- Sharing		
																					=	- Tolerances		
		#							@			@					#					Frequency Spectrum		
		#										@										Geostationary-Satellite Orbit		
		#	@												=		O	#		#	O	Interference		
																	@			#	#	International Organisations - CIS?R/IEC/ISRU		
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												@											- Plenipotentiary Conference	
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		@	#	@								O	O										Master International Frequency Register (MIFR)	
					O							O											Procedures	
													O	O						=			Propagation	
#		#	@	@			@	@	@		@	O	O		#	#		O	#		@	#	Radio Regulations	
		@	O	@						O													Services - Broadcasting	
		@					@																- Fixed	
												@											- Fixed-Satellite	
		@					@	@															- Mobile	
											O		O										- Mobile-Satellite	
		O =	@	O						O		O		#					#				- Space	
		O	@	O								@		#									- Terrestrial	
#						O																	Technical Cooperation and Assistance	
													=	=				=			#		Technical Standards of the IFRB	
30	31	32											60	61	62	63	64	65	66	68	69	RECOMMENDATIONS (=, #)		

70				93	94		103	104	105	106	107	109	110	111	112	113	RESOLUTIONS (O, @)
	=									O							Equipment
															O	O	Feeder Links
								@				O					Frequency - Allocation
						=				@	@		O				- Assignment
																	- Management
O													@		O	O	- Sharing of Spectrum
																	- Use
								O #									Interference
		#		@	O												ITU - Administrative Conférencés
					O	#							@				- Administrative Council
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												O					Master International Frequency Register (MIFR)
						#							O				Multilateral Planning Meeting (MPM)
		#	=			#	@	O		O	@	O			O		Propagation
				O	O												Radio Regulations
@								O				O			O		Review of Resolutions & Recommendations
																	Satellite networks
																O	Services - Broadcasting-Satellite
						#	O								O	O	- Earth Exploration-Satellite
										O	O			O	O	O	- Fixed
						=							O	O	O		- Fixed-Satellite
																O	- Land Mobile
O																O	- Mobile-Satellite
																O	- Radiolocation/Radionavigation
						#										@	- Space
																O	- Space Research
																O	- Standard Frequency and Time Signal
@				=				@		@							SI Systems
O															@		Technical Cooperation & Assistance
		=	=														Technical Standards
																	Terminology
																	Tropospheric Scatter
	71	72	73	74			100	103									RECOMMENDATIONS (=, #)

200	201	205	207	208	209	210	211	212	213	300						310	312	314	315	RESOLUTIONS (O, @)
									O	O		=		=			@			Call and Reply
	@																		O	Channels - Use
O		O	O		O	O						=		=		#		@		Charges
										O										Distress and Safety
								O	O	O		#				#				Frequency - Assignment
									O	@		=	=	=		@				- Paired
O		O			O	@														- Sharing
			@			O														- Use
				@	@															Global Maritime Distress and Safety System (GMDSS)
																				Guardband
				@	@											@				International Organisations - ICAO
				@	@					@						@ #				- IHO
																				- IMO
@				@	@				@	@				#		@ #		@		- IOC/WMO
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									@											- Secretary-General
		O								@										Master International Frequency Register (MIFR)
																			O	Monitoring (unauthorized emissions)
	O																		@	Oceanography
								O	O											Public Correspondence
@	@	@	@	@	O		O	@	@	@	#	#	#	#						Public Land Mobile Systems
											#	#								Radio Regulations
		O																		Radiotelephony
									@											Satellite EPIRBs (harmful interference to)
																				Services - Aeronautical Mobile (R)
@				O	O	@	@			O	=	#	#	#	#	= @	= @	@	O	- Land mobile/land mobile-satellite
	@				O															- Maritime Mobile
					O															- Maritime Mobile-Satellite
	O						O													- Mobile
@	O									O										- Mobile-Satellite
																				- Space
										O								O		Telegraphy - A1A and A1B Morse
																				- Narrow-Band Direct-Printing (NBDP)
						O	O										O			Telemetry, Telecommand and Data Exchange
																=	@			Watch
											302	303	304	305	306	310	312			RECOMMENDATIONS (=, #)



316			319	322	323	325	326	327	328	329	330	331	332	333	334	335	336	338	RESOLUTIONS (O, @)
	=														O				Alerting
			=					O	O							O			Charging + Accounting
					O												O		Data Transmission
#					O							@			O			O	Digital Selective Calling (DSC)
						O													Distress and Safety
							O												Duplex Radiotelephony
				O				O											Frequency - Paired
																			- Sharing (Channel Spacing)
																			- Use
=				O		O	O		O		@	O			O			O	Global Maritime Distress & Safety System (GMDSS)
						O											O		HF Frequencies
		#																	International Organisations - IALA
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@	#	#		@	@				@	@	@	@	@					@	- IMO
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																			Non-Paired Ship Station Frequencies
		=	=			@	O	@	@	@		O			O			O	Radio Regulations
			@								O								Radiotelephony, Routine (Non-Distress) Calling
			@																Selective Calling
			@																Service Documents
@		=	@		O	O	@		@				O		@		@	O	Services - Maritime Mobile
=												@			@			O	- Maritime Mobile-Satellite
O												@						O	SOLAS
			=@					O		O			@	@		O			Technical Cooperation and Assistance
									O										Telegraphy - NBDP
																			- Wide-Band
				O								O							Watch
316	317	318	319																RECOMMENDATIONS (=, #)

		403	405	406		408	409	410	411	412	500				505	506	507	508	511	512	513	RESOLUTIONS (O, @)	
		=	@								@			#								Congestion	
		@									#		=	=								Distress and Safety	
						O		O	O	O											O	Equipment	
						O				O	O					O		@				Frequency - Allocation/Assignment	
		@								O												- Management	
		O	O	O					O	@						O						- Plan	
																	O					- Use	
																	O					Geostationary-Satellite Orbit	
																			=	O =	O =	HF Broadcasting	
																			O			HFBC - Procedures and Requirements	
																			O #			- Planning System	
			@			@				@ #											O	Interference	
#	#	#								@				#								International Organisations - ICAO	
														#								- UN	
														#								- UNESCO	
														#								- UNIDO	
			#	#	@						=	=			@		@	O	O #	@	@ #	ITU - Administrative Conferences	
			#		@												@	@	@ #		#	- Administrative Council	
			#								#	#	#	#	@ #			@	@ #			- CCIR	
#	#					@	O			@							@	@	@	#	@	- IFRB	
							O															- Plenipotentiary Conference	
#						@				@		#							@ #			- Secretary-General	
				O			O	O	O	O												Master International Frequency Register	
											#				=						=	Meteorology	
							O															Propagation	
		@		#	=	@	O	O	O	O	@						@	@		@	@	Public Correspondence	
		O		=			O	O	O													Radio Regulations	
=	=	O =	O #	O #	=	O	O												O	O =	O =	Services - Aeronautical Mobile (OR)	
											O =	=	#	=					O	O =	O =	- Aeronautical Mobile (R)	
																O =	O	O				- Broadcasting	
											@											- Broadcasting-Satellite	
																	@					- Radiodetermination	
				=													@					- Space	
											#							@				Single Sideband (SSB) Technique	
																			= @	O		Spectrum Extension	
																				#		Technical Standards (IFRB)	
401	402	403	405	406	407						500	501	502	503	505					511	512	513	RECOMMENDATIONS (=, #)

[illegible]

620	621			700	701	702		704	705	706	707	709	710	711	712	714	715	717	718	719	RECOMMENDATIONS (=, #)
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## NOTES BY THE GENERAL SECRETARIAT

## CALL SIGN FORMATION POSSIBILITIES

(see Section III of Article 25)

Type of station	RR number	Permitted formations	Number * of combinations	Observations
Fixed stations	<b>2103</b>	XXA-XXZ XXA2-XXZ9 XXA20-XXZ99 <sup>1</sup> XXA200-XXZ999	26 208 2 080 20 800	<sup>1</sup> Recommended, as far as possible (see RR 2104)
Land stations	<b>2103</b>	XXA-XXZ XXA2-XXZ9 XXA20-XXZ99 XXA200-XXZ999	26 208 2 080 20 800	
Ship stations	<b>2106</b>	XXAA-XXZZ XXAA2-XXZZ9	676 5 408	
	<b>2107</b>	XL2000-XL9999 XXA2000-XXZ9999	8 000 208 000	L = Second character, provided it is a letter
Ship's survival craft stations	<b>2111</b>	P00-P99 **	100 per ship	P = Call sign of the parent ship (see RR 2106 and 2107)
		P20-P99 ***	80 per ship	
EPIRB stations	<b>2113</b>	B P BP	no limit	B = Morse letter B P = Call sign of the parent ship (see RR 2106 and 2107)
Aircraft stations	<b>2109</b>	XXAAA-XXZZZ	17 576	
Aircraft survival craft stations	<b>2115</b>	P2-P9	8 per aircraft	P = The complete call sign of the parent aircraft (see RR 2109)

XX = First two characters of allocated call sign series.

\* = The actual number may be less, in order to comply with RR 2097-2100.

\*\* = If last character of P is a digit.

\*\*\* = If last character of P is a letter.

Type of station	RR number	Permitted formations	Number * of combinations	Observations
Land mobile stations	2117	XL2000-XL9999 XXA2000-XXZ9999 XXAA2000-XXZZ9999	8 000 208 000 5 408 000	L = Second character, provided it is a letter
Amateur stations	2119 2120 2100	Y0A-Y9Z Y0AA-Y9ZZ Y0AAA-Y9ZZZ	260 6 760 175 760	Y = First character, provided it is B, F, G, I, K, M, N, R or W (see RR 2101.1)
		XX0A-XX9Z XX0AA-XX9ZZ XX0AAA-XX9ZZZ	260 6 760 175 760	Call signs commencing with a digit when the second character is the letter O or I are not permitted (see RR 2100)
Experimental stations	2119	Y2A-Y9Z Y2AA-Y9ZZ Y2AAA-Y9ZZZ	208 5 408 140 608	Y = First character, provided it is B, F, G, I, K, M, N, R or W (see RR 2101.1)
		XX2A-XX9Z XX2AA-XX9ZZ XX2AAA-XX9ZZZ	208 5 408 140 608	
Stations in the space service	2122	XX00-XX99 XX000-XX999	100 1 000	If second character is a digit
		XX20-XX99 XX200-XX999	80 800	If second character is a letter

XX = First two characters of allocated call sign series.

\* = The actual number may be less, in order to comply with RR 2097-2100.

**PROVISIONS OF THE RADIO REGULATIONS  
CONTAINING REFERENCES TO  
ITU-R RECOMMENDATIONS<sup>1, 2</sup>**

(see Resolution **65**)

RR Item	Subject	Relevant ITU-R Recommendation(s)
15 15.1	Coordinated Universal Time (UTC)	460-4
147	Occupied bandwidth	328-7
150	Power (relations between peak envelope power, mean power and carrier power)	326-6
161	Permissible interference	216-2, 240-6, 302-2, 356-4, 357-3, 412-5, 441-1, 466-6, 483-2, 496-3, 510-1, 514-1, 523-4, 558-2, 560-3, 565, 615, 641, 655-2, 669, 671-2, 735-1, 758, 760
300	Choice of transmitting, receiving and measuring equipment	139-3, 162-3, 239-2, 246-3, 266-1, 328-7, 329-6, 331-4, 332-4, 338-2, 343-1, 344-2, 346-1, 348-4, 349-4, 415-2, 436-2, 450-1, 454-1, 467, 599, 705, 852
302	Signal processing methods for most efficient use of the frequency spectrum	455-2, 601-3, 640-1, 646-1

<sup>1</sup> The data contained in this table have been extracted from Resolution ITU-R 18 (Book 5).

<sup>2</sup> In columns where the numbers of the Recommendations or Reports appear, the number following the hyphen indicates, in each case, the most recent version of each Recommendation or Report.

RR Item	Subject	Relevant ITU-R Recommendation(s)
305	Maximum permitted power levels for out-of-band emissions	328-7
312	Technique of measurements and the intervals of measurements to be employed when checking compliance with the Radio Regulations	182-4, 377-2, 378-5, 443-1
524	Use of band 6 765 - 6 795 kHz for ISM	433-5
661	Use of band 433.05 - 434.79 MHz for ISM	433-5
824A	Use of band 9 200 - 9 500 MHz for search and rescue transponders (SART)	628-2
911	Use of band 61 - 61.5 GHz for ISM	433-5
916	Use of band 122 - 123 GHz for ISM	433-5
922	Use of band 244 - 246 GHz for ISM	433-5
1084 1084.1	Calculation methods and criteria to be employed in evaluating interference	452-5, 465-5, 466-6, 483-2, 509-1, 523-4, 524-4, 580-4, 619-1, 620-1, 671-2, 672-2, 727, 731, 735-1, 736, 737, 739, 740, 741-1, 744, 766
1107 1107.1	Criteria to be employed in evaluating interference between earth stations and stations in terrestrial radiocommunication services	355-4, 356-4, 357-3, 358-4, 406-8, 452-5, 465-5, 509-1, 558-2, 580-4, 615, 620-1, 766, 1004, 1006
1118 1118.1	Calculation methods and criteria to be employed in evaluating interference which would be caused to terrestrial services by earth stations	355-4, 357-3, 452-5, 465-5, 509-1, 580-4, 615, 619-1, 620-1, 731, 766, 1004, 1006
1119 1119.1	Calculation methods and criteria to be employed in evaluating interference which would be caused to reception at the earth station by terrestrial services	355-4, 356-4, 406-8, 452-5, 465-5, 558-2, 580-4, 620-1, 731, 766, 1006



RR Item	Subject	Relevant ITU-R Recommendation(s)
1148 1148.1 1164 1164.1	Calculation methods and the criteria in evaluating interference relating to coordination between terrestrial stations and earth stations	355-4, 356-4, 406-8, 452-5, 465-5, 558-2, 580-4, 620-1, 731, 765, 766
1454	Technical standards of IFRB should be based, amongst other things, on CCIR Recommendations	240-6, 314-8, 339-6, 355-4, 356-4, 357-3, 358-4, 364-5, 368-7, 370-5, 371-6, 372-5, 406-8, 412-5, 434-5, 435-7, 441-1, 450-1, 452-5, 465-5, 496-3, 509-1, 527-3, 528-2, 529-1, 530-4, 532-1, 533-3, 534-3, 558-2, 578, 580-4, 589-2, 597-1, 598-1, 599, 615, 617-1, 619-1, 620-1, 638, 765, 766, 831, 832, 837, 842, 844, 1006
1582	Technical standards of IFRB should be based, amongst other things, on CCIR Recommendations	314-8, 355-4, 356-4, 358-4, 364-5, 368-7, 370-5, 373-6, 452-5, 465-5, 466-6, 479-3, 483-2, 496-3, 509-1, 510-1, 514-1, 517-2, 523-4, 524-4, 527-3, 528-2, 529-1, 530-4, 531-2, 558-2, 578, 580-4, 611-2, 617-1, 618-2, 619-1, 620-1, 671-2, 672-2, 680-1, 681, 682-1, 731, 735-1, 736, 744, 765, 766, 828, 829, 832, 837, 844, 1006
1620 1630	Technical criteria to be used in order to facilitate the application of Article 14	674, 744
1812	Receiver characteristics	331-4, 332-4, 478-4, 489-1, 494, 539-2, 726-1
1814 1814.1	Interference from technical apparatus (except ISM)	433-5
1815 1815.1	Interference from ISM equipment	433-5
1878	Standards on monitoring stations	182-4, 328-7, 377-2, 378-5, 443-1, 575, 854

RR Item	Subject	Relevant ITU-R Recommendation(s)
2057	Identification signals	493-5, 585-2, 587-1, 625-2, 820, 821, 823, 825
2075	Forms of identification signals	493-5, 585-2, 587-1, 625-2, 820, 821, 823, 825
2076	Transmission of identification signals	493-5, 585-2, 587-1, 625-2, 820, 821, 823, 825
2077	Identification methods	585-2, 587-1
2149	Identity assignments	493-5, 585-2, 587-1, 820, 821, 825
2501	Selection of sites and frequencies for terrestrial stations	452-5, 619-1, 620-1
2502 2502.2	Direction of maximum radiation in the frequency bands between 1 and 10 GHz	406-8, 765, Report 393-4
2503 2503.2	Direction of maximum radiation in the frequency bands between 10 and 15 GHz	406-8, 765, Report 393-4
2504 2504.1	Direction of maximum radiation in the frequency bands above 15 GHz	406-8
2506 2506.1	Power limits where compliance with No. 2502 is impracticable	406-8, 765, Report 393-4
2509 2509.1 2510 2510.1 2511 2511.2	Application of the limits concerning interregional interference	355-4, 356-4, 357-3, 358-4, 406-8, 558-2, 615*

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\* These Recommendations are of a general nature and are not limited to inter-regional sharing and interference.

RR Item	Subject	Relevant ITU-R Recommendation(s)
2539	Selection of sites and frequencies for earth stations	355-4, 356-4, 357-3, 358-4, 363-4, 406-8, 452-5, 465-5, 558-2, 580-4, 615, 619-1, 620-1, 699-1, 731, 1004*
2547 2547.1 2548 2548.1	Application of the limits concerning interregional interference (earth stations)	355-4, 356-4, 357-3, 358-4, 363-4, 406-8, 452-5, 465-5, 558-2, 580-4, 615, 619-1, 620-1, 699-1, 731, 1004*
2559 2559.1 2576 2576.1 2580 2580.1	Application of the limits concerning interregional interference	355-4, 356-4, 357-3, 358-4, 363-4, 406-8, 452-5, 465-5, 558-2, 580-4, 615, 619-1, 620-1, 699-1, 731, 1004*
2582 2582.1	Power-flux density limits	358-4
2613 2613.1 2614 2614.1	Accepted level of interference	514-1, 609-1, 743
2619 2619.1	Accepted level of interference	484-3, 509-1, 514-1, 609-1, 743
2623 2623.1	Accepted level of interference	509-1, 514-1, 609-1
2627 2627.1 2630 2630.1	Accepted level of interference	514-1, 609-1, 743
2632 2632.2	Level of interference	314-8, 479-3, 514-1, 515-1, 517-2, 580-4, 611-2

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\* These Recommendations are of a general nature and are not limited to inter-regional sharing and interference.

RR Item	Subject	Relevant ITU-R Recommendation(s)
2636	Limitation of off-axis radiation	509-1, 514-1, 524-4, 728
2770	Interference reduction	374-3, 376-1, 537
2772	Standard frequency and time signals. Technical characteristics	375-2, 460-4, 583-1, 685
2904	Level of interference	314-8, 479-3, 517-2, 611-2
2937A	Using digital selective calling and satellite techniques and/or direct-printing telegraphy	476-4, 490, 491-1, 492-5, 493-5, 541-4, 625-2, 627, 821
3259A	Characteristics of signals in the bands 406 - 406.1 MHz and 1 645.5 - 1 646.5 MHz	632-1, 633-1
N2940	Using Morse telegraphy and radio-telephony techniques for distress, urgency and safety transmissions	219-1, 489-1
N3110	Digital selective calling	493-5, 541-4, 821, 822
N3112.3	The format of distress calls and distress messages	493-5, 541-4
N3124	Acknowledgement of receipt of distress alert	493-5, 541-4
N3167	Locating signals	628-2, 633-1
N3212	Error correction techniques	476-4, 625-2, 820
N3236	Mode and format of the transmissions	476-4, 625-2, 820
N3276	Characteristics of EPIRB signals	632-1, 633-1
N3277	Characteristics of the "distress call"	493-5, 541-4
4123A	Characteristics of the digital selective calling equipment (Frequency bands between 4 000 kHz and 27 500 kHz)	493-5, 541-4
4323C	Characteristics of the digital selective-calling equipment	493-5, 541-4, 821
4681	Technical characteristics of digital selective-calling equipment	493-5

RR Item	Subject	Relevant ITU-R Recommendation(s)
4686D	Technical format of the call sequence	493-5, 541-4
4687C	Acknowledgement of call	493-5, 541-4
4687E	Technical format of the acknowledgement sequence	493-5, 541-4
4687J	Transmission of acknowledgement (automatic)	493-5, 541-4
4687K	Transmission of acknowledgement (time limit)	493-5, 541-4
4688A	Operation of DSC VHF or UHF systems	493-5, 541-4
4873	Message format in the ship-to-shore direction	476-4, 490, 491-1, 492-5, 625-2, 820
AP1 Sec. A Col. 9j Sec. D Col. 9j Sec. F.II Col. 9j	Type of antenna	705
Items 2.B.12b and d Note 4	Maximum power density	675-2
Item 2.B.12d Note 8	Carrier type	739
Items 2.C.8b and e Note 4	Maximum power density	675-2
Item 2.C.8e Note 8	Carrier type	739

RR Item	Subject	Relevant ITU-R Recommendation(s)
AP3 Sec. III Items 3.B.6b and d Note 4	Maximum power density	675-2
Item 3.B.6d Note 8	Carrier type	739
Items 3.C.5b and e Note 4	Maximum power density	675-2
Item 3.C.5e Note 8	Carrier type	739
AP4 Sec. C Item 4a Sec. D Item 4a	Maximum spectral power density calculation	675-2
AP6 Part B Item 2	Computation of necessary bandwidth	328-7, 338-2, 853
AP7 Note 36	Frequency tolerances	478-4
AP8 Notes 12 and 13	Spurious emissions	329-6, 726-1
AP9 List VIII Part II-D	Particulars of monitoring stations carrying out bandwidth measurements	443-1, Report 275-5
Part III Note 1	Information available for bandwidth measurements	443-1, Report 275-5
AP19 Item 8	Characteristics of transmitters and receivers	489-1
AP28 Para 2.3.1 Note 2	Permissible level of the interfering emission	356-4, 357-3

RR Item	Subject	Relevant ITU-R Recommendation(s)
AP28 Para 3.2.2 Note	Calculation of coordination distance. Numerical method	452-5, 465-5, 580-4, 620-1, 731, 847-1, 848-1, 849-1, 850
Table 1 Note 5	Parameters required for determination of coordination distances in satellite communications	452-5, 465-5, 580-4, 620-1, 731, 847-1, 848-1, 849-1, 850
AP29 Para 2.2.1	Radiation patterns for earth station antennas	465-5, 580-4, 731, 738
Annex III	Radiation patterns for earth station antennas to be used when they are not published	465-5, 580-4, 731, 738
AP30 (Orb-85) Art. 6 Para 6.1.3 Note 1	Criteria of evaluation of interference in satellite communications	452-5, 619-1, 620-1, 679-1, 744
Art. 7 Para 7.2.5 Note 1	Criteria of evaluation of interference in satellite communications	452-5, 619-1, 620-1, 679-1, 744
Annex 5 Para 3.1	Pre-emphasis characteristics in satellite broadcasting	405-1
Para 3.6	Figure of merit ( $G/T$ ) of receiving installations	790, Report 473-5
Para 3.9.3	Spurious emissions	329-6
Annex 6 Para 1.1 Note 5	Protection requirements for sharing between services	483-2
Para 1.6b Note 1	Quality of the wanted service (grade 4.5)	500-5
Para 2.1	Reference antenna	465-5, 580-4, 731
Para 3.3	Use of energy dispersion	Report 631-4
AP30B Annex 1 Sec. A Para 1.2f	Rain attenuation model	618-2, Report 564-3

RR Item	Subject	Relevant ITU-R Recommendation(s)
AP38 Item d Note 2	Necessary bandwidth of receiving equipment	476-4, 625-2, 627
Item e	Frequency shift keying (“space” and “mark”)	490
Item f	Characteristics of the error-detecting and correcting equipment	476-4, 625-2
Item i	Conversion of call signal	476-4, 625-2
AP43 Para 2.1	Maritime identification digits	491-1, 585-2
Para 3.1.1	Ship station identities	491-1, 585-2
AP45 Part B Para 3	Characteristics of the reference receiver	640-1



## BR FLOWCHARTS ON RADIO REGULATORY PROCEDURES

(See Resolution 6)

The flowcharts listed below are an aid to understanding and do not form part of the Radio Regulations.

Flow-chart	Subject	Relevant provisions of the RR
1	The advance publication procedure of Section I of Article 11 of the Radio Regulations, applicable to stations in geostationary or non-geostationary-satellite networks	Art11 (Sec I)
2	The RR1060 coordination procedure applicable to space or earth stations in a geostationary-satellite network in relation to other geostationary-satellite networks operating in the same frequency band, before an assignment is notified to the BR	Art11 (Sec II)
3	The RR1107 coordination procedure applicable to earth stations in relation to terrestrial stations before an assignment is notified to the BR (in application of RR1107 in frequency bands above 1 GHz and section III of the Annex to Resolution No. 46)	Art11 (Sec III)
4	The coordination procedure of Section IV of Article 11 of the Radio Regulations or Section IV of the Annex to Resolution No. 46	Art11 (Sec IV)
5	Date of submission of a notice vis-à-vis date of putting the assignment into use (terrestrial services in bands not shared with space services)	Art12 (Sec I)

Flow-chart	Subject	Relevant provisions of the RR
6	Date of submission of a notice vis-à-vis date of putting the assignment into use (terrestrial services in frequency bands above 28 MHz)	Art12 (Sec I)
7	Regulatory examination of notices with respect to RR1240, RR1352 or RR1503	Art12 and Art13
8	Procedure relating to technical examination of frequency assignment notices in bands below 28 MHz other than exclusive bands (RR1241 or RR1242)	Art12 (S-Sec IIA)
9	Procedures relevant to examination of frequency assignment notices concerning stations in the broadcasting service in bands below 5 950 kHz to which Article 12 of the Radio Regulations applies	Art12 (S-Sec IIA)
10	Procedure relating to resubmitted notices (RR1254 - RR1265)	Art12 (S-Sec IIA)
11	Procedure under RR1218 for the fixed service in bands between 3 and 27.5 MHz	Art12 (S-Sec IIA)
12	Procedures relating to examination and recording of assignments to terrestrial services operating in bands above 28 MHz which are not shared with equal rights with space services	Art12 (S-Sec IIA)
13	Procedure relating to examination of notices of assignments to transmitting coast radiotelephone stations in the exclusive maritime mobile bands between 4 000 and 27 500 kHz	Art12 (S-Sec IIB)
14	Procedure relating to examination of notices of assignments to receiving coast radiotelephone stations in the exclusive maritime mobile bands between 4 000 and 27 500 kHz	Art12 (S-Sec IIB)

Flow-chart	Subject	Relevant provisions of the RR
15	Procedure relating to examination of notices of frequency assignments in the exclusive aeronautical mobile (R) bands between 2 850 and 22 000 kHz	Art12 (S-Sec IIC)
16	Procedure relating to examination of notices of frequency assignments in the exclusive aeronautical mobile (OR) bands between 3 025 and 18 030 kHz	Art12 (S-Sec IIC)
17	Procedures relating to examination and recording of assignments to terrestrial stations which are in the same frequency band as, and within the coordination area of, an existing earth station or one for which coordination has been successfully completed or initiated	Art12 (S-Sec IIE)
18	Date of submission of a notice vis-à-vis date of putting the assignment into use (space services, space or earth stations)	Art13 (Sec I)
19	Procedure of examination and registration of assignments to stations in space services other than the broadcasting-satellite service and feeder link for the broadcasting-satellite service	Art13 (Sec II)
20	The Article 14 procedure	Art14
21	The Article 16 procedure	Art16
22	Article 17: Time table of activities	Art17
23	The Article 17 procedure relating to assignments to broadcasting stations in the exclusive bands between 5 950 and 26 100 kHz	Art17

Flow-chart	Subject	Relevant provisions of the RR
24	The procedure of Article 4 of Appendix 30 (Orb-85) for modification of the Plans for the broadcasting-satellite service in the bands 11.7 - 12.2 GHz (Region 3), 11.7 - 12.5 GHz (Region 1) and 12.2 - 12.7 GHz (Region 2)	AP30 (Orb-85) (Art4)
25	Notification, examination and registration of assignments to space stations in the broadcasting-satellite service in the bands 11.7 - 12.2 GHz (Region 3), 11.7 - 12.5 GHz (Region 1) and 12.2 - 12.7 GHz (Region 2) in accordance with Article 5 of Appendix 30 (Orb-85)	AP30 (Orb-85) (Art5)
26	Notification, examination and registration of assignments to space stations in the broadcasting-satellite service, except those stations which operate in the bands of Appendix 30, in accordance with Section C of Resolution No. 33	AP30 (Orb-85) (Art5)
27	The Procedure of Article 4 of Appendix 30A (Orb-88) for modification of the Plan for the feeder-link stations in the fixed-satellite service in the bands 14.5 - 14.8 GHz and 17.3 - 18.1 GHz in Regions 1 and 3, and 17.3 - 17.8 GHz in Region 2	AP30A (Orb-88) (Art4)
28	Notification, examination and registration of frequency assignments to feeder-link transmitting earth stations and receiving space stations in the fixed-satellite service in the bands 14.5 - 14.8 GHz and 17.3 - 18.1 GHz in Regions 1 and 3, and 17.3 - 17.8 GHz in Region 2	AP30A (Orb-88) (Art5)

**FLOWCHART No. 1**  
**Sheet 1 of 2**

**THE ADVANCE PUBLICATION PROCEDURE OF SECTION I  
OF ARTICLE 11 OF THE RADIO REGULATIONS, APPLICABLE TO STATIONS  
IN GEOSTATIONARY OR NON-GEOSTATIONARY SATELLITE NETWORKS (SEE NOTE 1)**

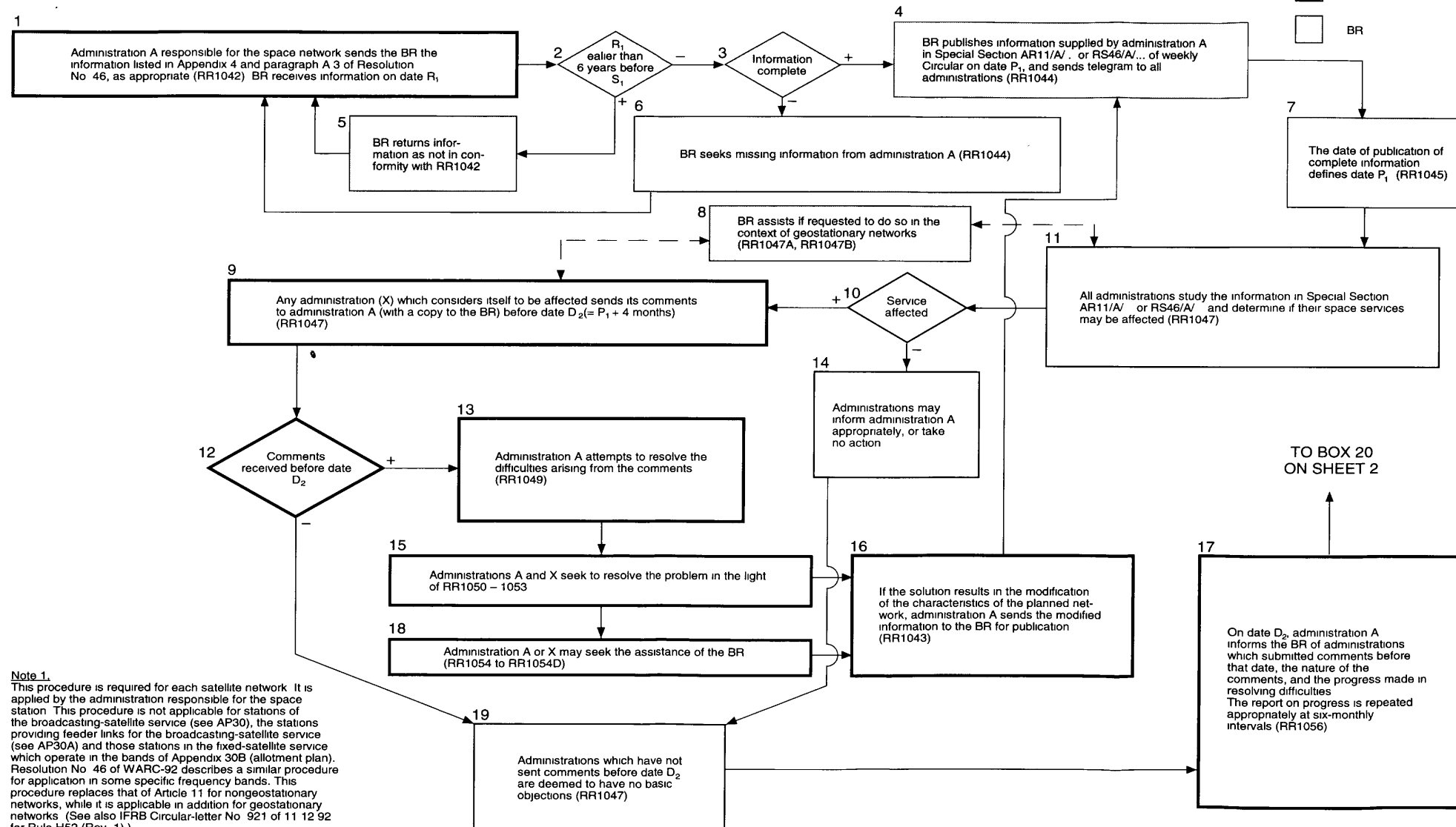
THIS FLOWCHART IS ISSUED AS AN AID TO UNDERSTANDING AND DOES NOT FORM PART  
OF THE RADIO REGULATIONS

$S_1$  = Proposed date on which assignment  
is to be put into use

+ = Yes  
- = No

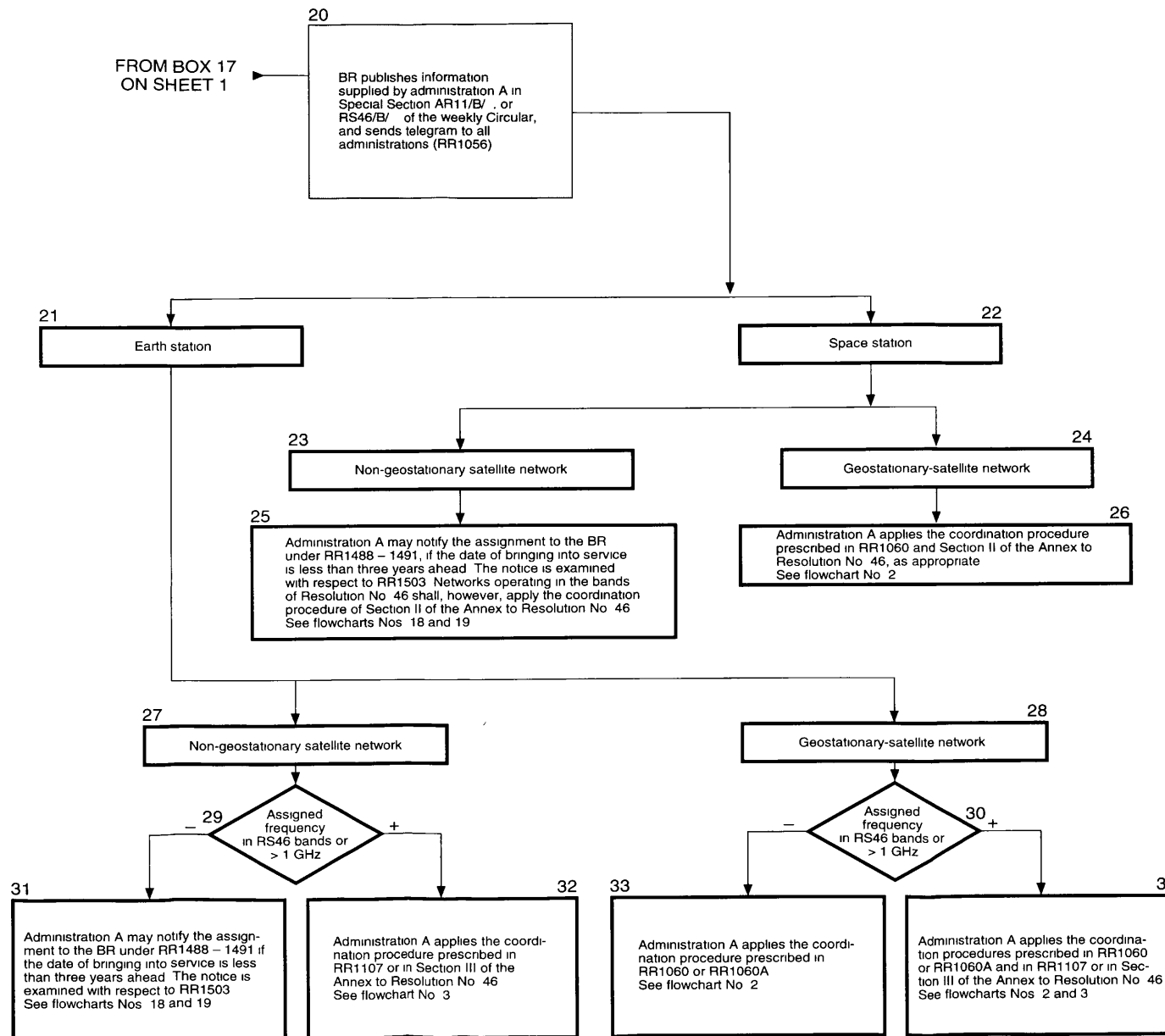
Action by

<input type="checkbox"/>	Administration A
<input type="checkbox"/>	Another administration
<input type="checkbox"/>	BR


**Note 1.**

This procedure is required for each satellite network. It is applied by the administration responsible for the space station. This procedure is not applicable for stations of the broadcasting-satellite service (see AP30), the stations providing feeder links for the broadcasting-satellite service (see AP30A) and those stations in the fixed-satellite service which operate in the bands of Appendix 30B (allotment plan). Resolution No 46 of WARC-92 describes a similar procedure for application in some specific frequency bands. This procedure replaces that of Article 11 for nongeostationary networks, while it is applicable in addition for geostationary networks. (See also IFRB Circular-letter No 921 of 11 12 92 for Rule H52 (Rev 1).)

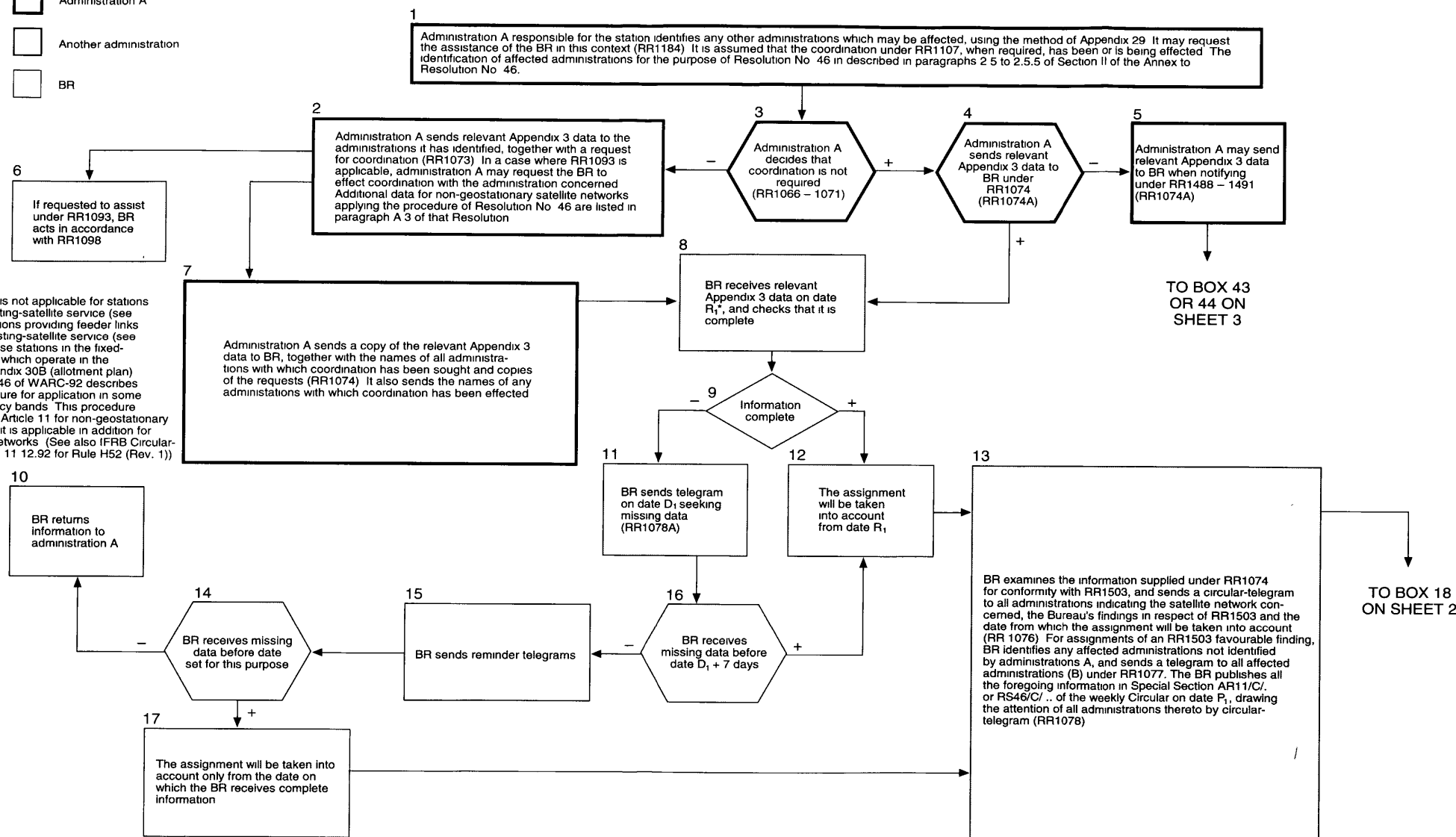
**FLOWCHART No. 1**  
**Sheet 2 of 2**



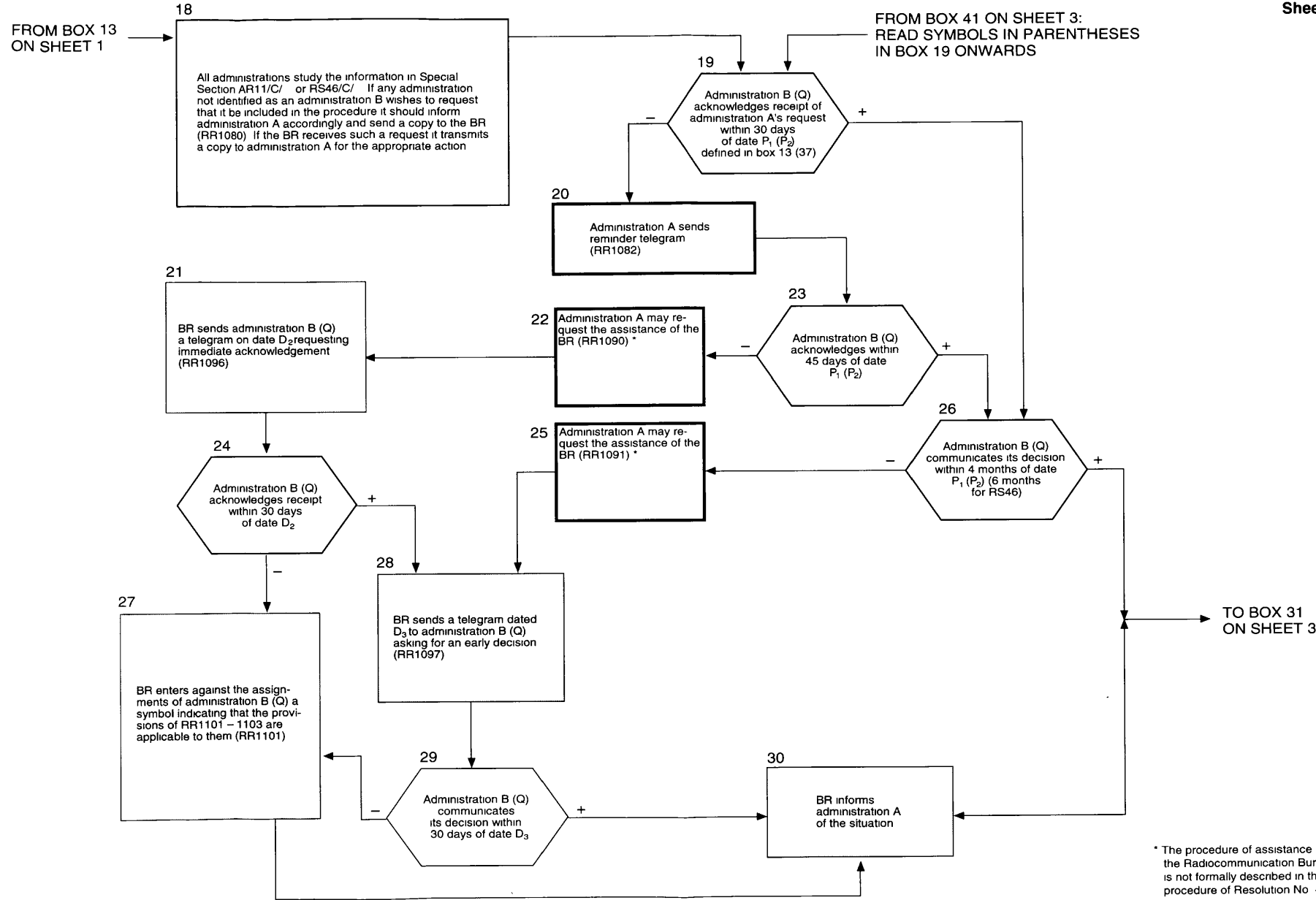
+ = Yes  
- = No

Action by  
☐ Administration A  
☐ Another administration  
☐ BR

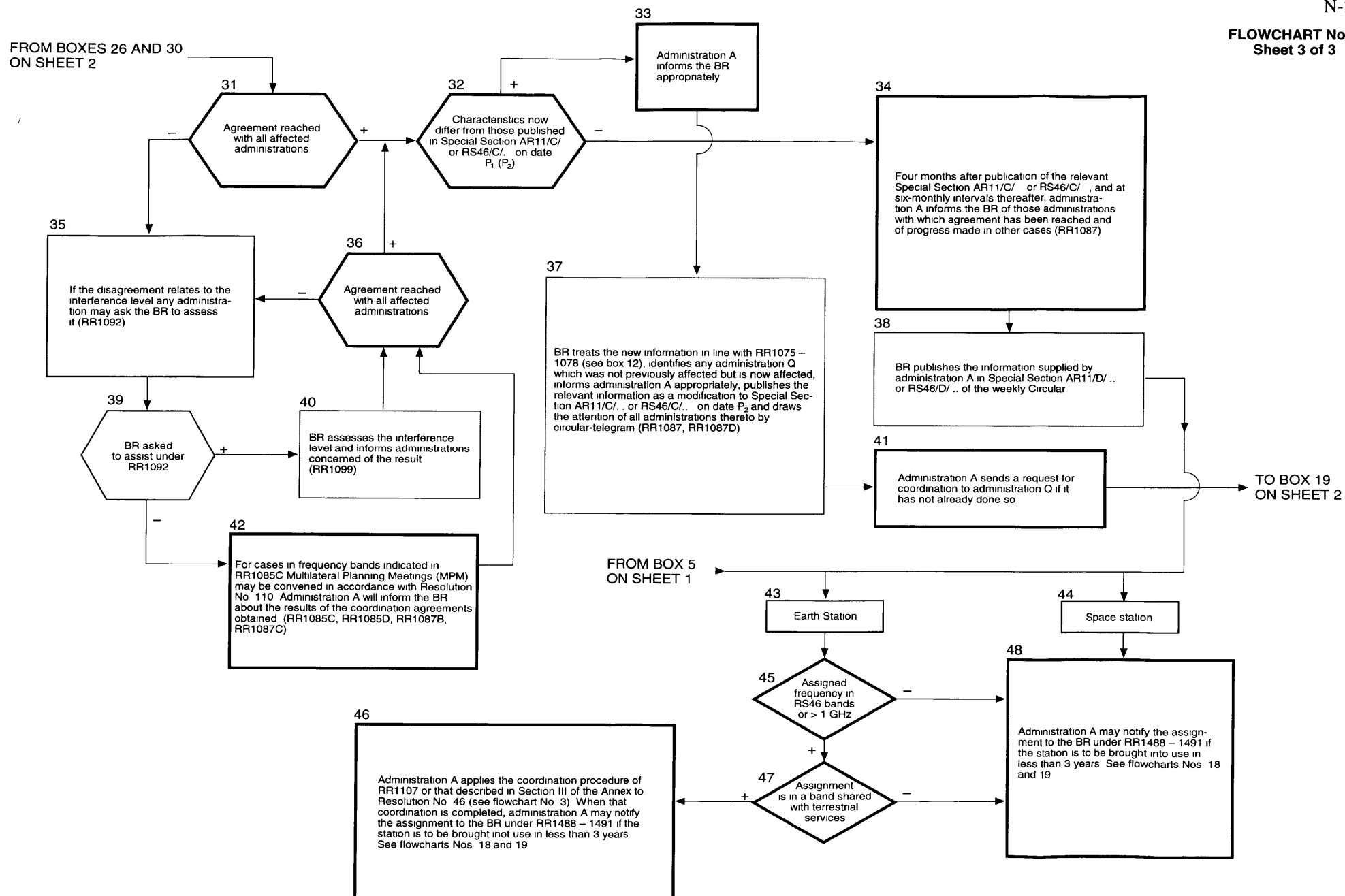
**NOTE 1**  
This procedure is not applicable for stations of the broadcasting-satellite service (see AP30). The stations providing feeder links for the broadcasting-satellite service (see AP30A) and those stations in the fixed-satellite service which operate in the bounds of Appendix 30B (allotment plan) Resolution No. 46 of WARC-92 describes a similar procedure for application in some specific frequency bands. This procedure replaces that of Article 11 for non-geostationary networks, while it is applicable in addition for geostationary networks. (See also IFRB Circular-letter No. 921 of 11 12.92 for Rule H52 (Rev. 1))



\*) If  $R_1$  is earlier than the date of receipt of the advance publication information plus 6 months, then this latter will be considered by the BR as  $R_1$  date for any further application of the provisions of Article 11 (RR1058E)







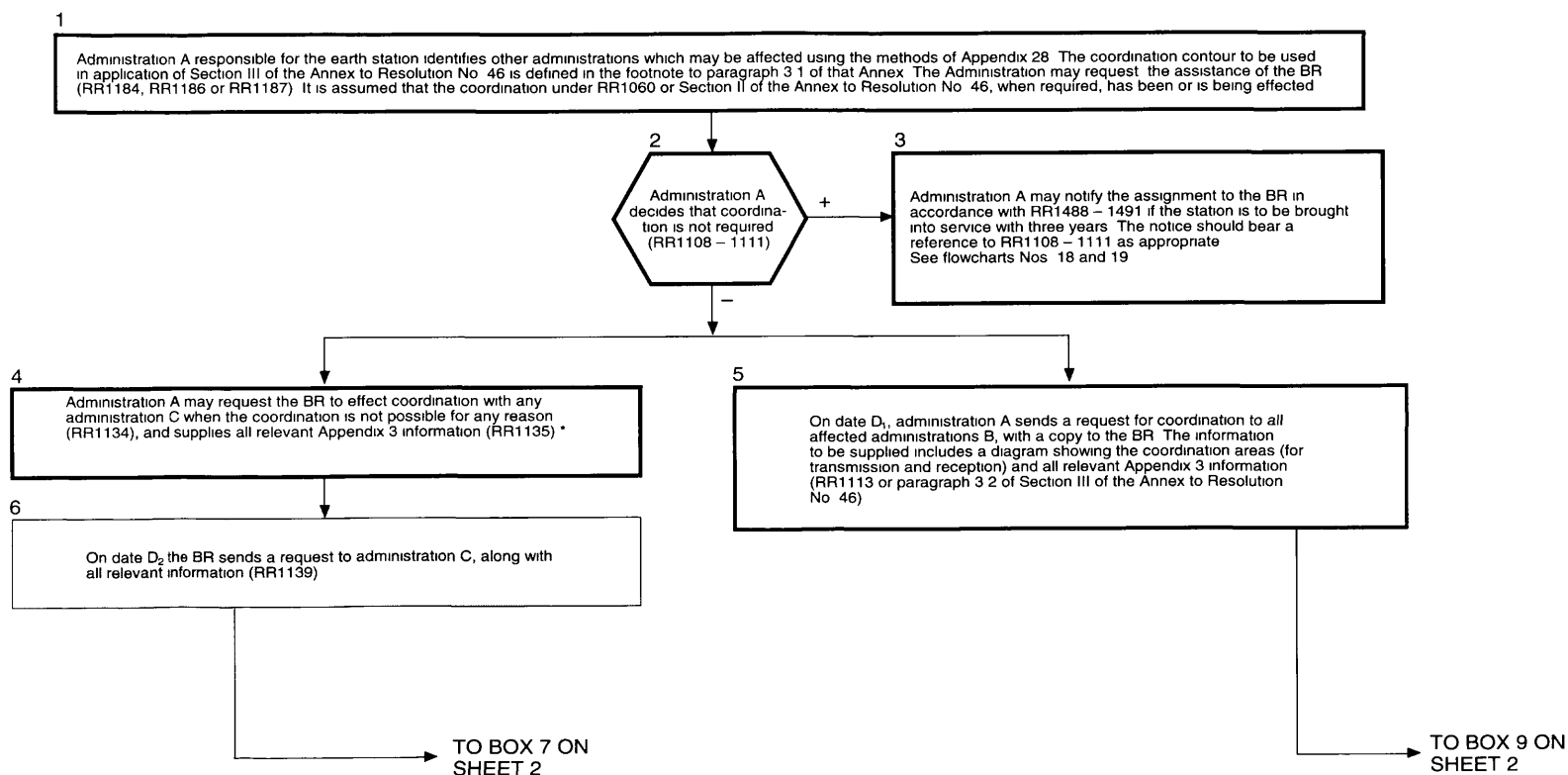
THE RR1107 COORDINATION PROCEDURE APPLICABLE TO EARTH  
STATIONS IN RELATION TO TERRESTRIAL STATIONS BEFORE  
AN ASSIGNMENT IS NOTIFIED TO THE BR

(In application of RR1107 in frequency bands above 1 GHz and Section III of the Annex  
to Resolution No. 46)

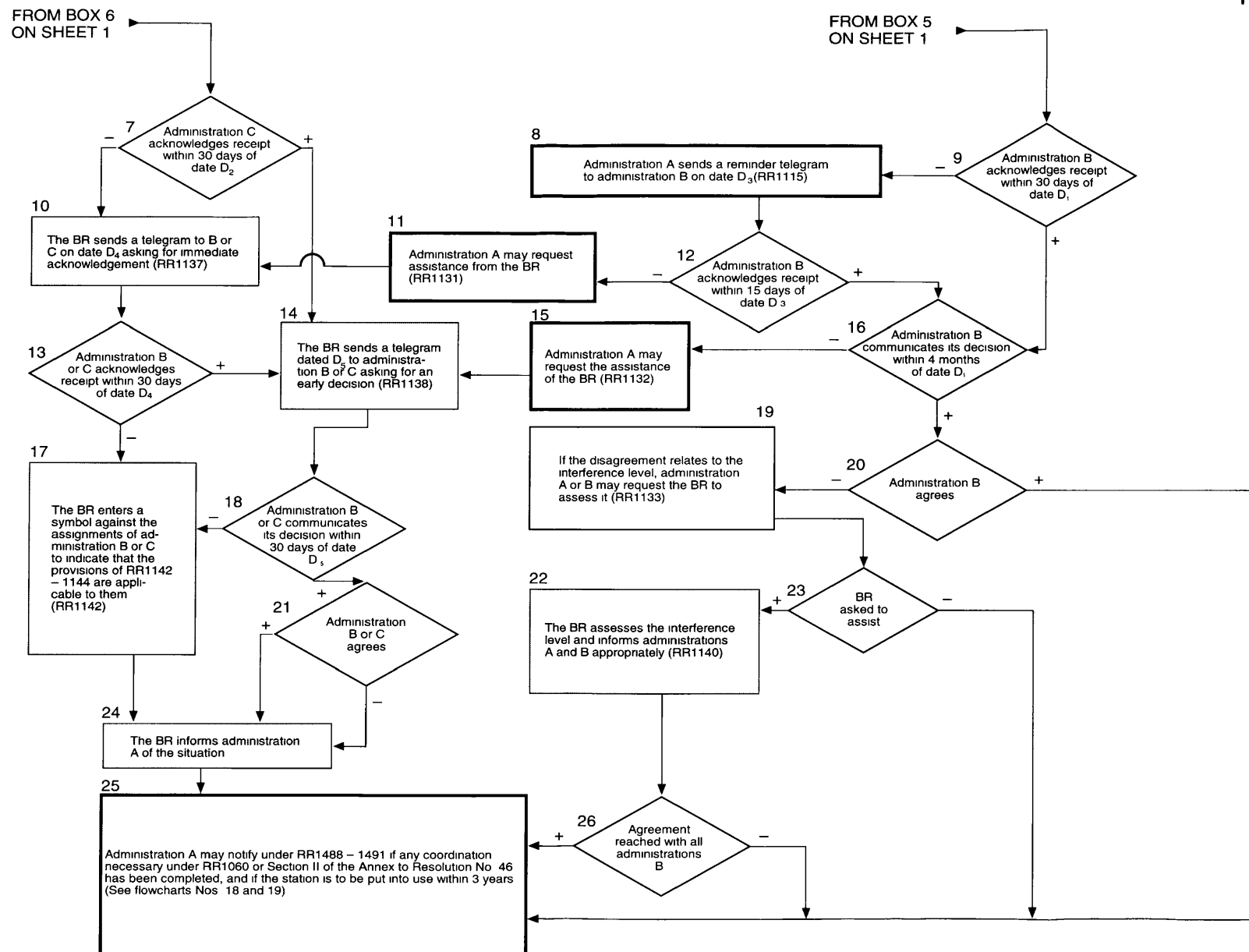
THIS FLOWCHART IS ISSUED AS AN AID TO UNDERSTANDING AND  
DOES NOT FORM PART OF THE RADIO REGULATIONS

+ = Yes, - = No

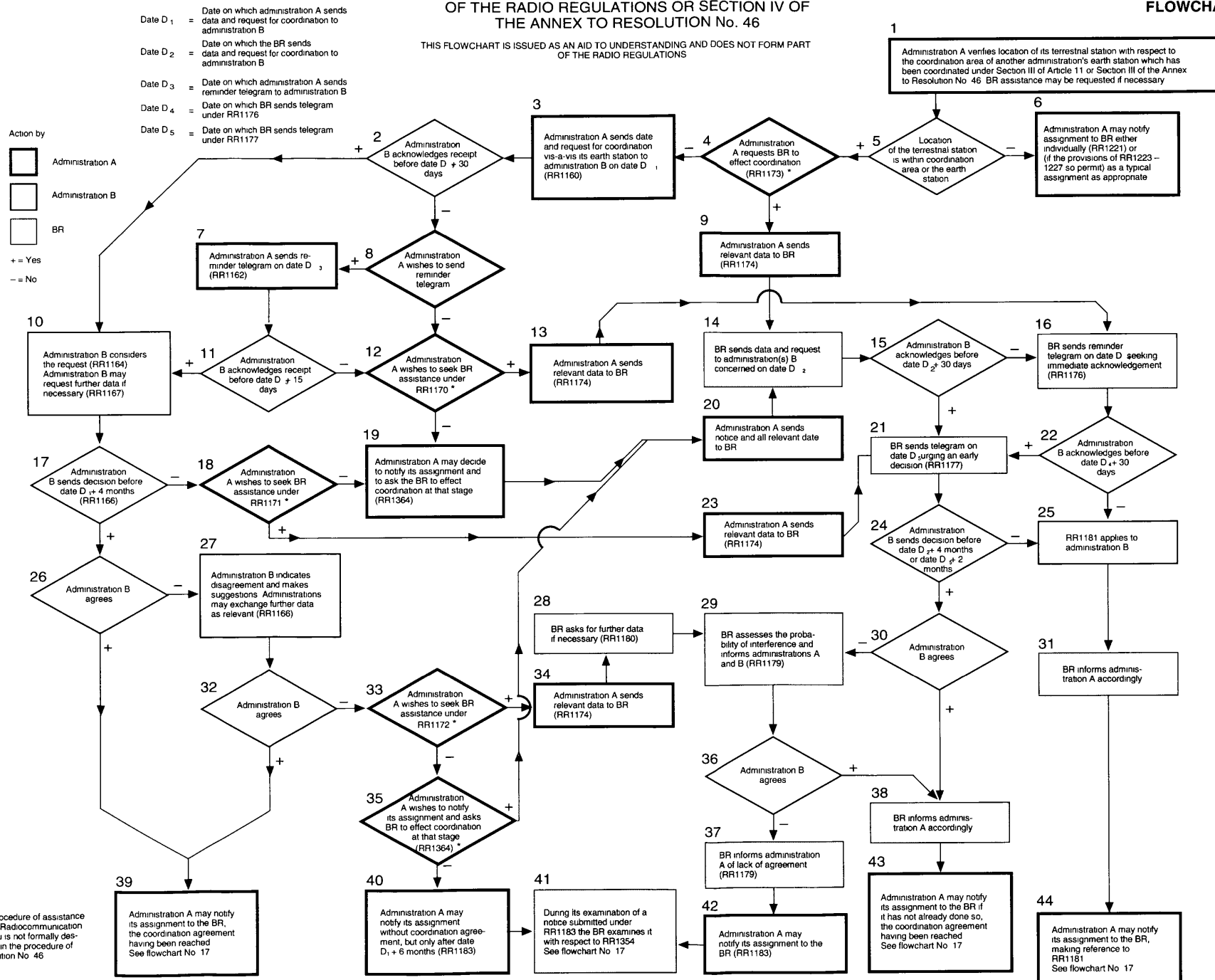
Action by ☐ Administration A  
☐ Another administration  
☐ BR



\* The procedure of assistance by the Radiocommunication Bureau is not formally described in the procedure of Resolution No. 46



THIS FLOWCHART IS ISSUED AS AN AID TO UNDERSTANDING AND DOES NOT FORM PART  
OF THE RADIO REGULATIONS



\* The procedure of assistance by the Radiocommunication Bureau is not formally described in the procedure of Resolution No. 46

DATE OF SUBMISSION OF A NOTICE VIS-A-VIS DATE OF PUTTING THE ASSIGNMENT INTO USE  
(Terrestrial services in bands not shared with space services)

$R_1$  = Date of receipt of original notice by BR

$S_1$  = Originally notified date of putting the  
assignment into use

Action by



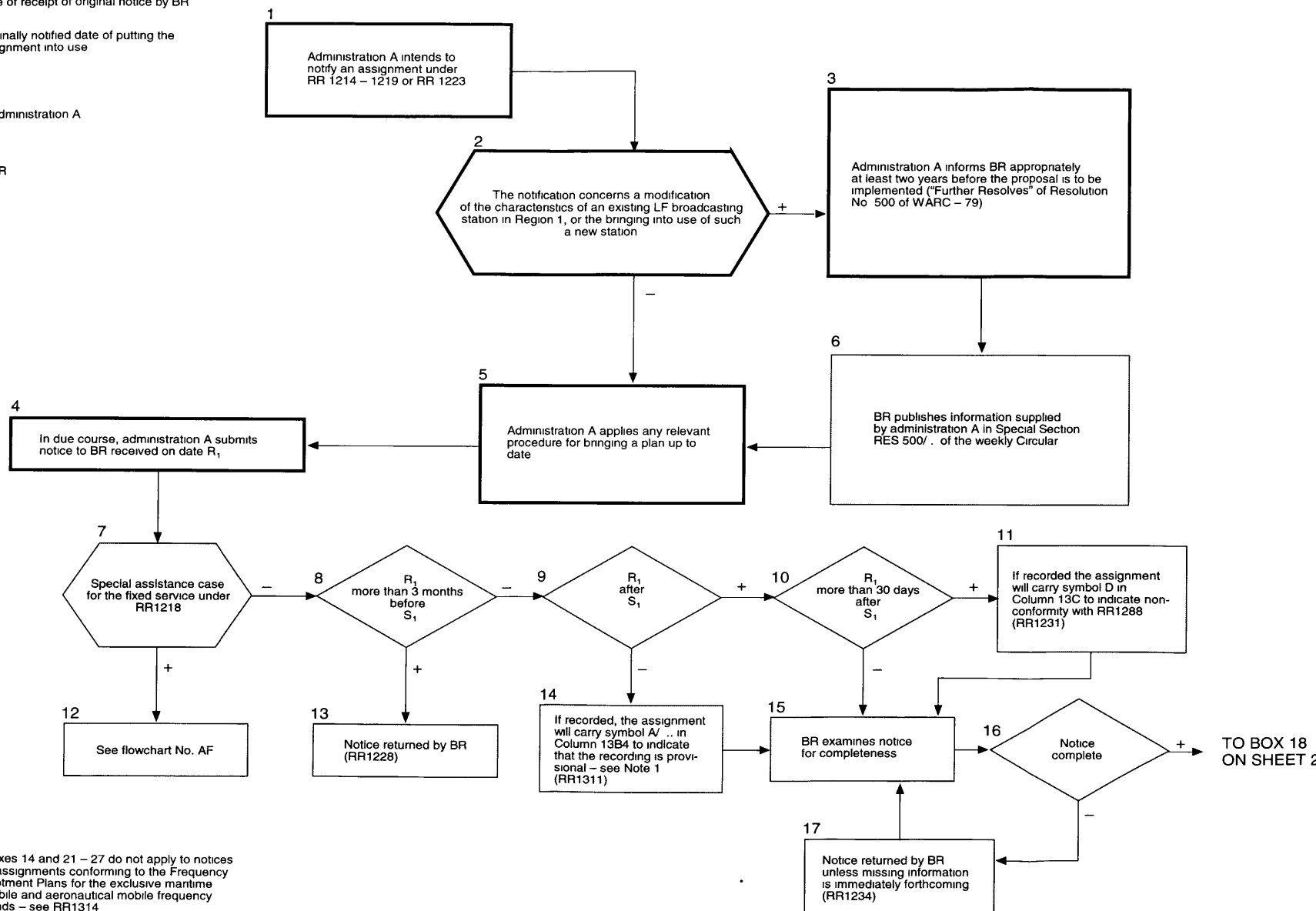
Administration A

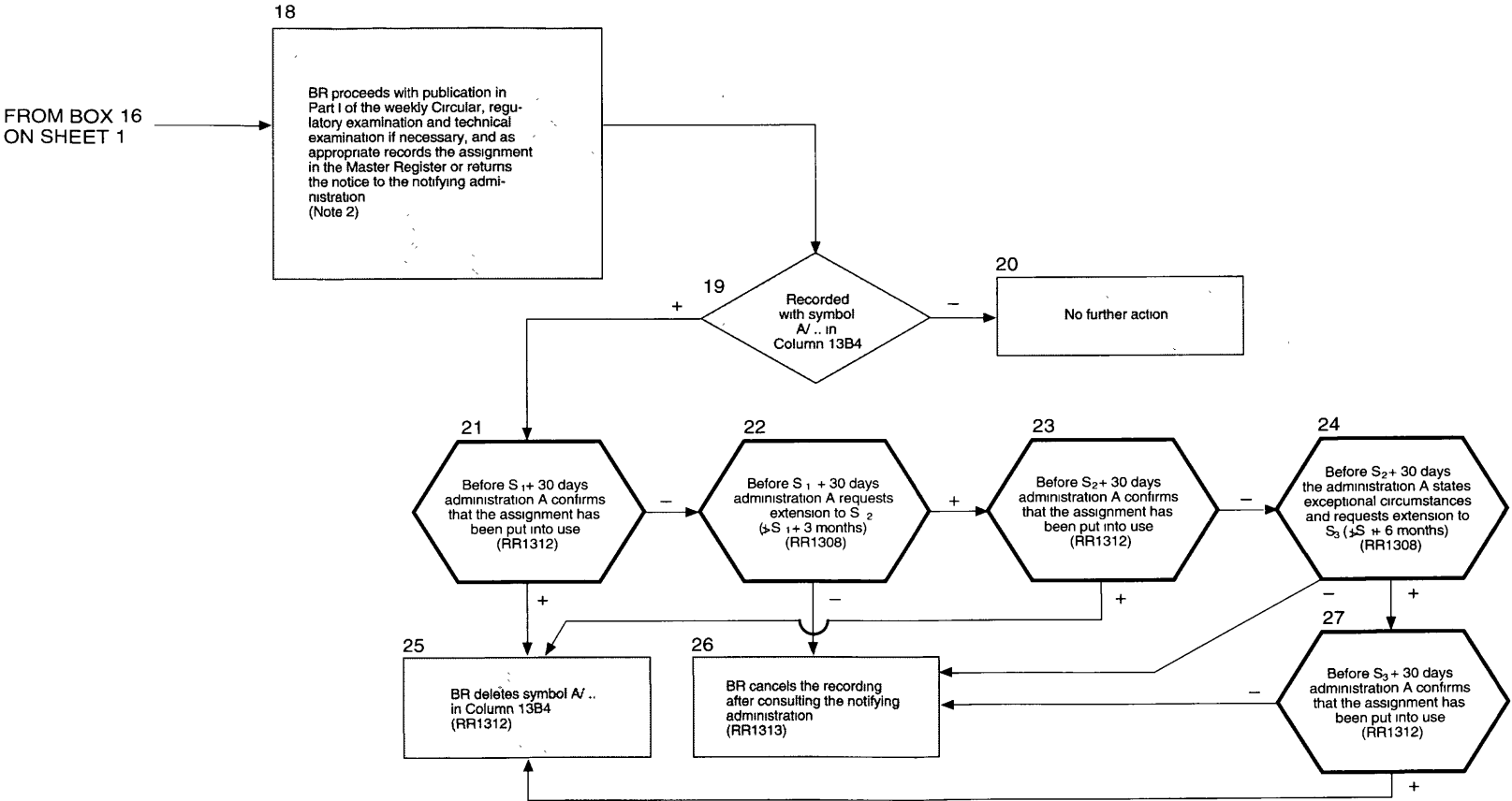


BR

+ = Yes

- = No





Note 2 This flowchart is primarily concerned with dates, and consequently does not show details of the Bureau's examination and recording procedures, which are illustrated in other flowcharts dealing with particular frequency bands or services

DATE OF SUBMISSION  
OF A NOTICE VIS-A-VIS DATE OF PUTTING THE ASSIGNMENT INTO USE  
(Terrestrial services in frequency bands above 28 MHz)

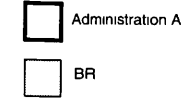
N-27  
**FLOWCHART No. 6**

$R_1$  = Date of receipt of original notice by BR

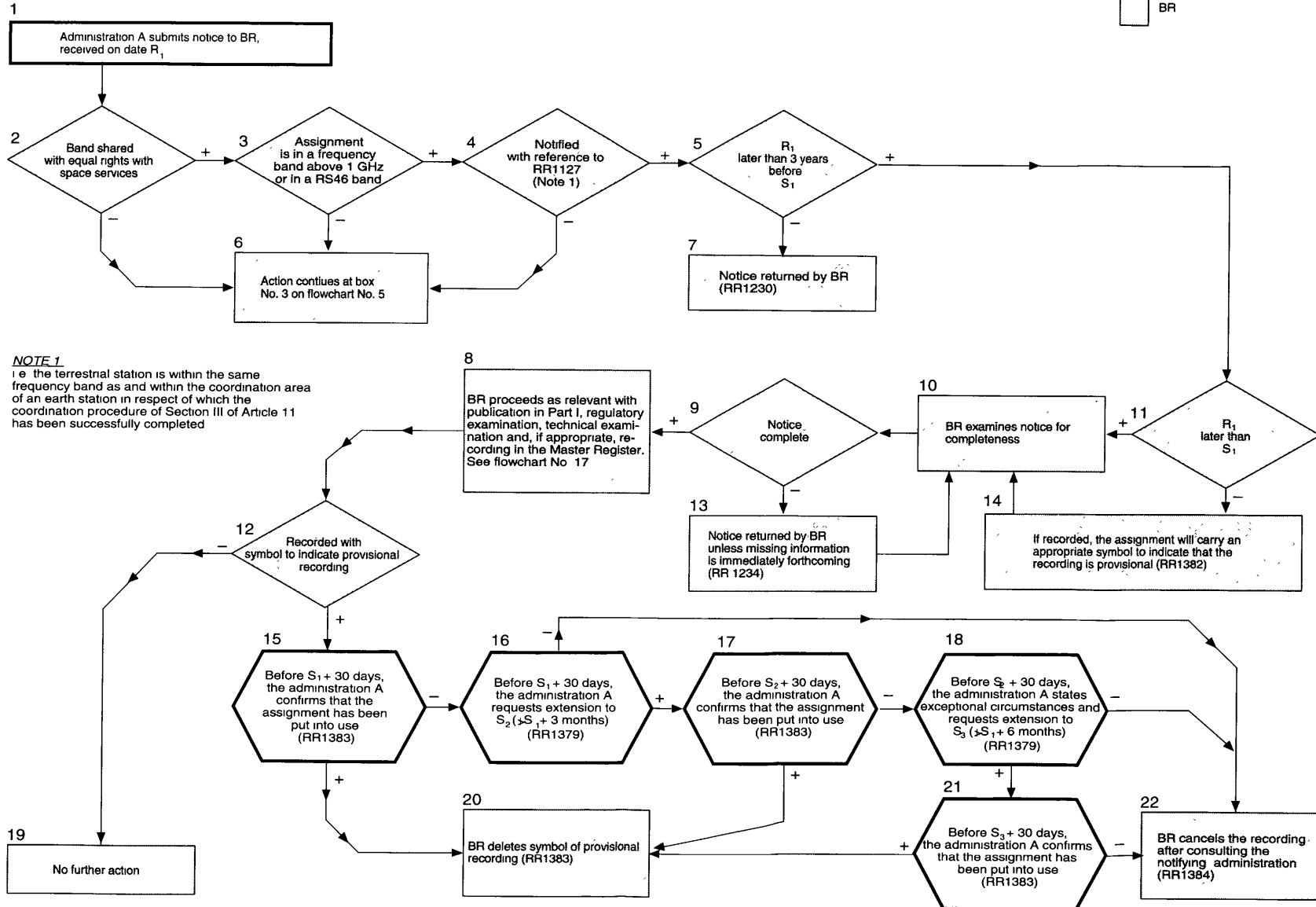
$S_1$  = Originally notified date of putting the assignment into use

THIS FLOWCHART IS ISSUED AS AN AID TO UNDERSTANDING AND DOES NOT FORM PART  
OF THE RADIO REGULATIONS

Action by:



+ = Yes  
- = No



THIS FLOWCHART IS ISSUED AS AN AID TO  
UNDERSTANDING AND DOES NOT FORM PART  
OF THE RADIO REGULATIONS

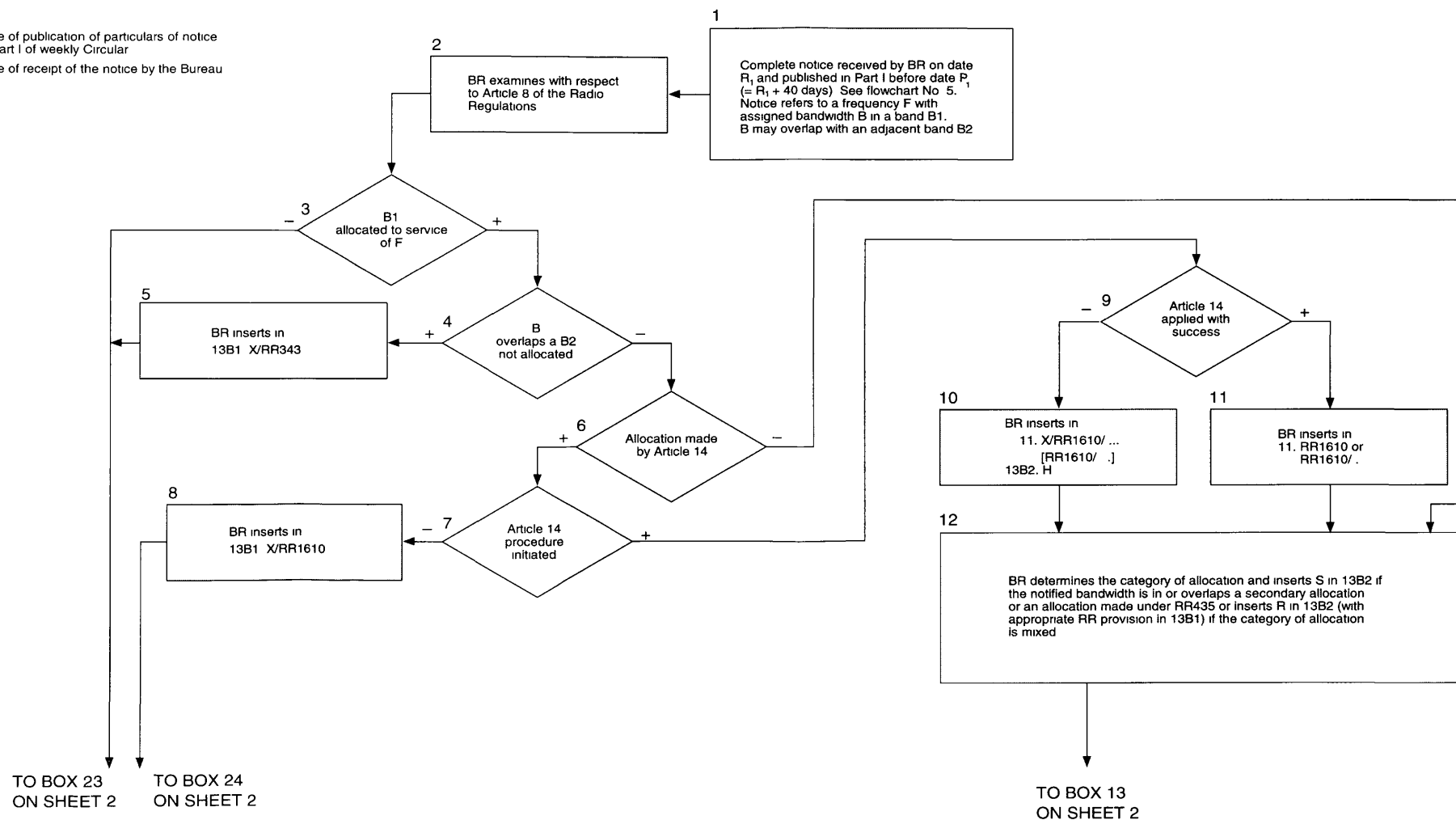
ARTICLES 12 AND 13  
REGULATORY EXAMINATION OF NOTICES WITH RESPECT TO RR1240, RR1352 OR RR1503

Action by ☐ BR

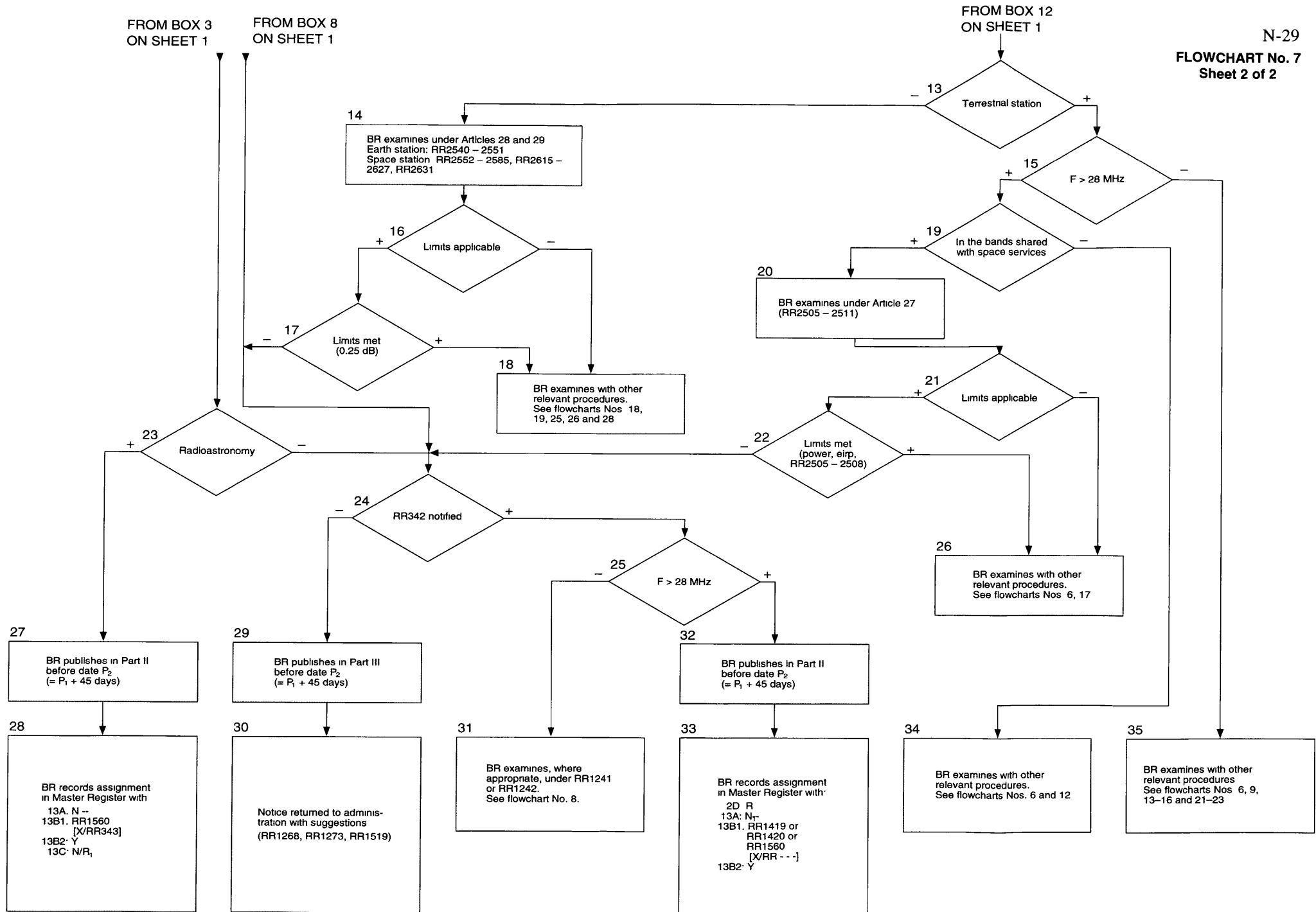
$P_1$  = Date of publication of particulars of notice  
in Part I of weekly Circular

$R_1$  = Date of receipt of the notice by the Bureau

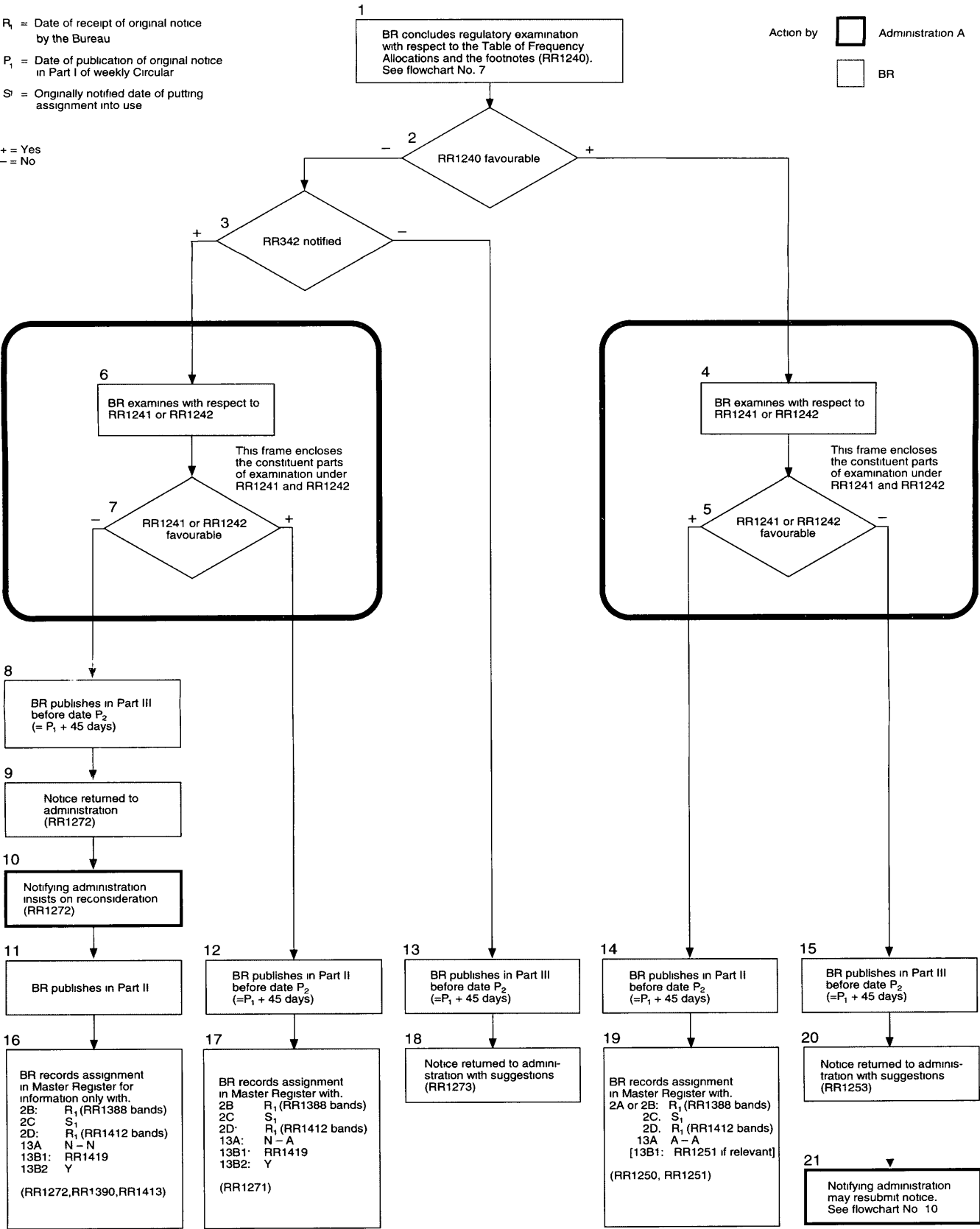
+ = Yes  
- = No







PROCEDURE RELATING TO TECHNICAL EXAMINATION OF FREQUENCY ASSIGNMENT NOTICES  
IN BANDS BELOW 28 MHZ OTHER THAN EXCLUSIVE BANDS (RR1241 OR RR1242)

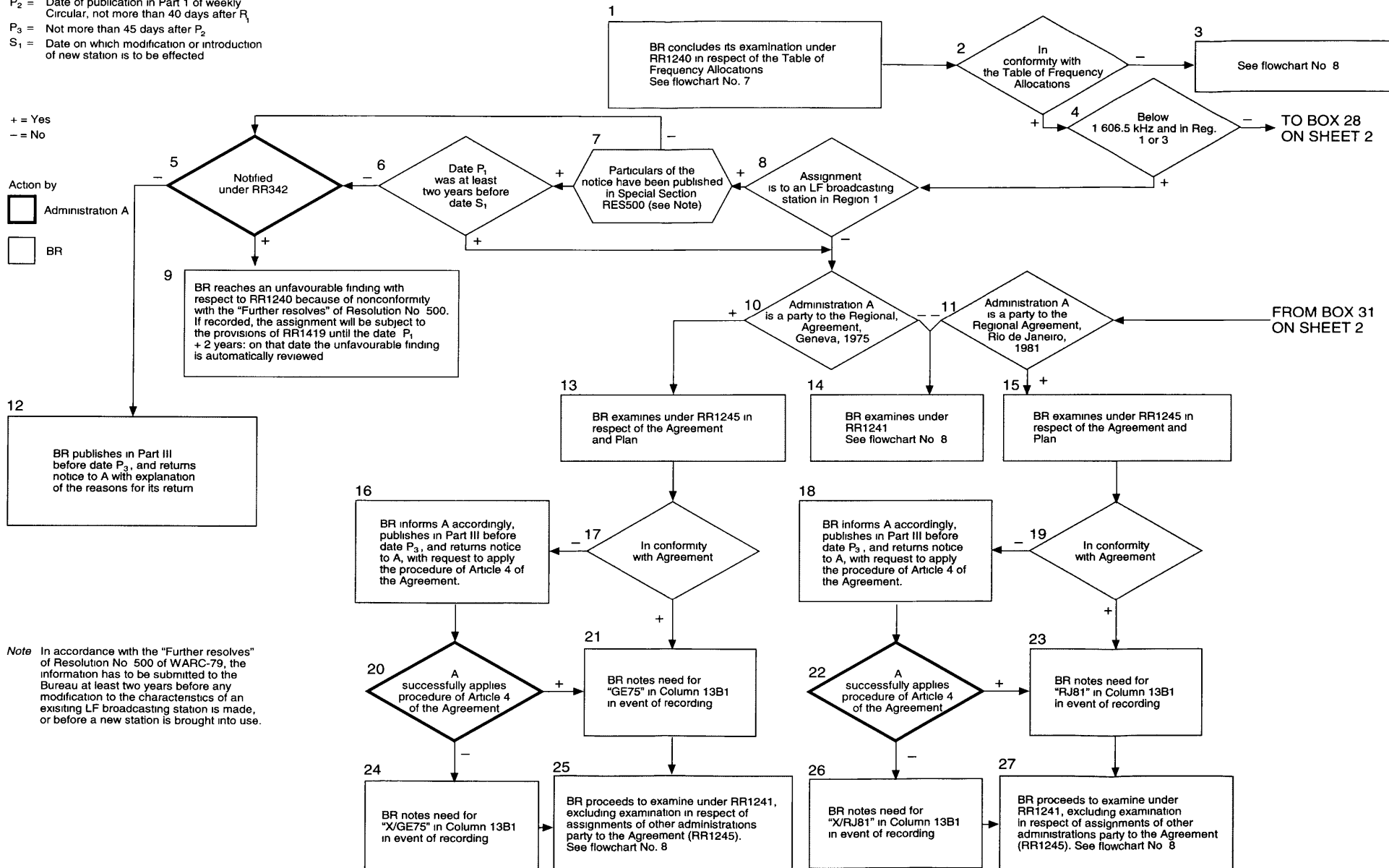


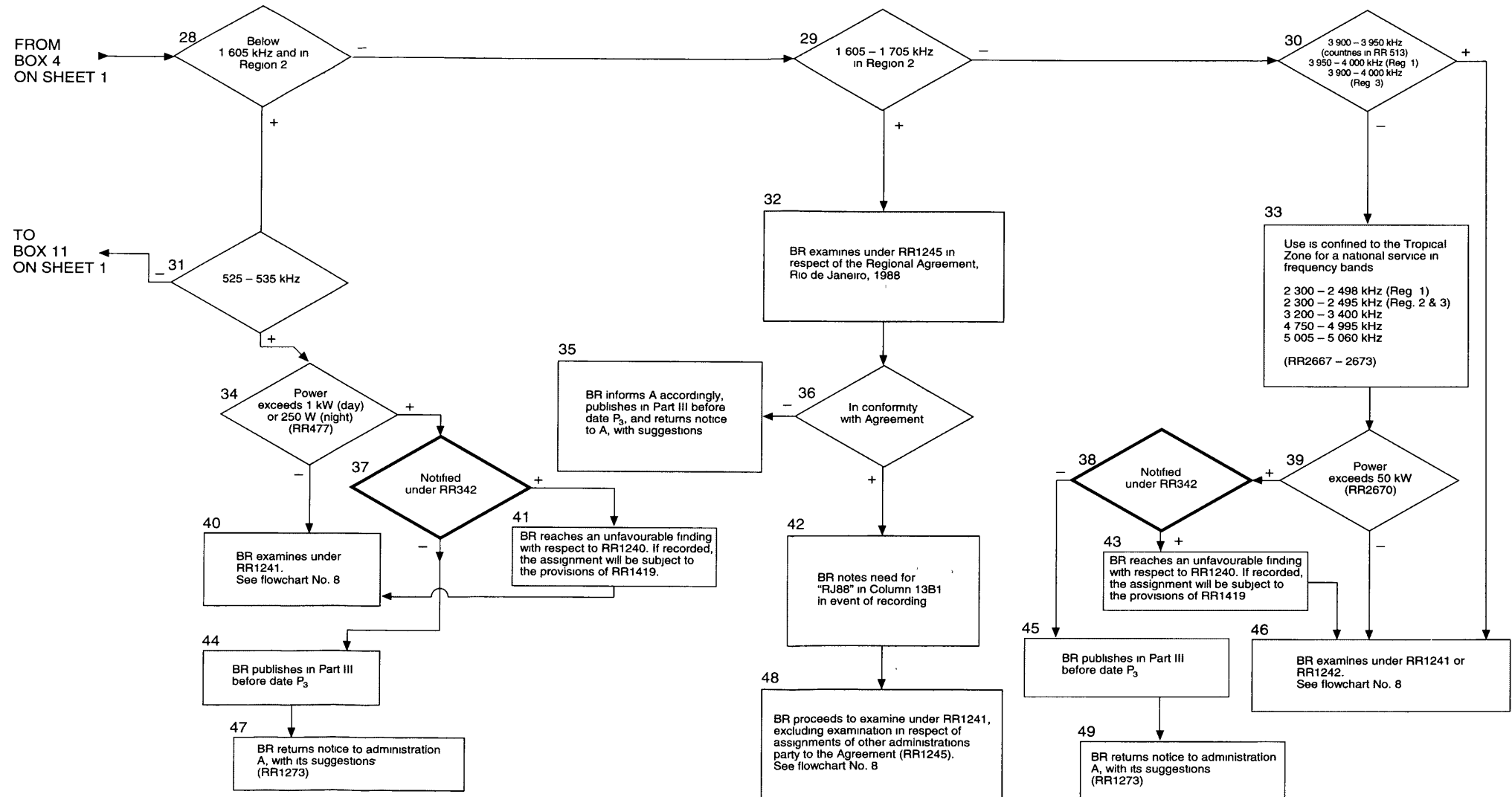
PROCEDURES RELEVANT TO EXAMINATION OF FREQUENCY ASSIGNMENT NOTICES  
CONCERNING STATIONS IN THE BROADCASTING SERVICE IN BANDS BELOW 5 950 kHz TO WHICH  
ARTICLE 12 OF THE RADIO REGULATIONS APPLIES

R<sub>1</sub> = Date of receipt of notice by BR  
P<sub>1</sub> = Date of reception of the information published  
in Special Section RES500 of weekly Circular  
P<sub>2</sub> = Date of publication in Part 1 of weekly  
Circular, not more than 40 days after R<sub>1</sub>  
P<sub>3</sub> = Not more than 45 days after P<sub>2</sub>  
S<sub>1</sub> = Date on which modification or introduction  
of new station is to be effected

+ = Yes  
- = No

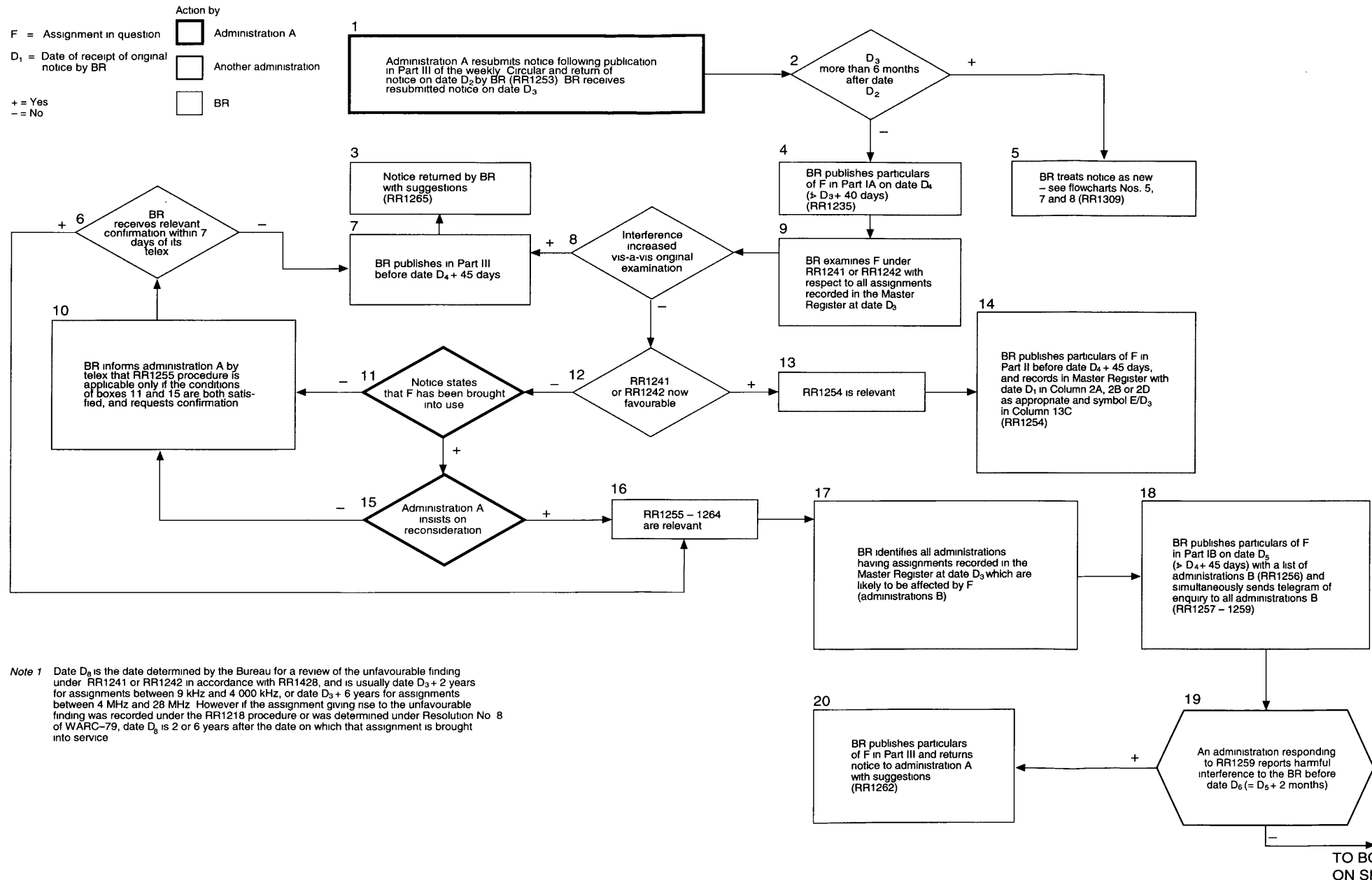
Action by  
☒ Administration A  
☐ BR



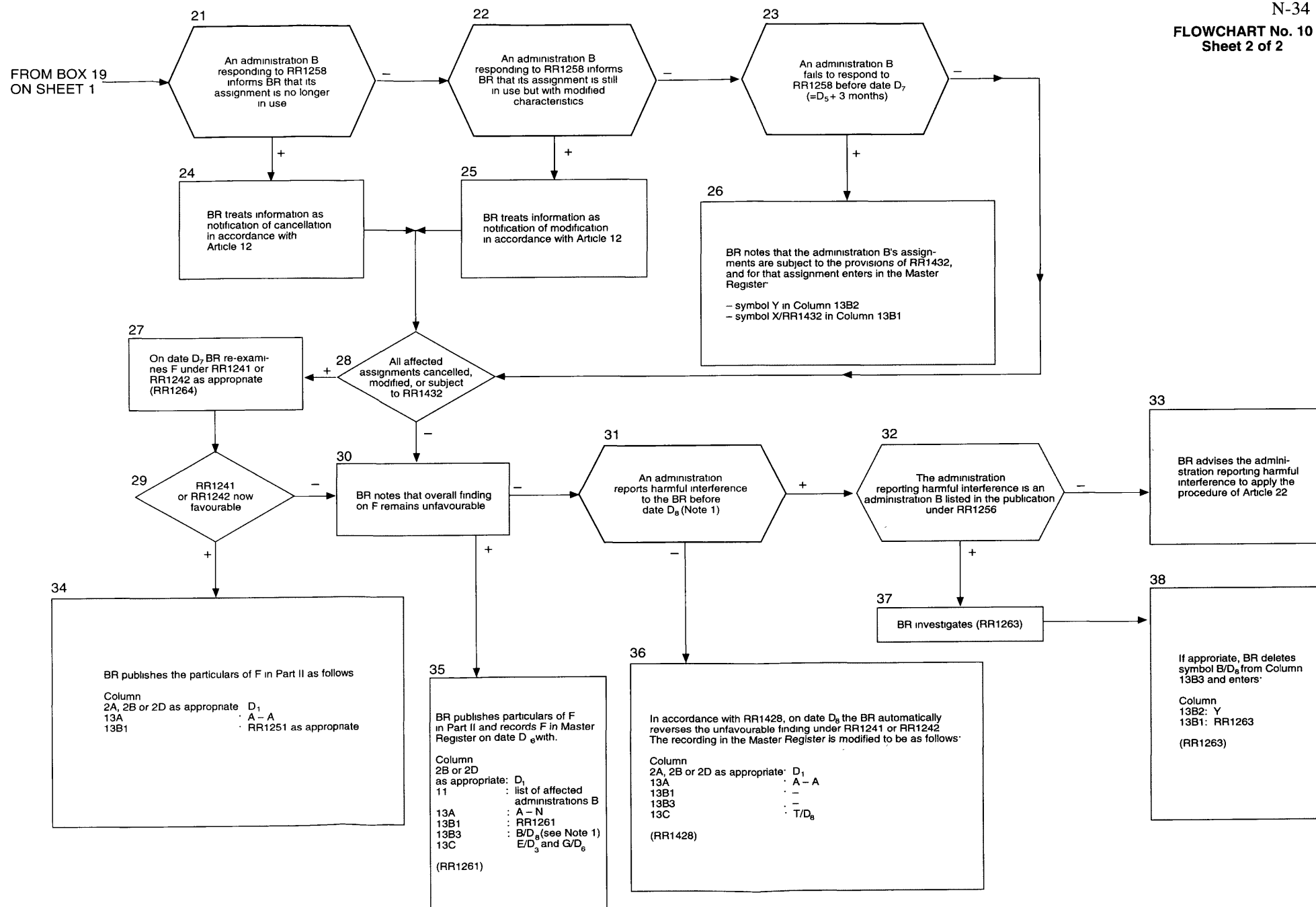


PROCEDURE RELATING TO RESUBMITTED NOTICES (RR1254 – 1265)

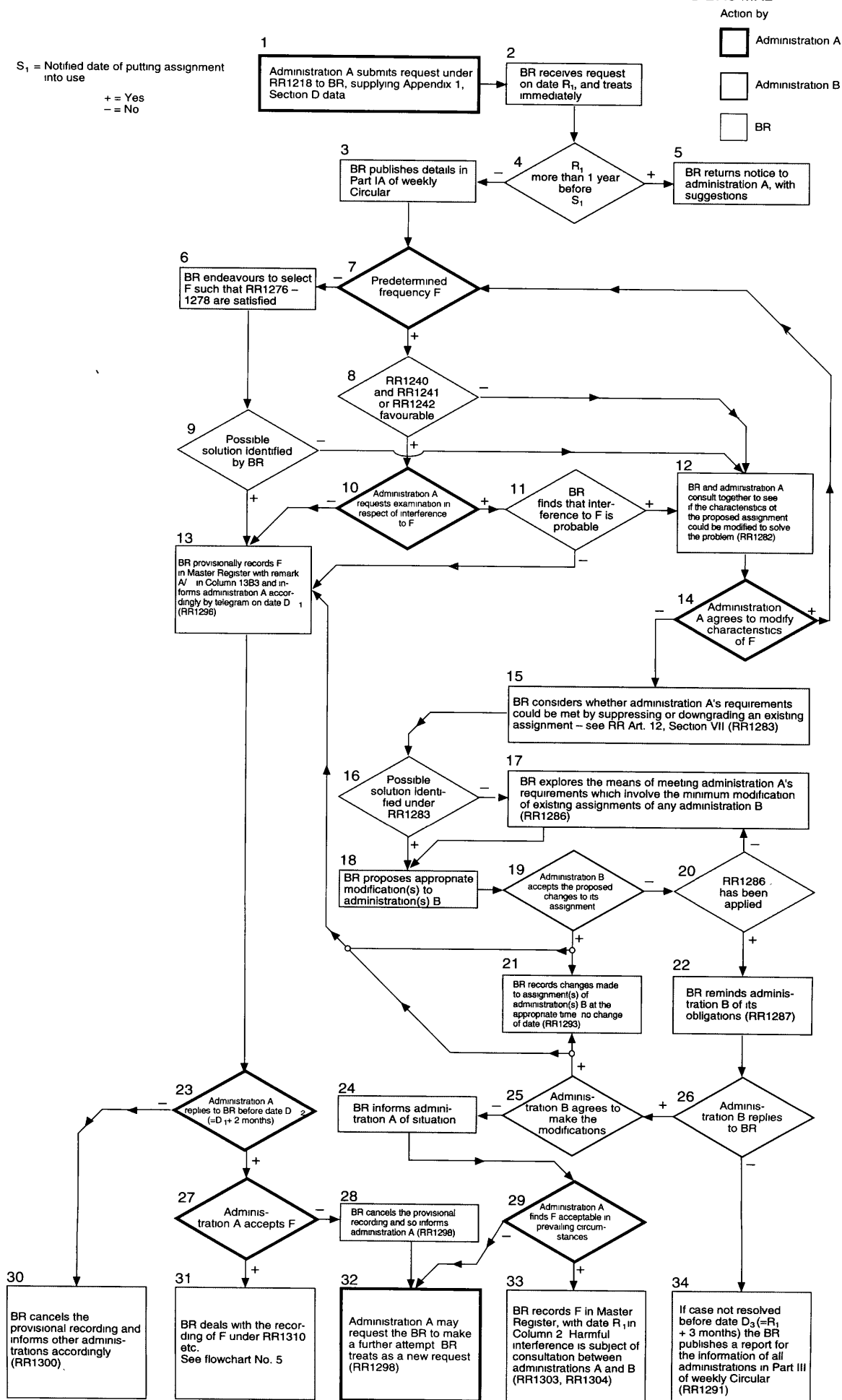
FLOWCHART No. 10  
Sheet 1 of 2



**Note 1** Date D<sub>3</sub> is the date determined by the Bureau for a review of the unfavourable finding under RR1241 or RR1242 in accordance with RR1428, and is usually date D<sub>3</sub> + 2 years for assignments between 9 kHz and 4 000 kHz, or date D<sub>3</sub> + 6 years for assignments between 4 MHz and 28 MHz. However if the assignment giving rise to the unfavourable finding was recorded under the RR1218 procedure or was determined under Resolution No. 8 of WARC-79, date D<sub>3</sub> is 2 or 6 years after the date on which that assignment is brought into service.



PROCEDURE UNDER RR1218 FOR THE FIXED SERVICE IN BANDS BETWEEN 3 AND 27.5 MHz



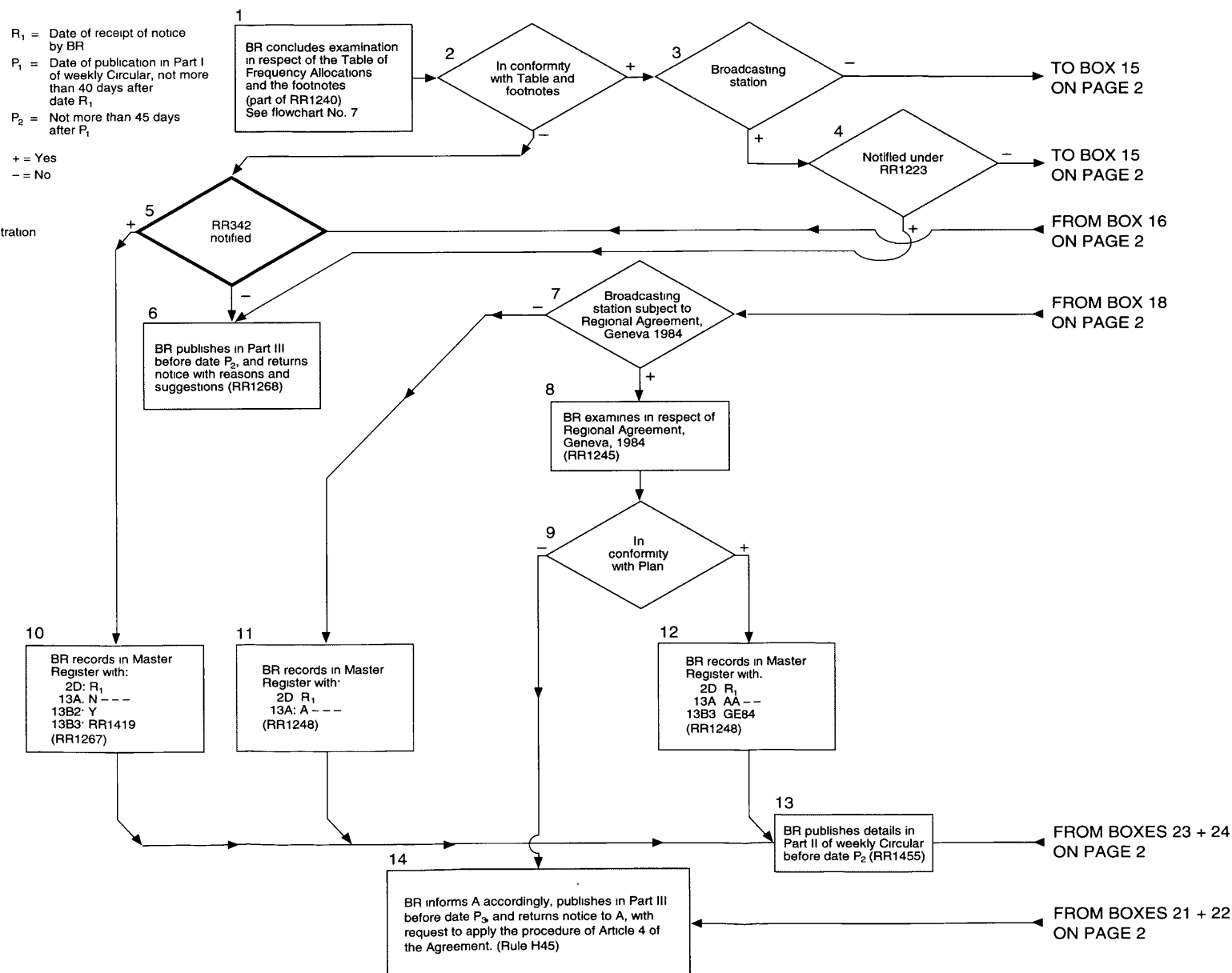
N B 1) The BR consults with administration A when appropriate as to the acceptability of F (RR1292)  
2) Administrations are urged to afford all possible assistance through their monitoring stations (RR1294)  
3) The provisions of RR1438 – 1450 and RR1964 – 1966 are relevant to this procedure

PROCEDURES RELATING TO EXAMINATION AND RECORDING OF ASSIGNMENTS TO  
TERRESTRIAL SERVICES OPERATING IN BANDS ABOVE 28 MHz WHICH ARE NOT SHARED  
WITH EQUAL RIGHTS WITH SPACE SERVICES

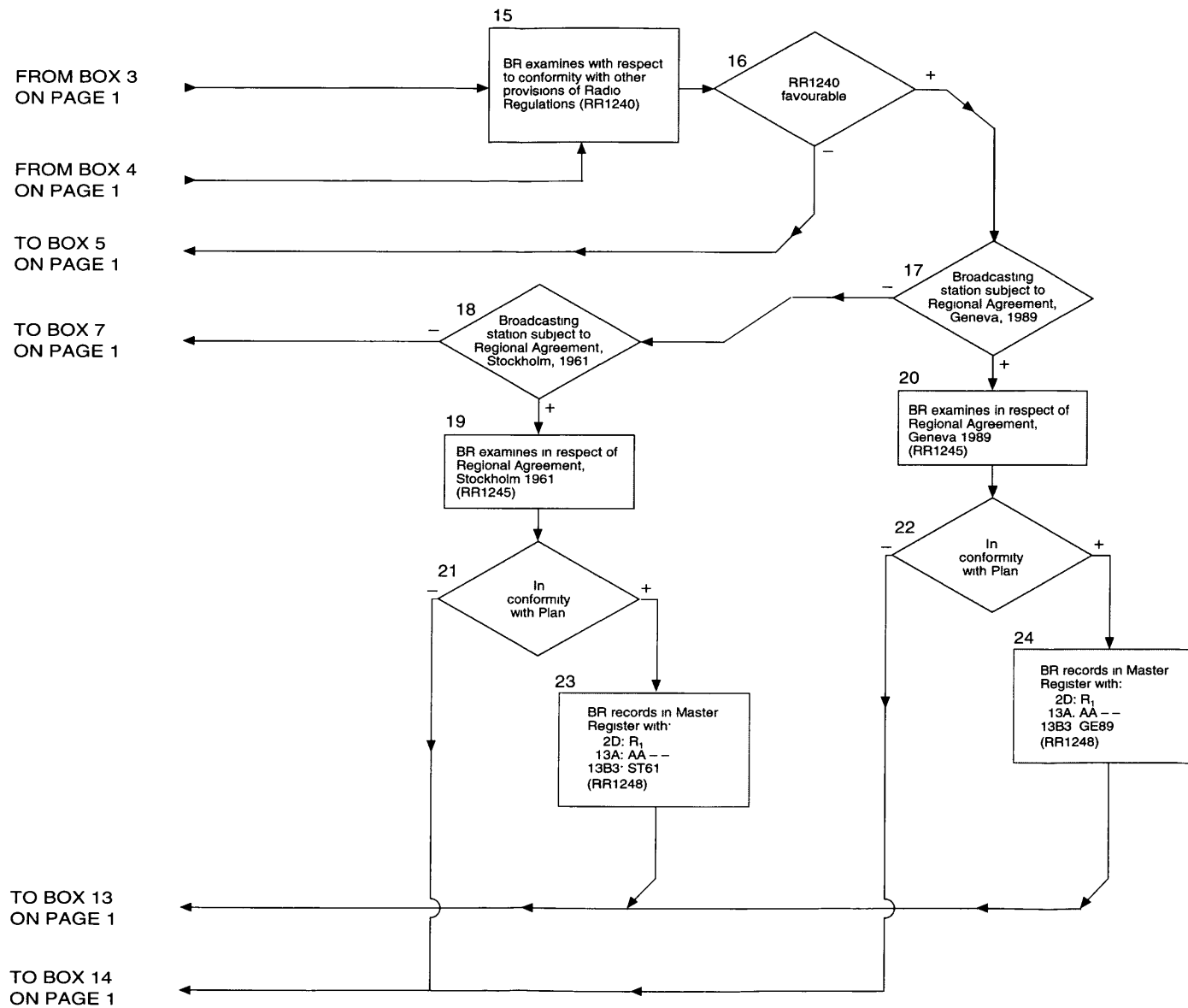
N-36

FLOWCHART No. 12  
Page 1 of 2

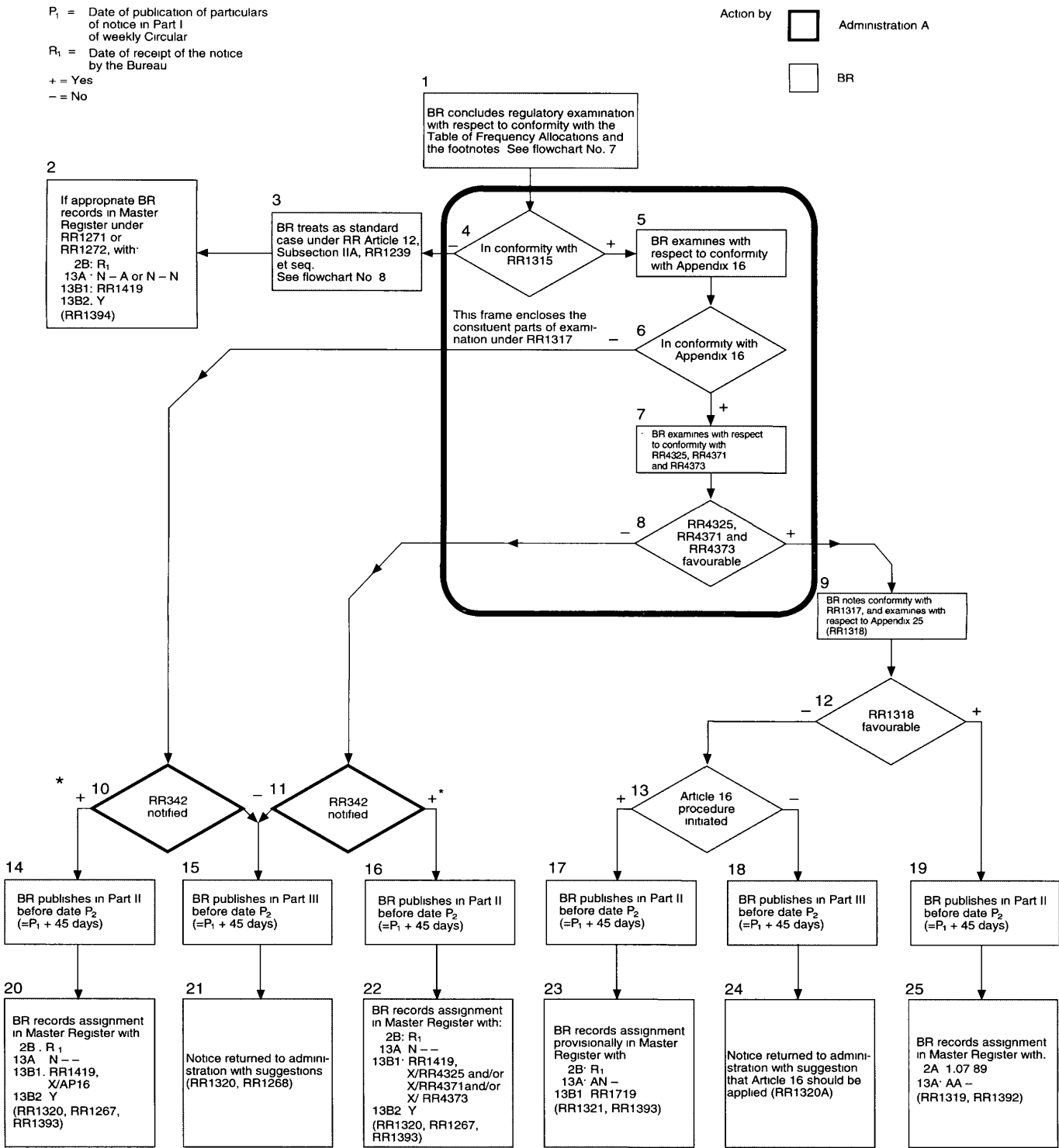
THIS FLOWCHART IS ISSUED AS AN AID TO UNDERSTANDING AND DOES NOT FORM PART  
OF THE RADIO REGULATIONS









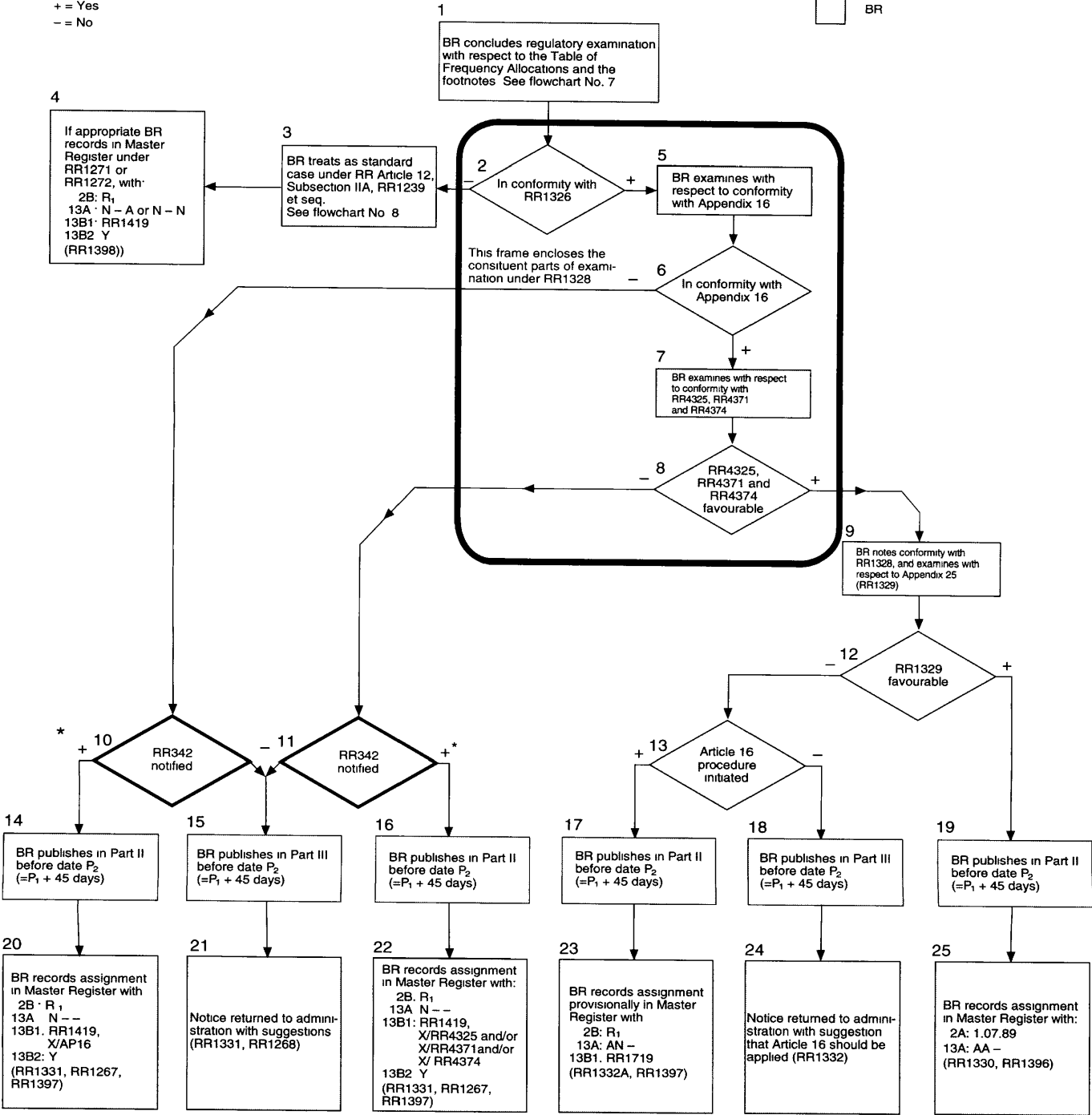
PROCEDURE RELATING TO EXAMINATION OF NOTICES OF ASSIGNMENTS TO  
TRANSMITTING COAST RADIOTELEPHONE STATIONS IN THE EXCLUSIVE MARITIME  
MOBILE BANDS BETWEEN 4 000 AND 27 500 KHZ



PROCEDURE RELATING TO EXAMINATION OF NOTICES OF ASSIGNMENTS TO RECEIVING COAST RADIOTELEPHONE STATIONS IN THE EXCLUSIVE MARITIME MOBILE BANDS BETWEEN 4 000 AND 27 500 KHZ

P<sub>1</sub> = Date of publication of particulars of notice in Part I of weekly Circular  
R<sub>1</sub> = Date of receipt of the notice by the Bureau  
+ = Yes  
- = No

Action by  Administration A  
 BR





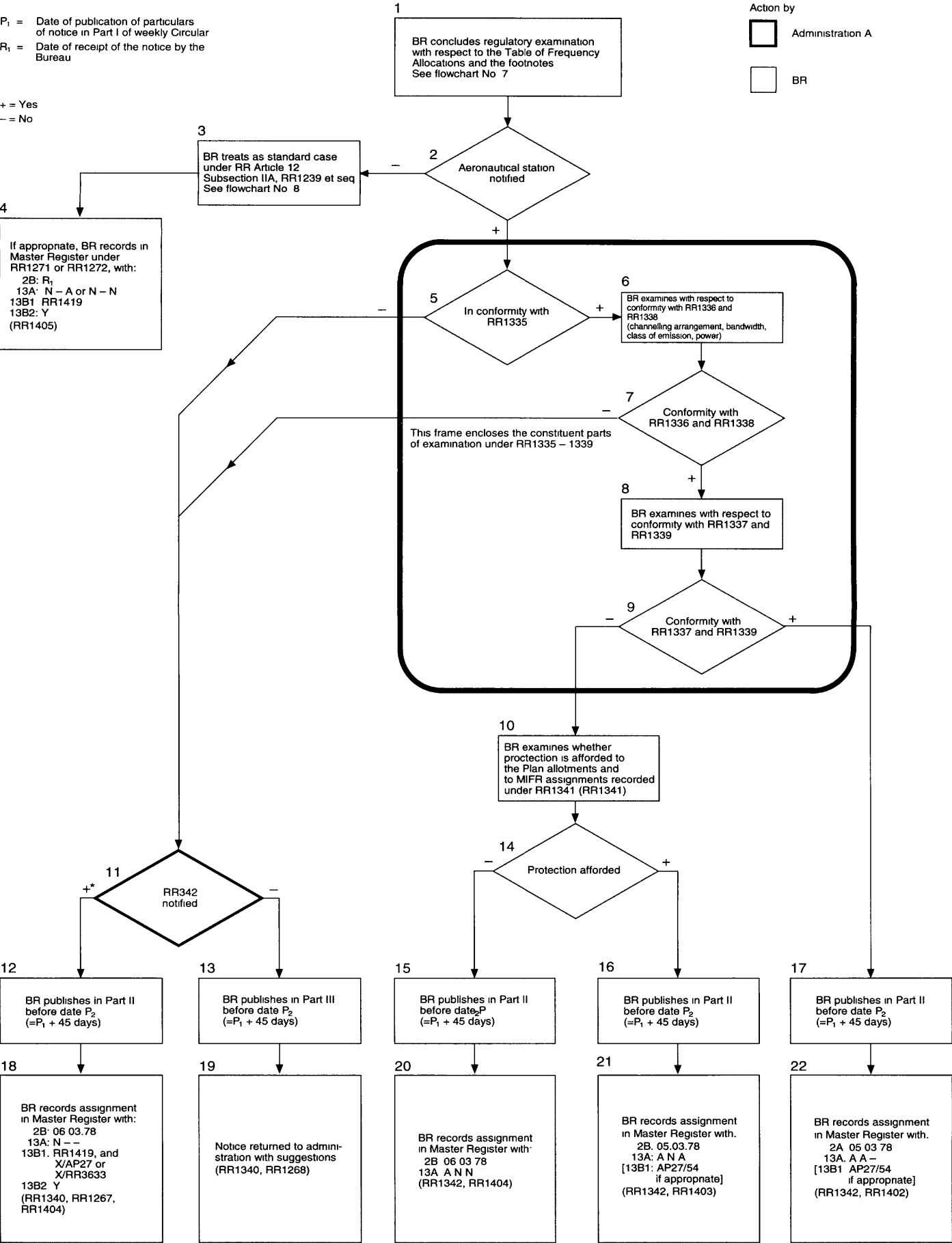
\* In this case, the provisions of RR1419 apply (RR1267)

PROCEDURE RELATING TO EXAMINATION OF NOTICES OF FREQUENCY ASSIGNMENTS  
IN THE EXCLUSIVE AERONAUTICAL MOBILE (R) BANDS BETWEEN 2 850 AND 22 000 KHZ

P<sub>1</sub> = Date of publication of particulars  
of notice in Part I of weekly Circular  
R<sub>1</sub> = Date of receipt of the notice by the  
Bureau

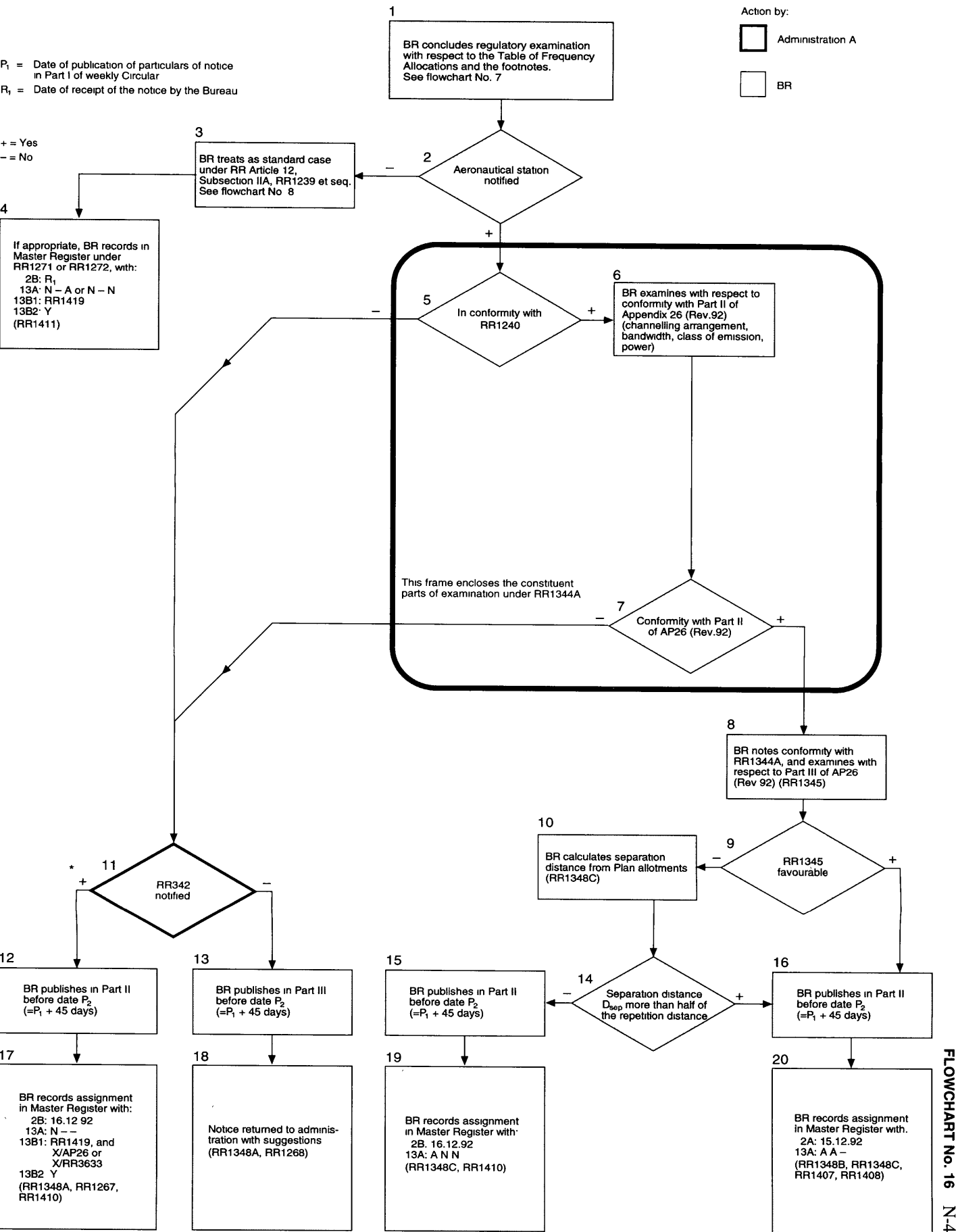
+ = Yes  
- = No

Action by  
 Administration A  
 BR



\* In this case, the provisions of RR1419 apply (RR1267)

PROCEDURE RELATING TO EXAMINATION OF NOTICES OF FREQUENCY ASSIGNMENTS  
IN THE EXCLUSIVE AERONAUTICAL MOBILE (OR) BANDS BETWEEN 3 025 AND 18 030 KHZ



\* In this case, the provisions of RR1419 apply (RR1267)

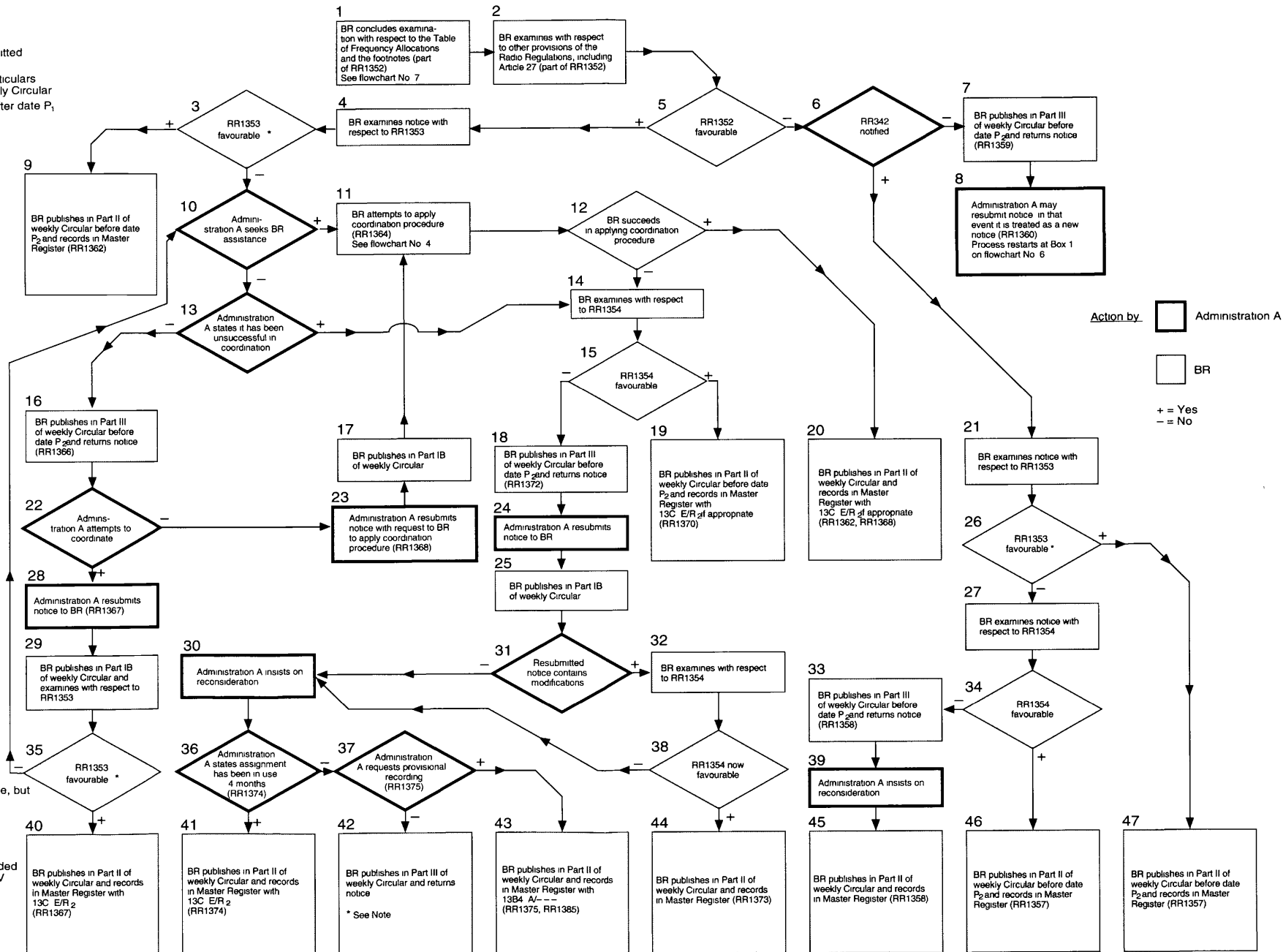
PROCEDURES RELATING TO EXAMINATION AND RECORDING OF ASSIGNMENTS TO TERRESTRIAL STATIONS WHICH ARE IN THE SAME FREQUENCY BAND AS, AND WITHIN THE COORDINATION AREA OF, AN EXISTING EARTH STATION OR ONE FOR WHICH COORDINATION HAS BEEN SUCCESSFULLY COMPLETED OR INITIATED

N-42

FLOWCHART No. 17

THIS FLOWCHART IS ISSUED AS AN AID TO UNDERSTANDING AND DOES NOT FORM PART OF THE RADIO REGULATIONS

Date  $R_1$  = Date of receipt of original notice by BR  
 Date  $R_2$  = Date of receipt of resubmitted notice by BR  
 Date  $P_1$  = Date of publication of particulars of notice in Part I of weekly Circular  
 Date  $P_2$  = Not more than 40 days after date  $P_1$

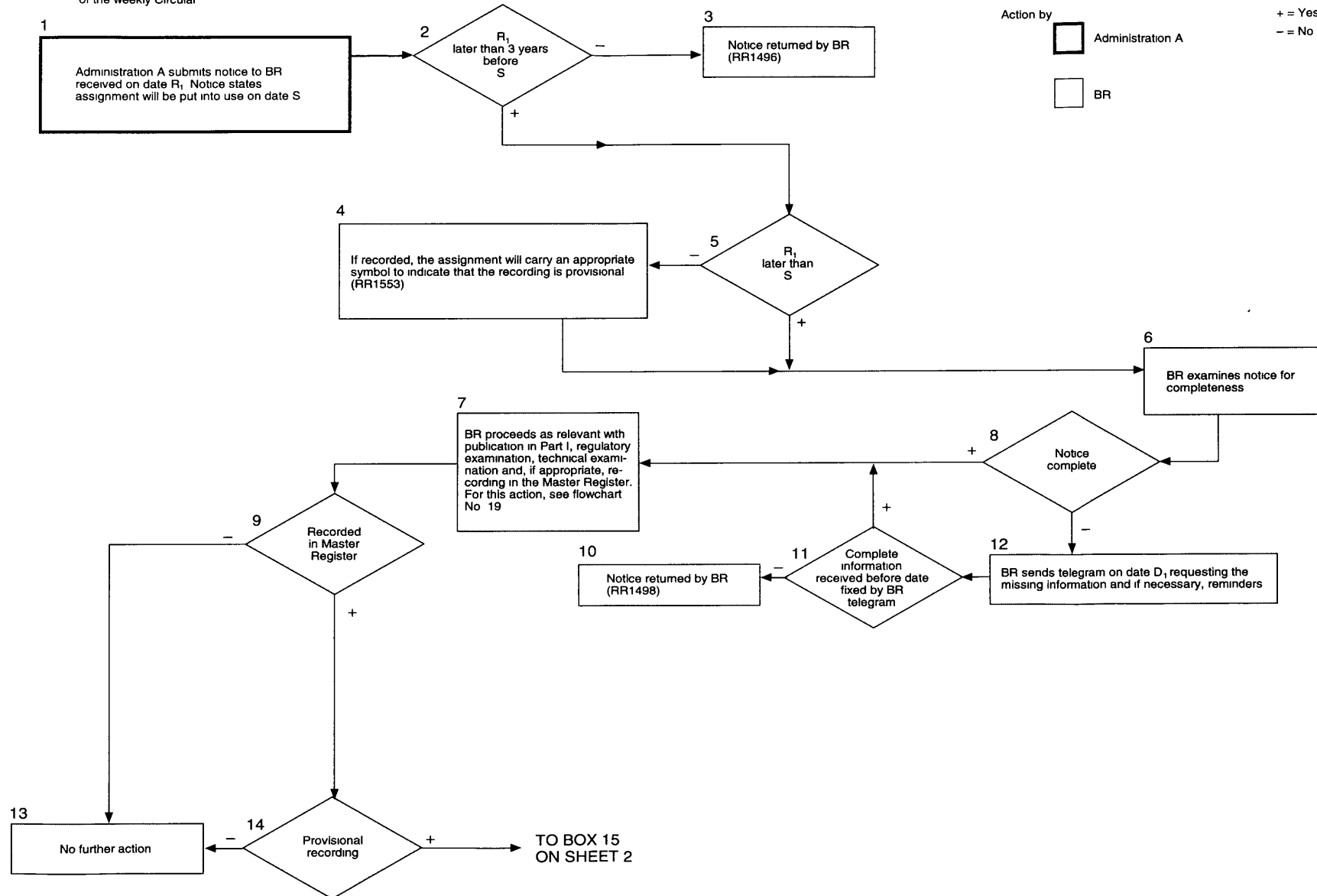


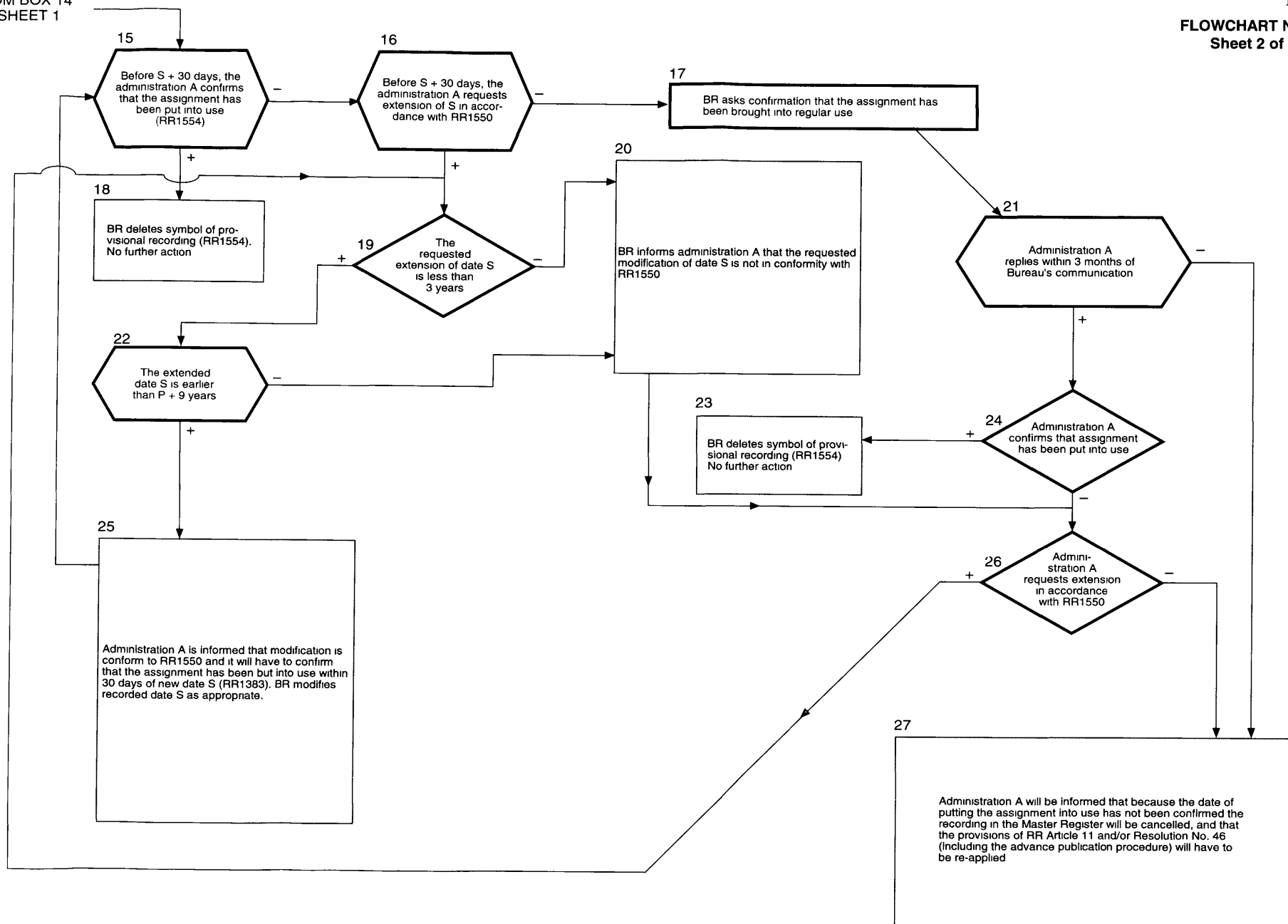
DATE OF SUBMISSION  
OF A NOTICE VIS-A-VIS DATE OF PUTTING THE ASSIGNMENT TO USE  
(Space services, space or earth stations)

N-43  
**FLOWCHART No. 18**  
Sheet 1 of 2

THIS FLOWCHART IS ISSUED AS AN AID TO UNDERSTANDING AND DOES NOT FORM PART  
OF THE RADIO REGULATIONS

$R_1$  = Date of receipt of original notice by BR  
 $P$  = Date of receipt of the information published in a Special Section AR11/A of the weekly Circular







PROCEDURE OF EXAMINATION AND REGISTRATION OF  
ASSIGNMENTS TO STATIONS IN SPACE SERVICES OTHER THAN THE  
BROADCASTING-SATELLITE SERVICE AND FEEDER LINK FOR  
THE BROADCASTING-SATELLITE SERVICE

THIS FLOWCHART IS ISSUED AS AN AID TO UNDERSTANDING AND DOES  
NOT FORM PART OF THE RADIO REGULATIONS

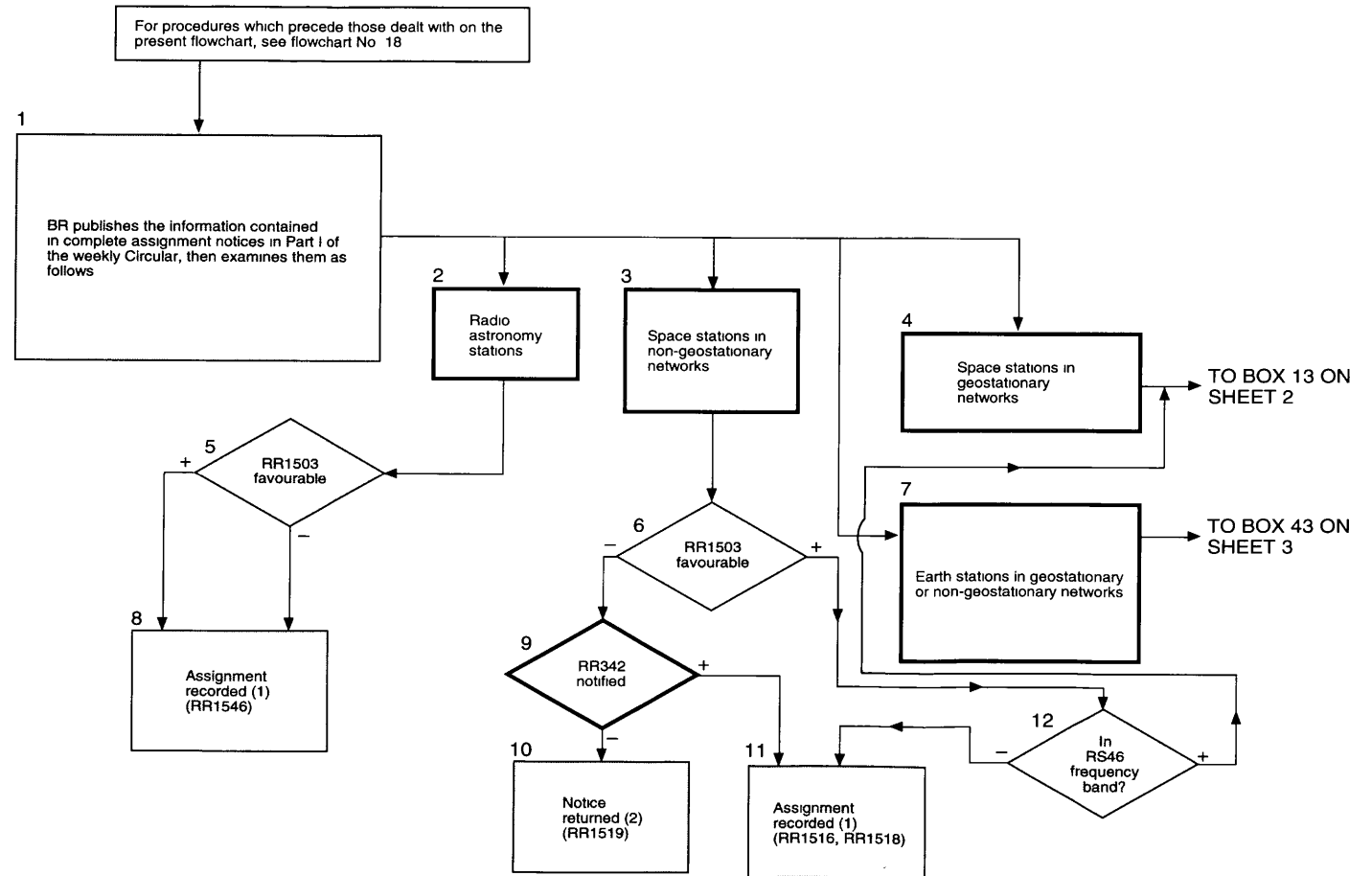
Action by ☐ Administration A

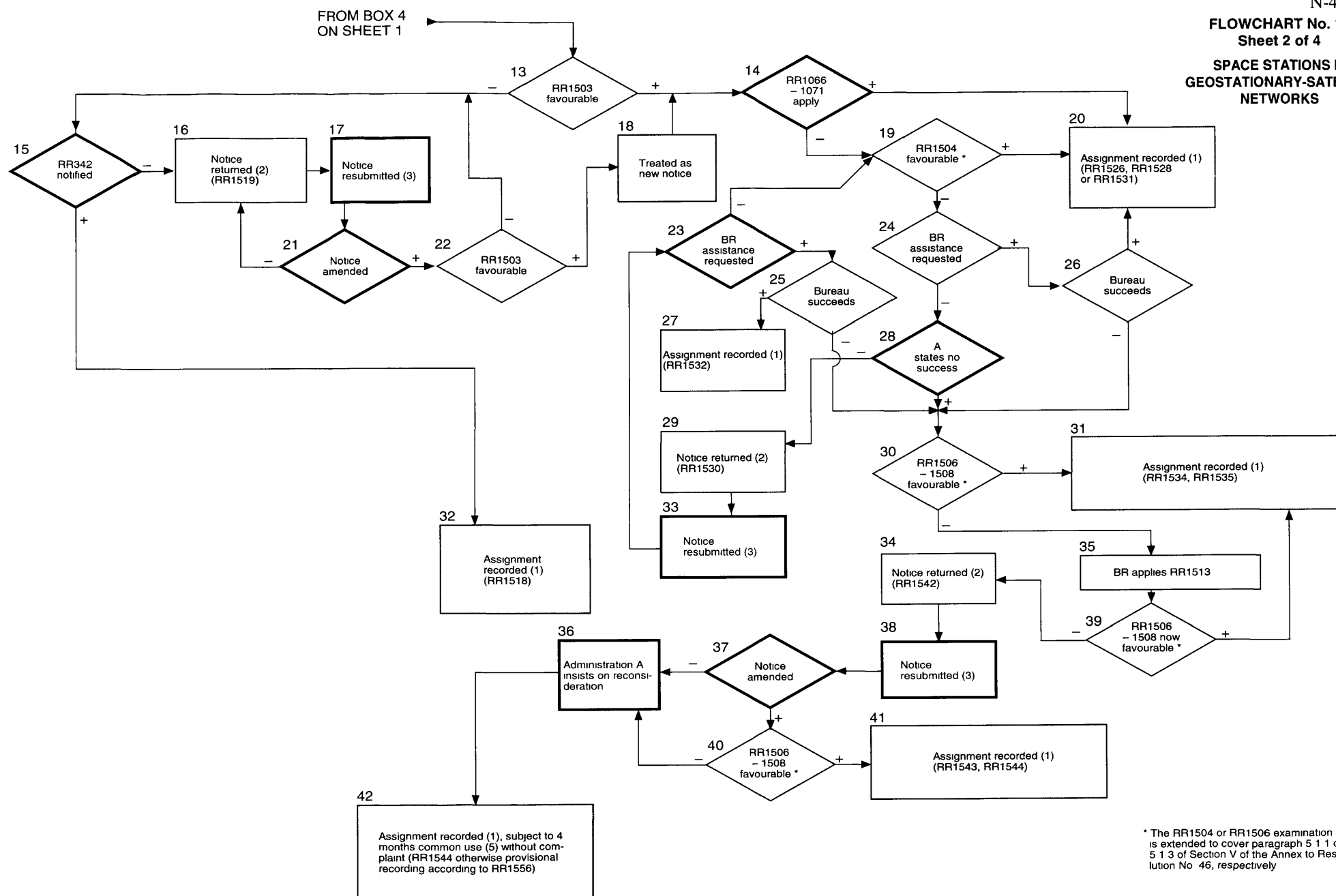
☐ BR

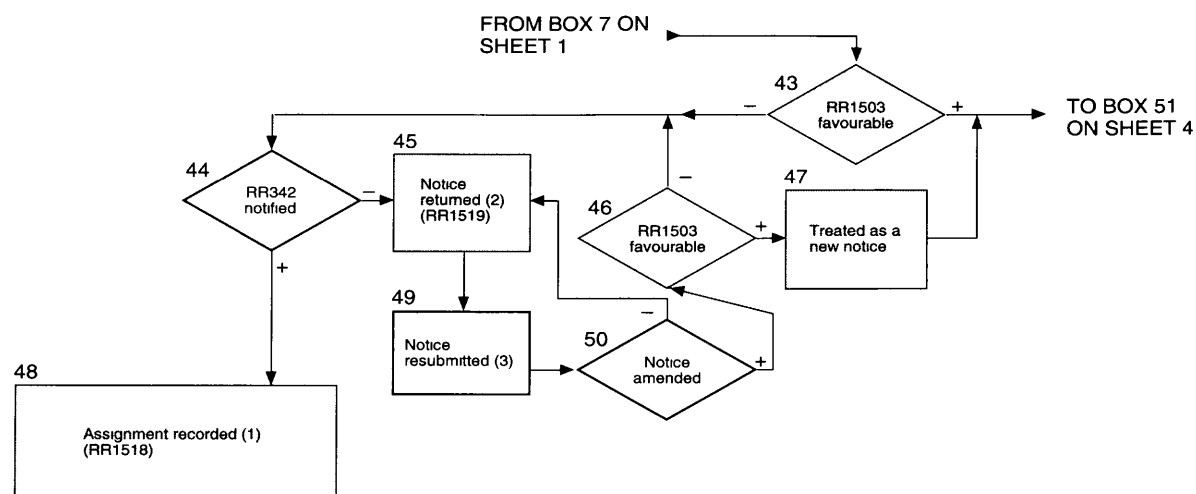
+ = Yes  
- = No

## NOTES

- (1) When an assignment is recorded in the Master Register the particulars are published in Part II of the weekly Circular
- (2) When a notice is returned to the notifying administration the particulars are published in Part III of the weekly Circular
- (3) When a notice is resubmitted to the BR the particulars are published in Part IB of the weekly Circular.
- (4) When examinations in respect of RR1504 and RR1505 are both relevant they are carried out at the same time. for convenience, they are shown on Sheets 3 and 4 as consecutive examinations
- (5) The space service assignment concerned may be recorded if it and the assignment which gave rise to the unfavourable finding under RR1506 – 1508 or RR1509 – 1512, as relevant, have both been in use for a common 4-month period without complaint of harmful interference (RR1544)

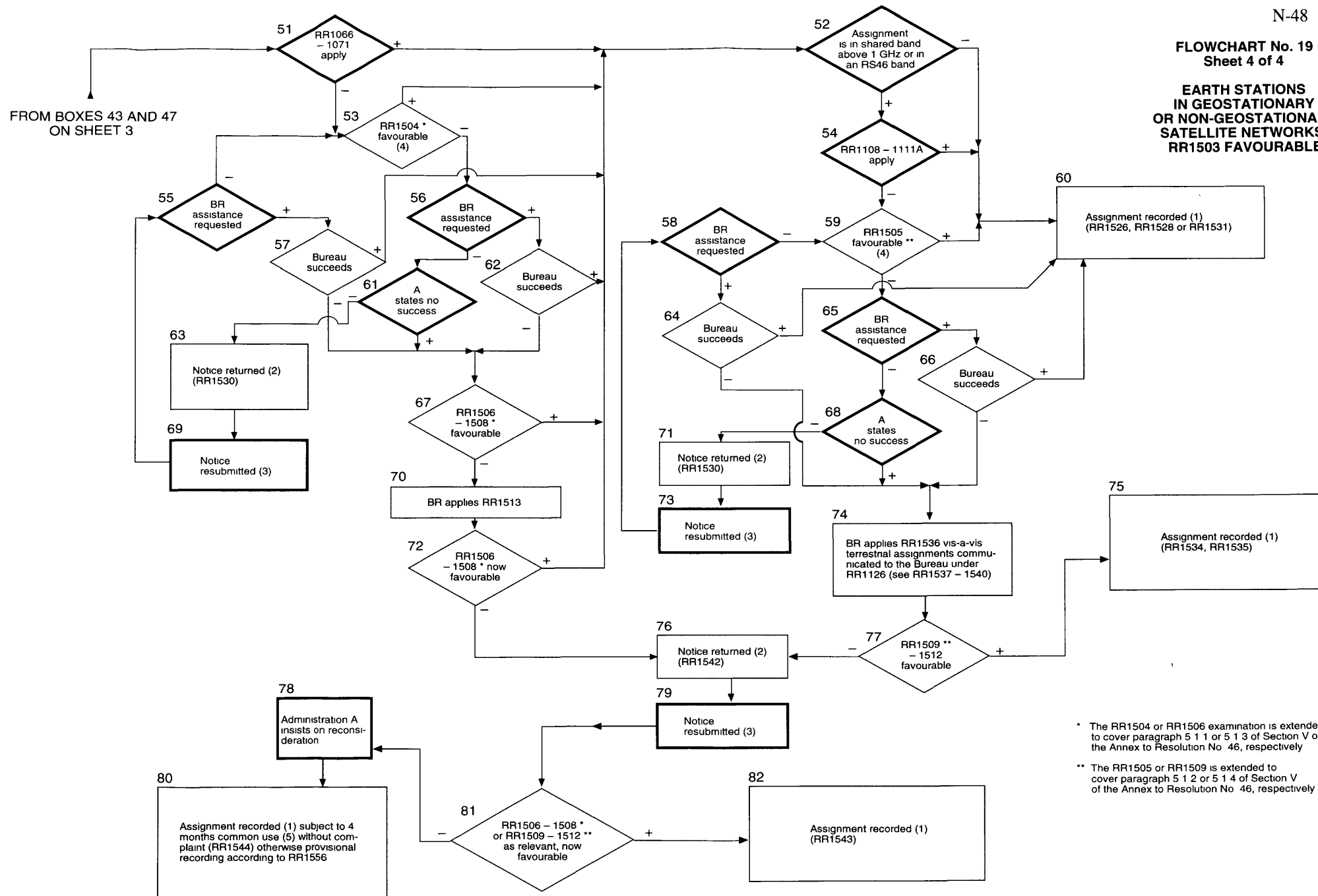


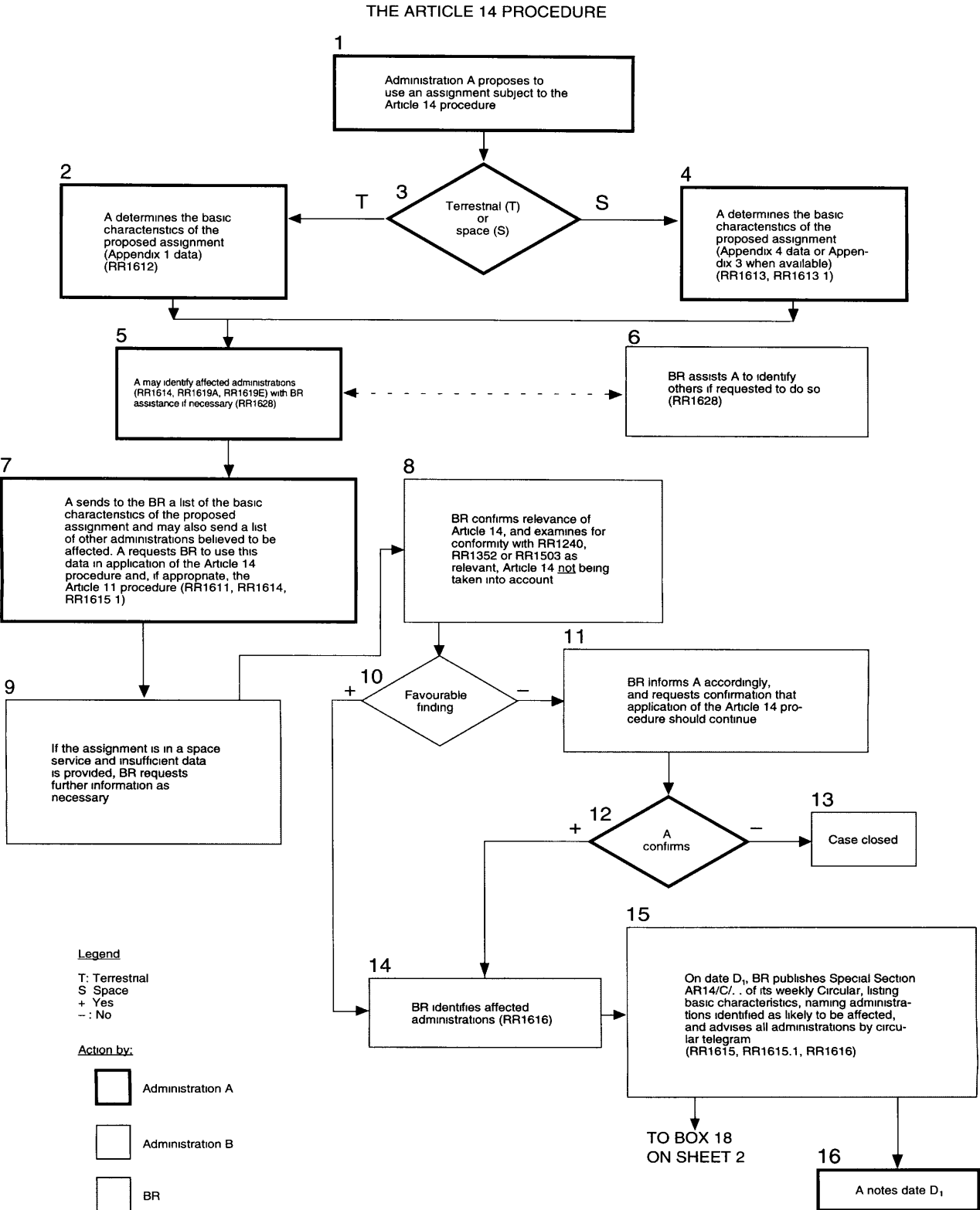
SPACE STATIONS IN  
GEOSTATIONARY-SATELLITE  
NETWORKS

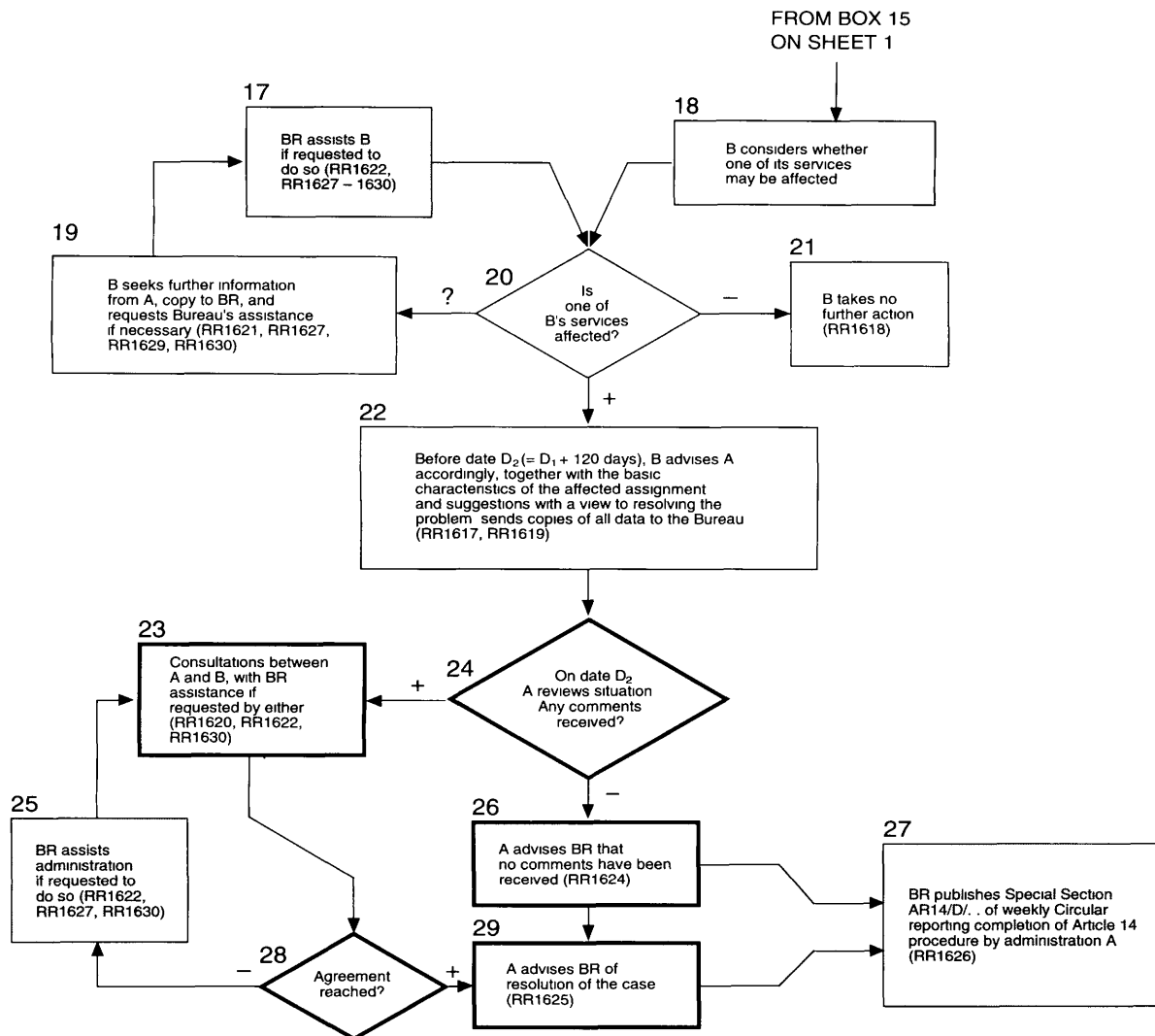
FLOWCHART No. 19  
Sheet 3 of 4EARTH STATIONS IN  
GEOSTATIONARY OR  
NON-GEOSTATIONARY  
SATELLITE NETWORKS:  
RR1503 UNFAVOURABLE

**FLOWCHART No. 19**  
**Sheet 4 of 4**

**EARTH STATIONS  
 IN GEOSTATIONARY  
 OR NON-GEOSTATIONARY  
 SATELLITE NETWORKS:  
 RR1503 FAVOURABLE**







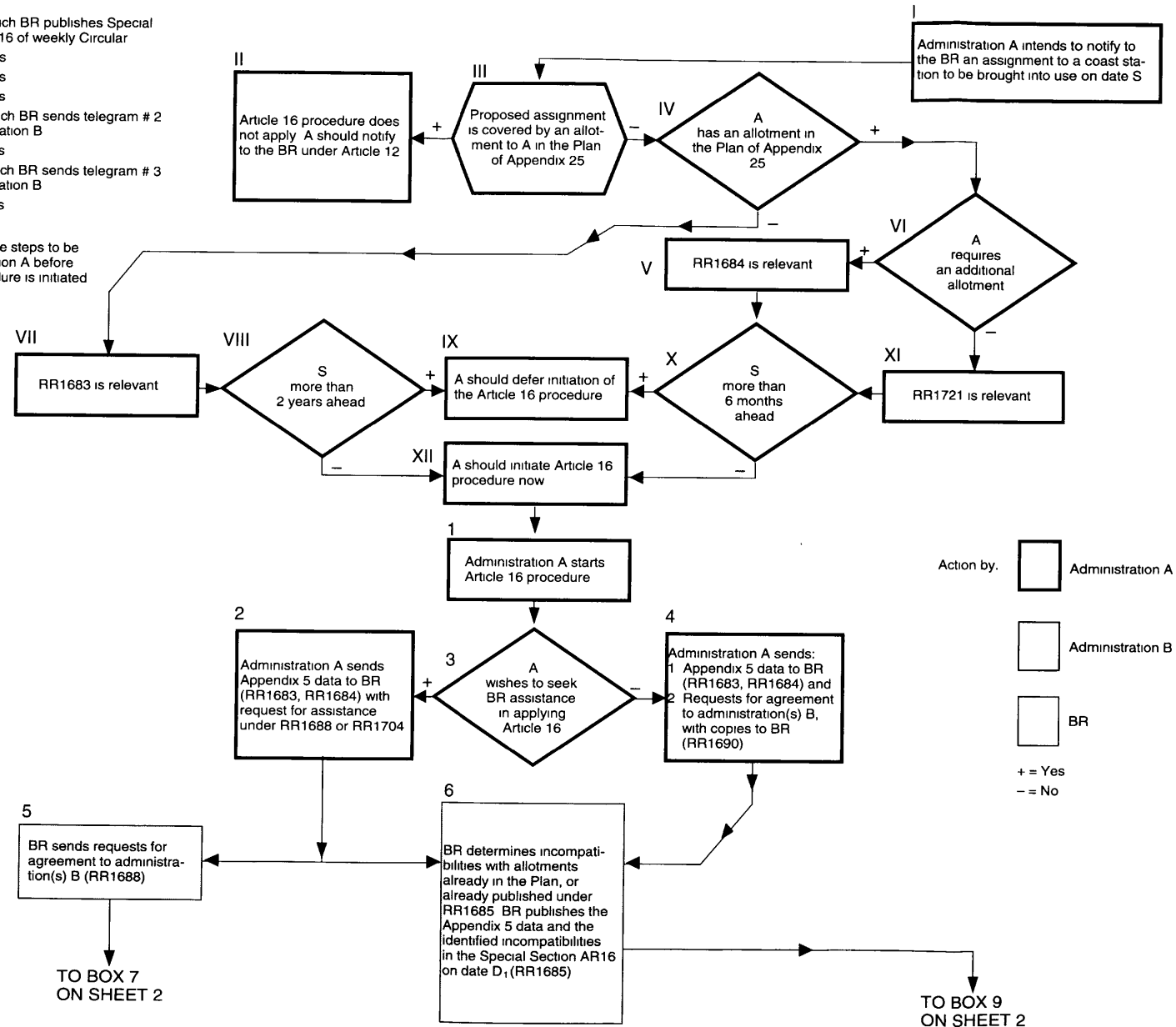
# THE ARTICLE 16 PROCEDURE

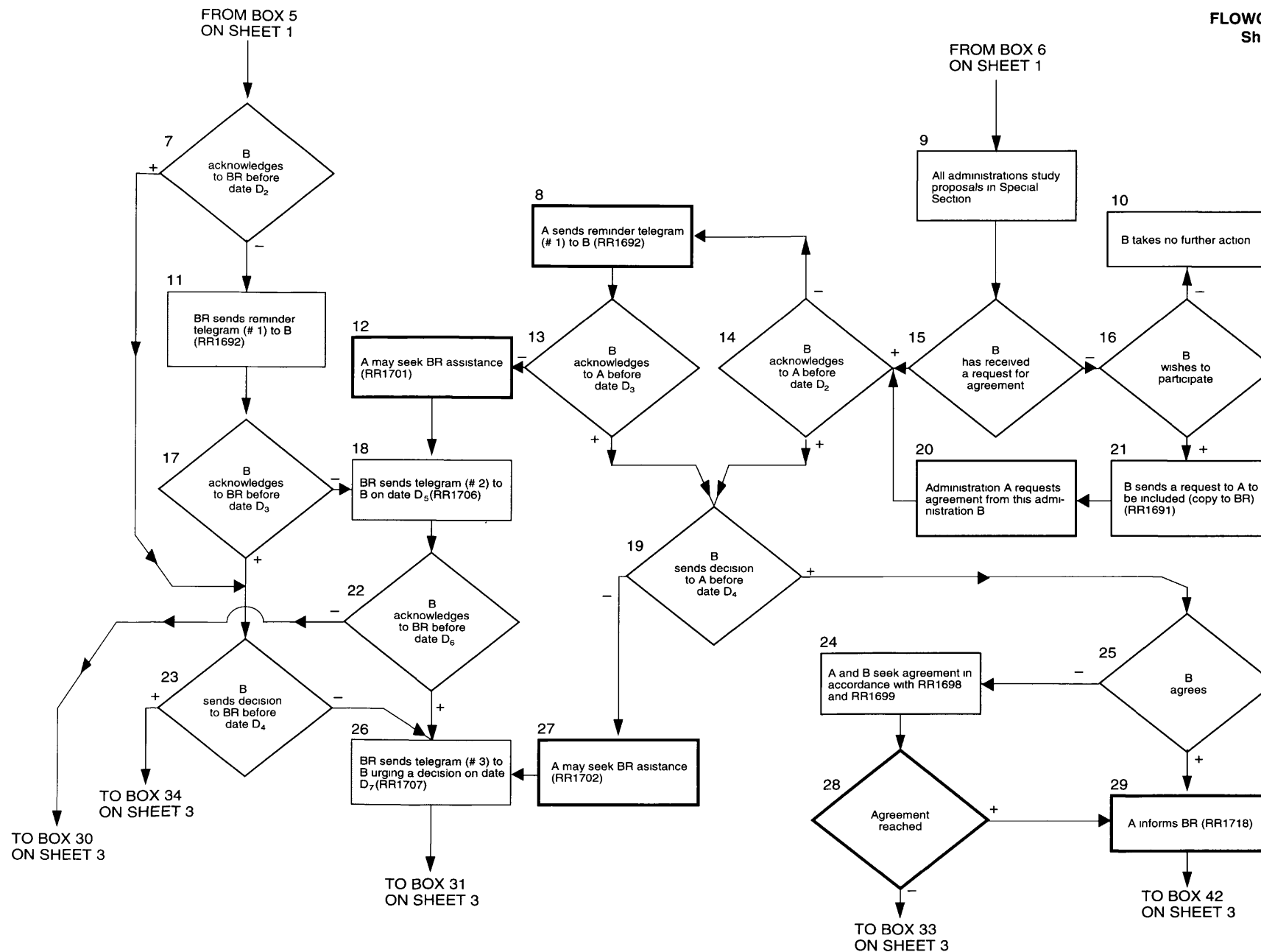
THIS FLOWCHART IS ISSUED AS AN AID TO UNDERSTANDING AND DOES NOT FORM PART OF THE RADIO REGULATIONS

N-51  
FLOWCHART No. 21  
Sheet 1 of 3

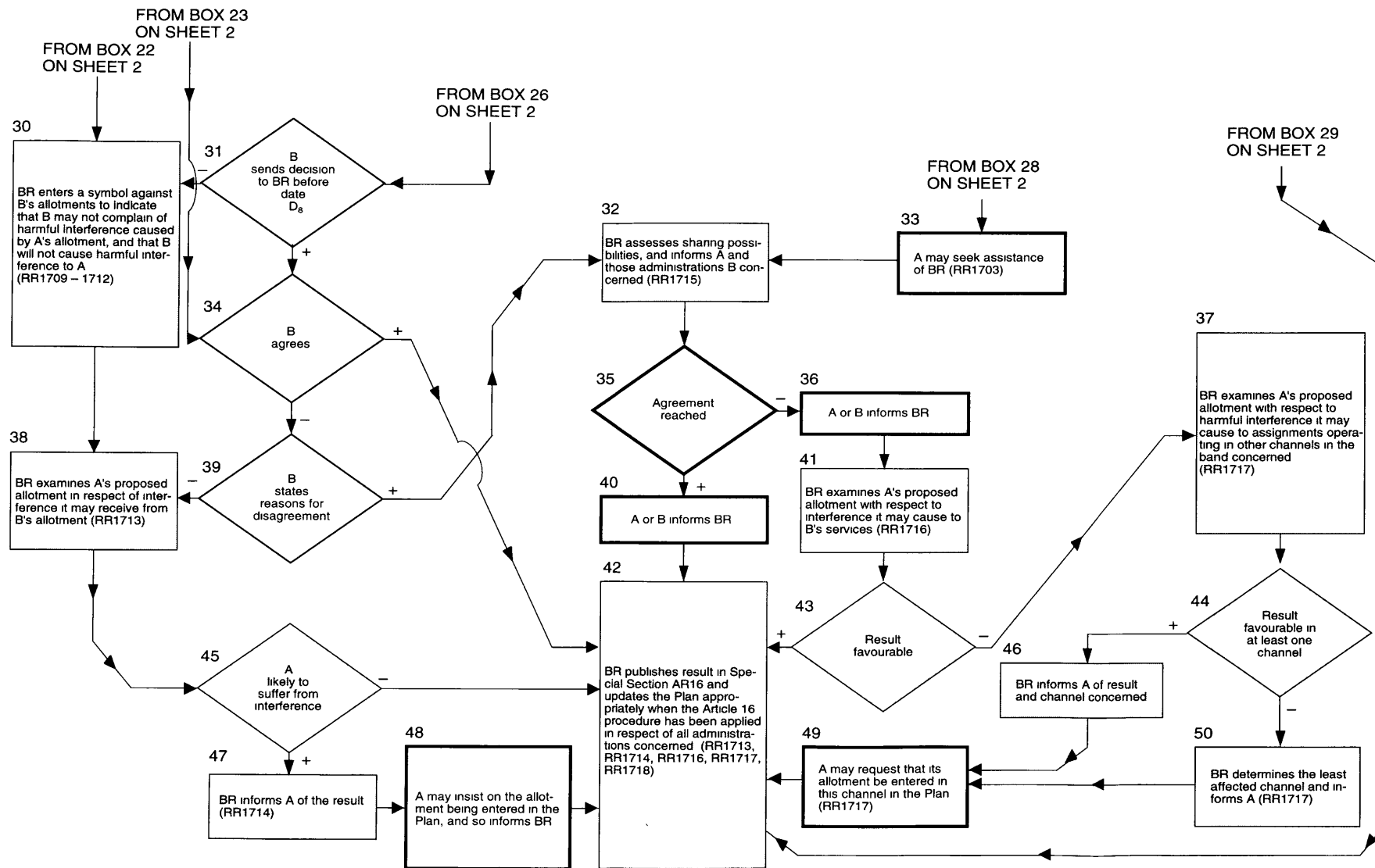
Date  $D_1$  = Date on which BR publishes Special Section AR16 of weekly Circular  
Date  $D_2$  =  $D_1 + 30$  days  
Date  $D_3$  =  $D_1 + 45$  days  
Date  $D_4$  =  $D_1 + 60$  days  
Date  $D_5$  = Date on which BR sends telegram # 2 to administration B  
Date  $D_6$  =  $D_5 + 15$  days  
Date  $D_7$  = Date on which BR sends telegram # 3 to administration B  
Date  $D_8$  =  $D_7 + 30$  days

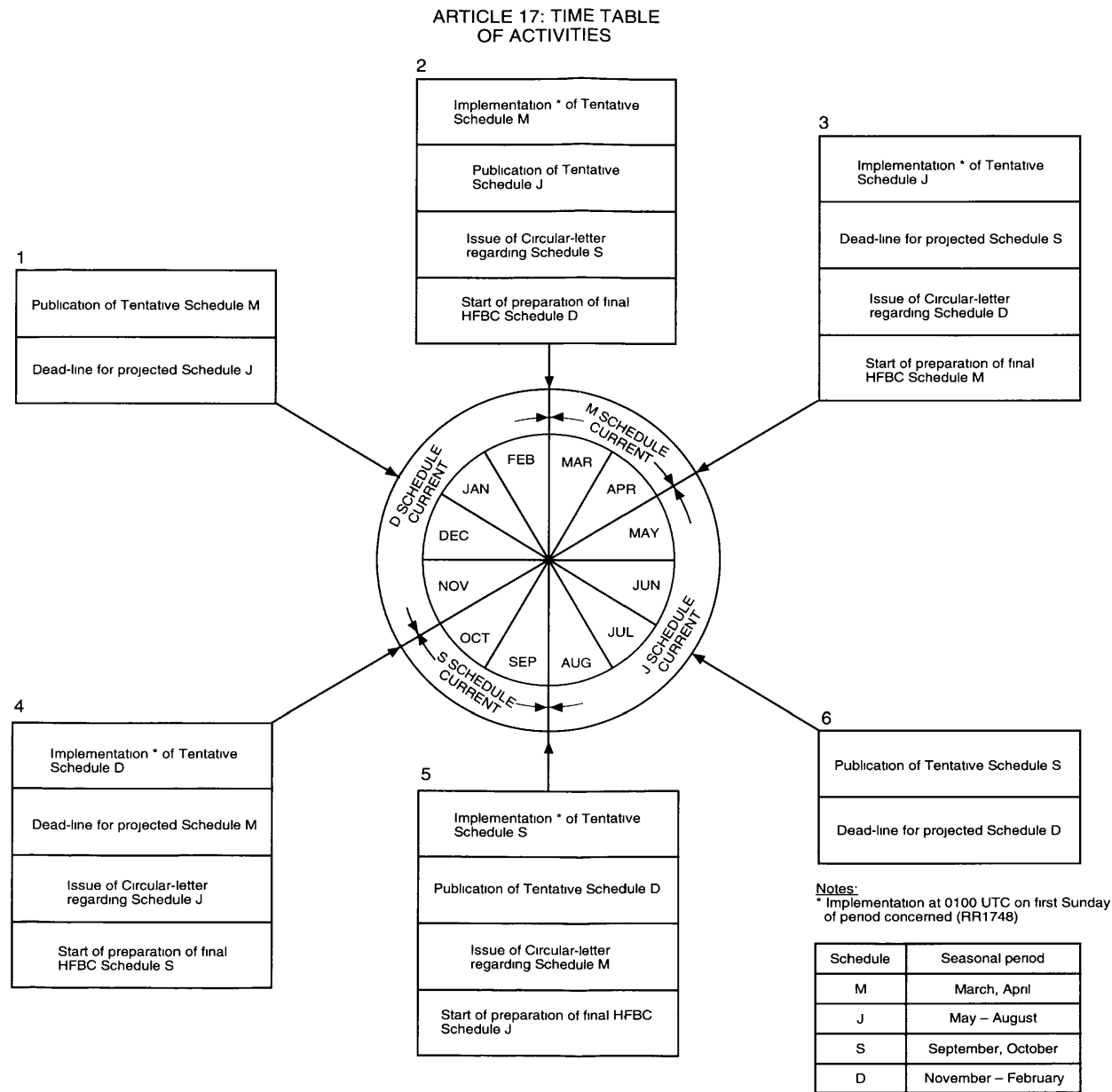
Note Boxes I – XII indicate steps to be taken by administration A before the Article 16 procedure is initiated











THIS FLOWCHART IS ISSUED AS AN AID TO UNDERSTANDING AND DOES NOT FORM PART  
OF THE RADIO REGULATIONS

THE ARTICLE 17 PROCEDURE RELATING TO ASSIGNMENTS TO BROADCASTING STATIONS  
IN THE EXCLUSIVE BANDS BETWEEN 5 950 AND 26 100 kHz

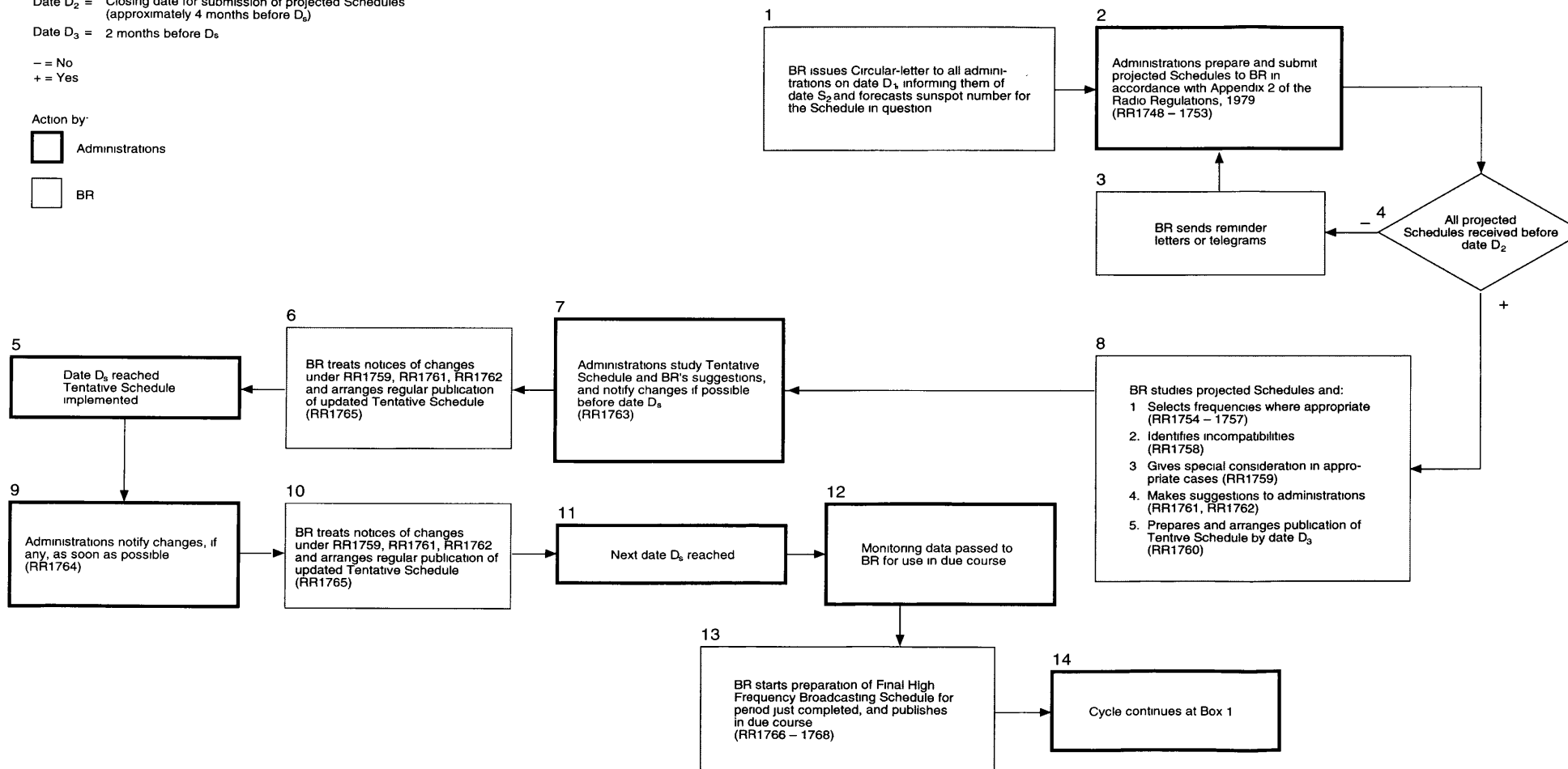
Date  $D_s$  = Date on which implementation of the seasonal  
Schedule in question starts at 0100 UTC  
Date  $D_1$  = Approximately 6 months before  $D_s$   
Date  $D_2$  = Closing date for submission of projected Schedules  
(approximately 4 months before  $D_s$ )  
Date  $D_3$  = 2 months before  $D_s$

- = No  
+ = Yes

Action by:

Administrations

BR

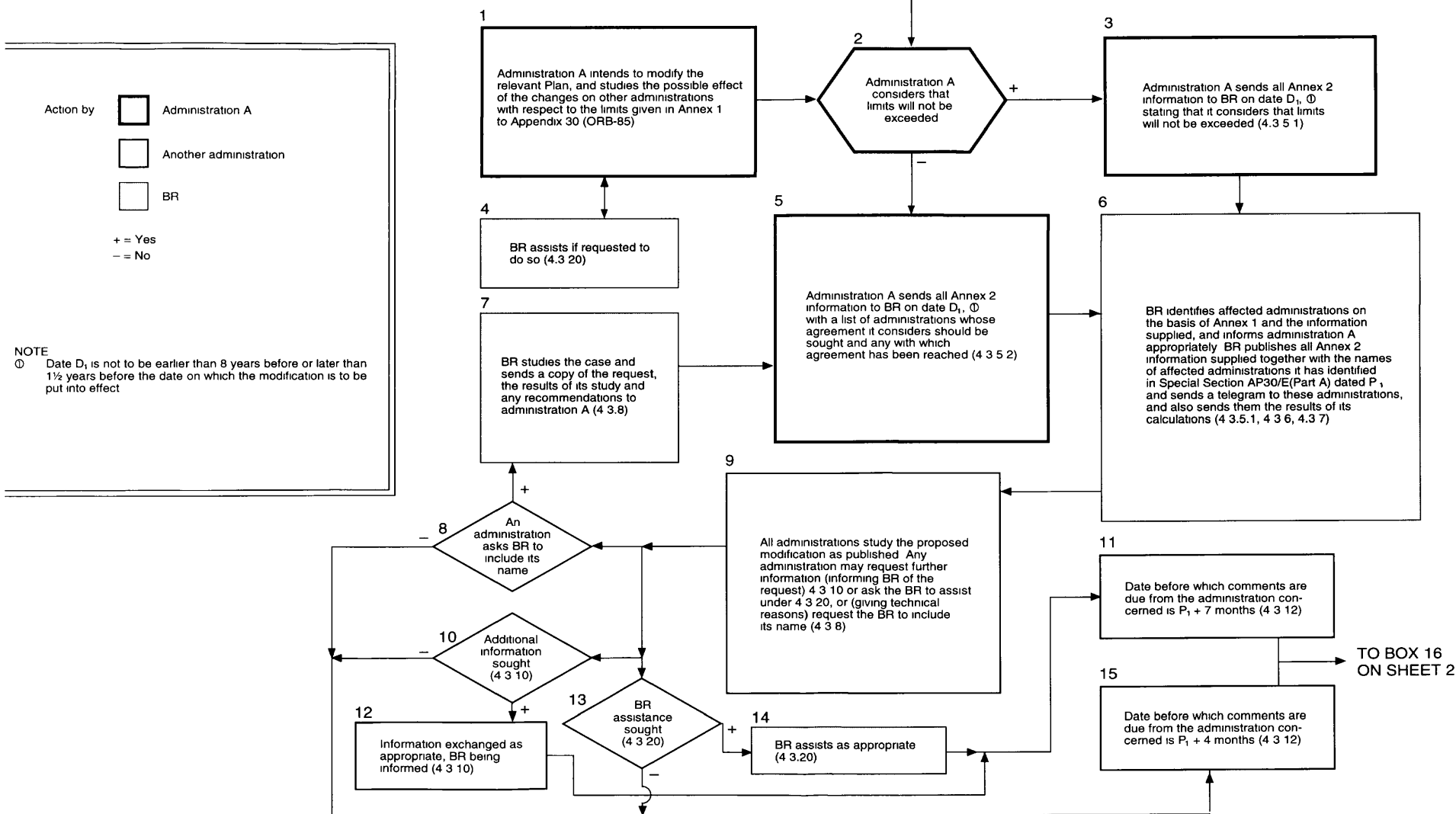


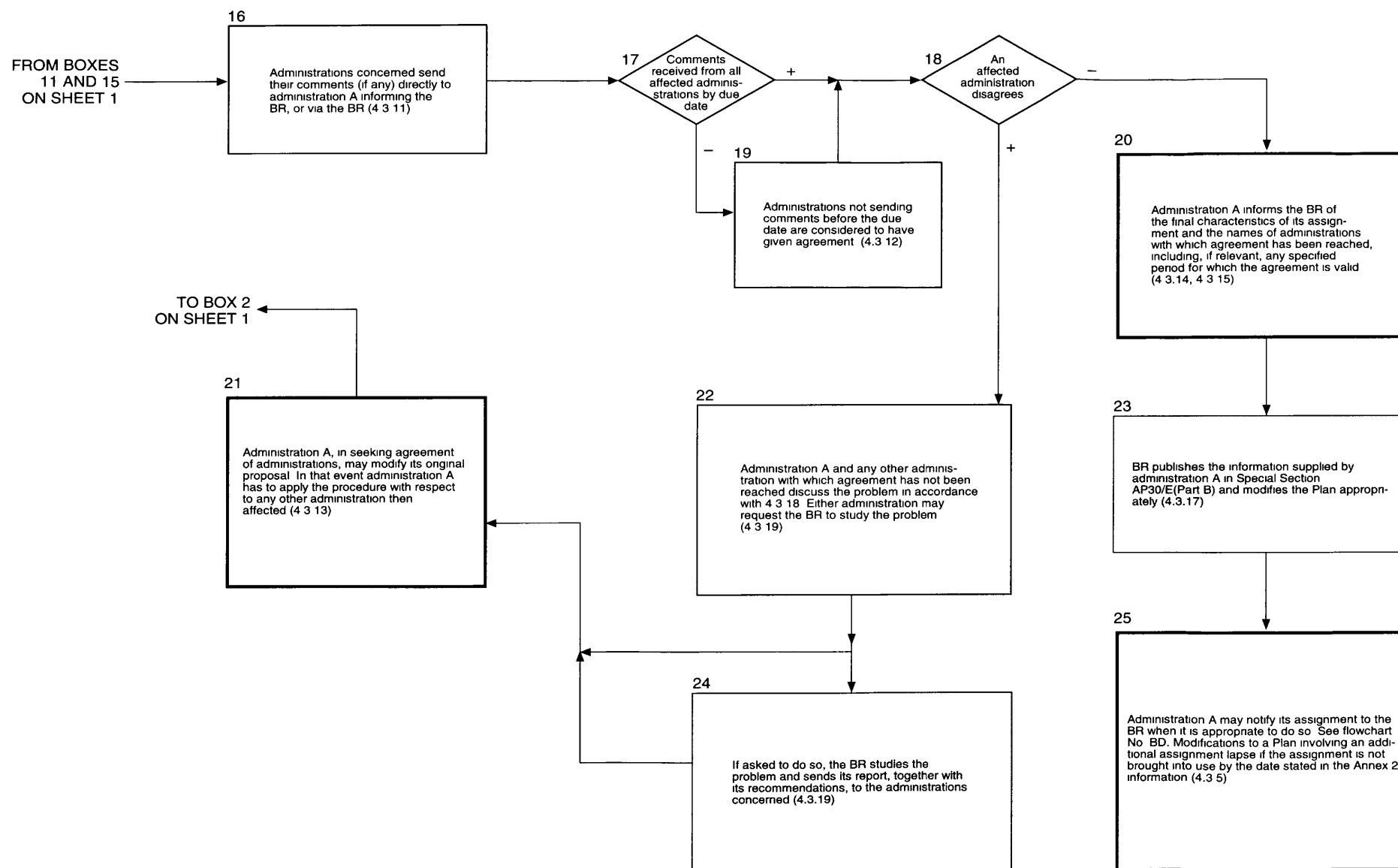
THE PROCEDURE OF ARTICLE 4 OF APPENDIX 30 (ORB-85) FOR MODIFICATION OF THE PLANS FOR THE  
BROADCASTING-SATELLITE SERVICE IN THE BANDS 11.7 – 12.2 GHz (REGION 3), 11.7 – 12.5 GHz (REGION 1) AND 12.2 – 12.7 GHz  
(REGION 2) (All references are to provisions of Article 4 of Appendix 30 (ORB-85))

FLOWCHART No. 24  
Sheet 1 of 2

THIS FLOWCHART IS ISSUED AS AN AID TO UNDERSTANDING AND DOES NOT FORM PART  
OF THE RADIO REGULATIONS

FROM BOX 21  
ON SHEET 2





NOTIFICATION, EXAMINATION AND REGISTRATION OF ASSIGNMENTS TO SPACE STATIONS  
IN THE BROADCASTING-SATELLITE SERVICE IN THE BANDS 11.7 – 12.2 GHz (REGION 3),  
11.7 – 12.5 GHz (REGION 1) AND 12.2 – 12.7 GHz (REGION 2)  
IN ACCORDANCE WITH ARTICLE 5 OF APPENDIX 30 (ORB-85)  
(All references are to provisions of that Article)

N-58  
FLOWCHART No. 25

THIS FLOWCHART IS ISSUED AS AN AID TO  
UNDERSTANDING AND DOES NOT FORM PART  
OF THE RADIO REGULATIONS

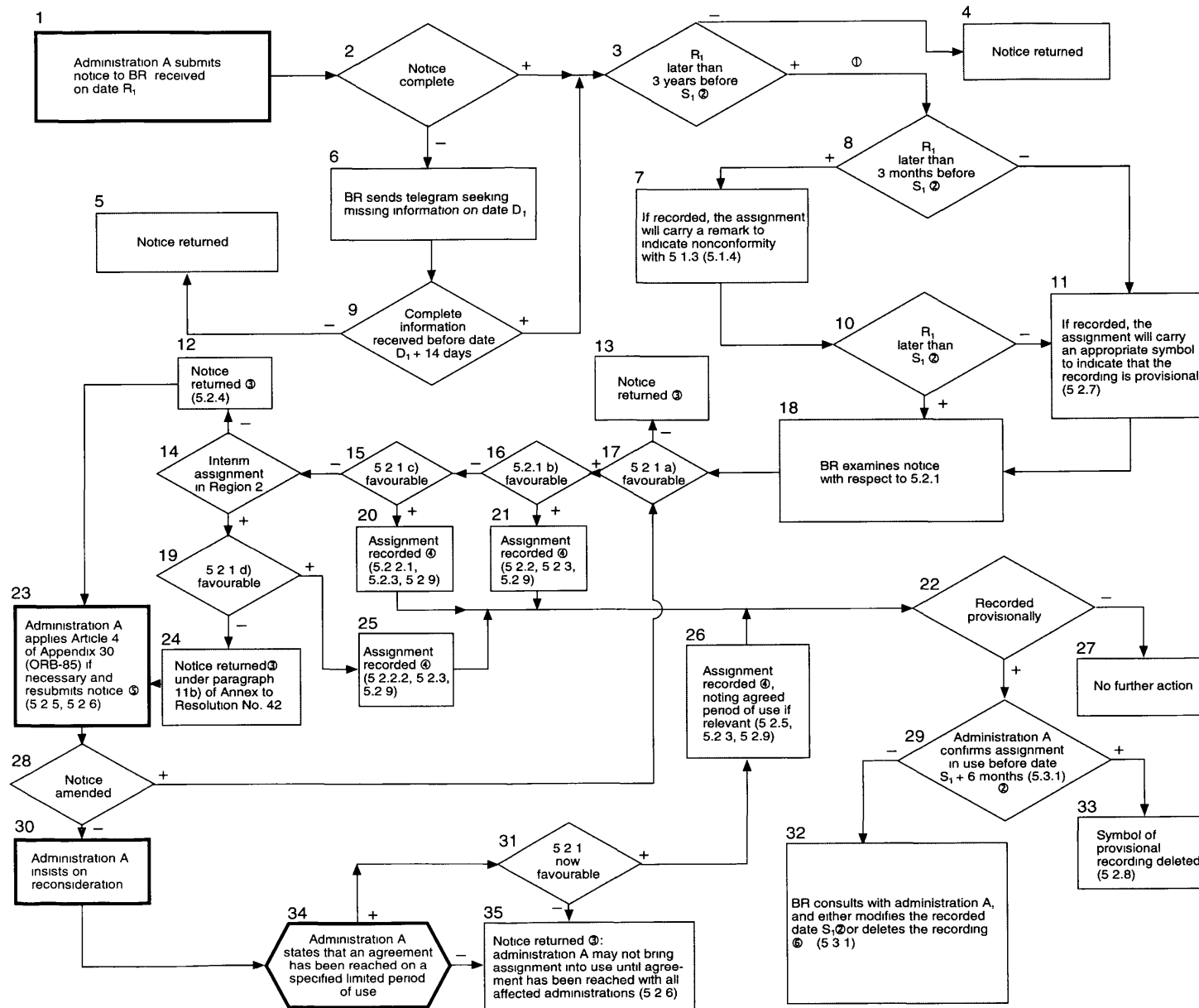
Action by



+ = Yes  
- = No

NOTES

- ① When a complete notice is received, the particulars are published in Part I of the weekly Circular
- ②  $S_1$  is the date of putting into use as notified by administration A
- ③ When a notice is returned to the administration A, the particulars are published in Part III of the weekly Circular
- ④ When an assignment is recorded in the Master Register, the particulars are published in Part II of the weekly Circular
- ⑤ When a notice is resubmitted the particulars are published in Part I of the weekly Circular
- ⑥ When an assignment is deleted from the Master Register, the particulars are published in Part I of the weekly Circular



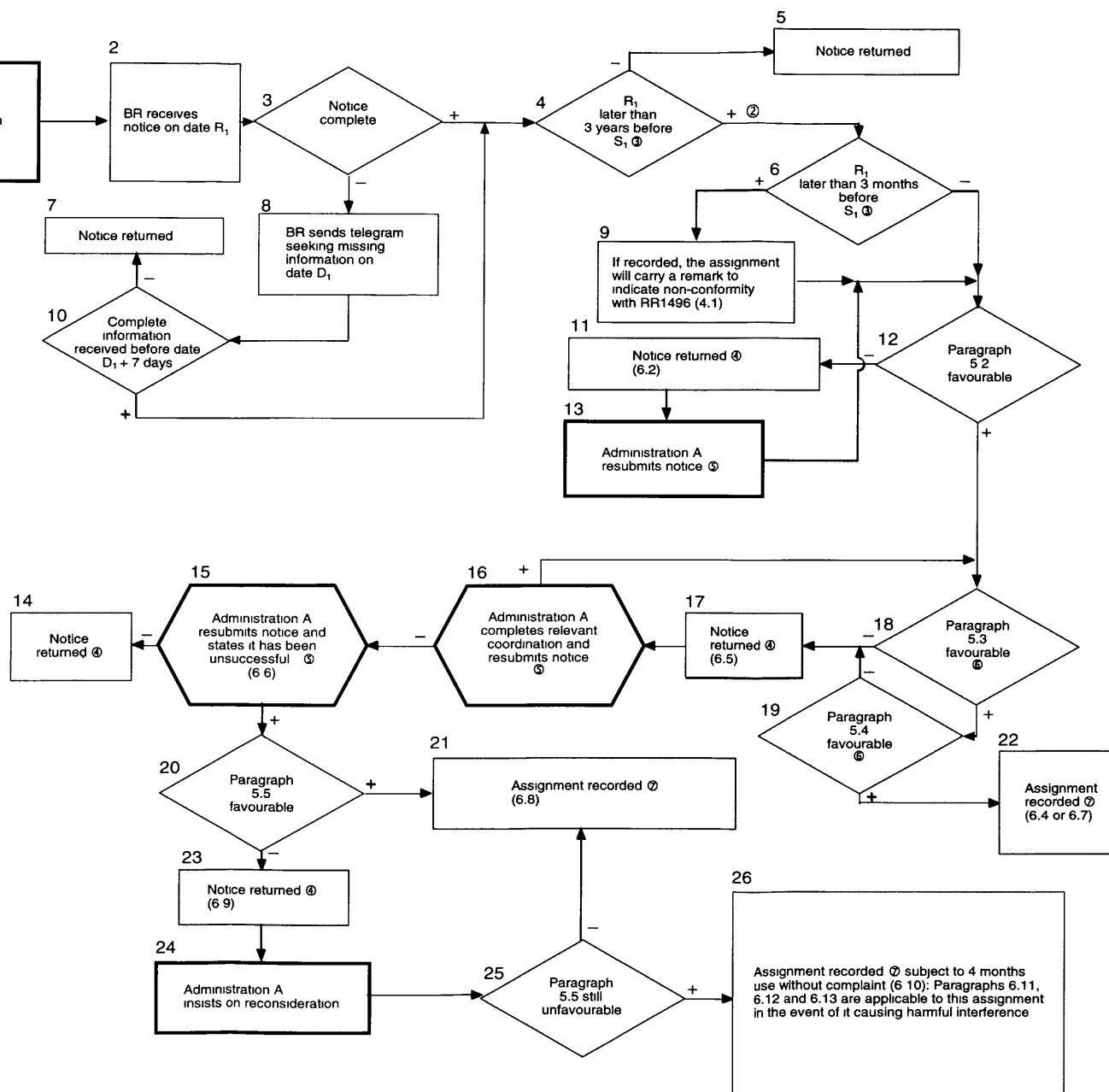
N-59  
FLOWCHART No. 26

Action by ☐ Administration A

☐ BR

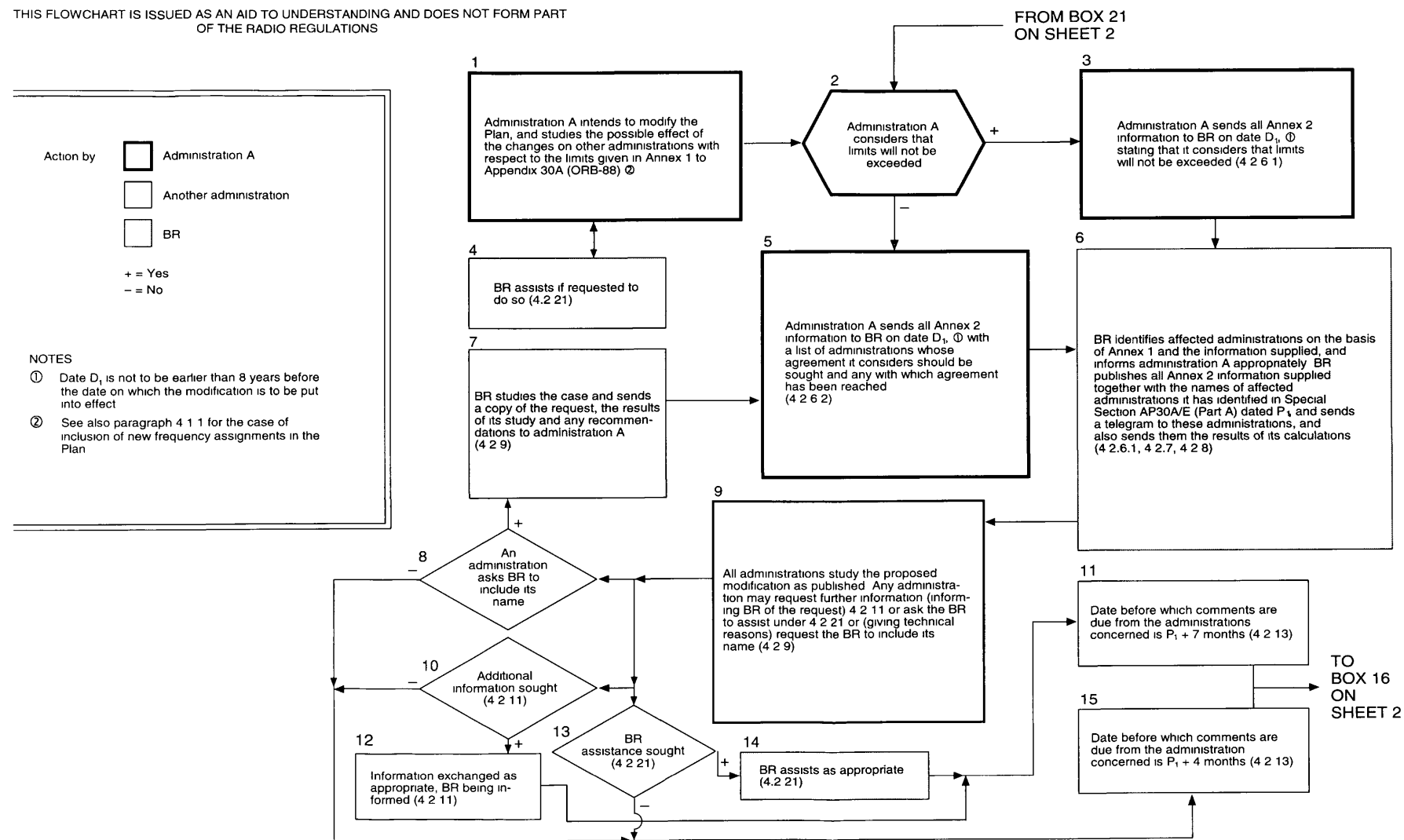
+ = Yes  
- = No

- ① This procedure applies in the bands allocated to the broadcasting-satellite service other than 11.7 – 12.2 GHz (R3), 11.7 – 12.5 GHz (R1) and 12.2 – 12.7 GHz (R2).
- ② When a complete notice is received the particulars are published in Part I of the weekly Circular
- ③ S<sub>1</sub> is the date on which the assignment is to be put into service as notified by administration A
- ④ When a notice is returned to administration A the particulars are published in Part III of the weekly Circular
- ⑤ When a notice is resubmitted the particulars are published in Part I of the weekly Circular
- ⑥ Though shown as consecutive, the examinations with respect to paragraphs 5.3 and 5.4 are carried out simultaneously.
- ⑦ When an assignment is recorded in the Master Register the particulars are published in Part II of the weekly Circular

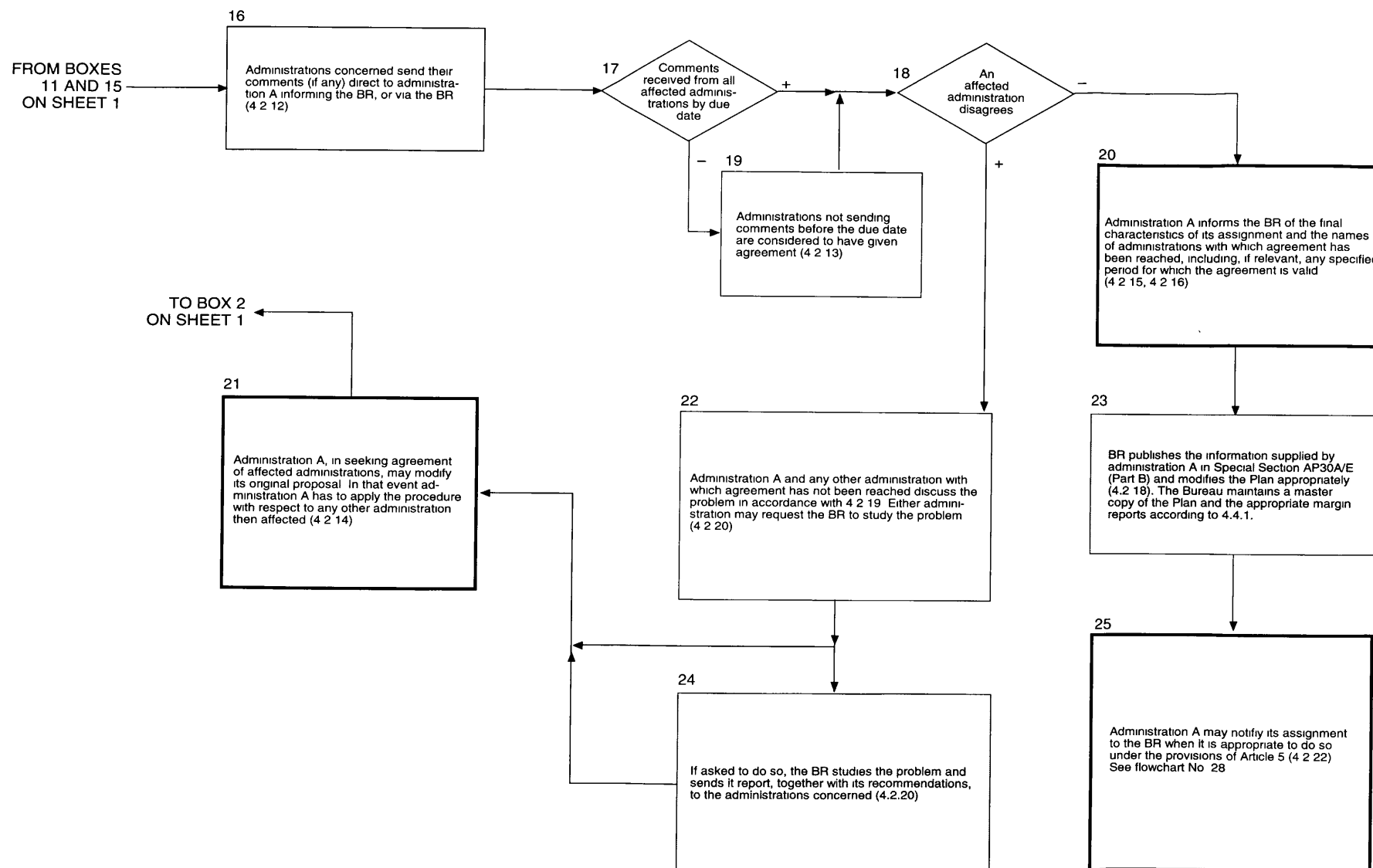


THE PROCEDURE OF ARTICLE 4 OF APPENDIX 30A (ORB-88) FOR MODIFICATION OF THE PLAN  
FOR THE FEEDER-LINK STATIONS IN THE FIXED-SATELLITE SERVICE IN THE BANDS  
14.5 – 14.8 GHz AND 17.3 – 18.1 GHz IN REGIONS 1 AND 3 AND 17.3 – 17.8 GHz IN REGION 2  
(All references are to provisions of Article 4 of Appendix 30A (ORB-88))

THIS FLOWCHART IS ISSUED AS AN AID TO UNDERSTANDING AND DOES NOT FORM PART  
OF THE RADIO REGULATIONS





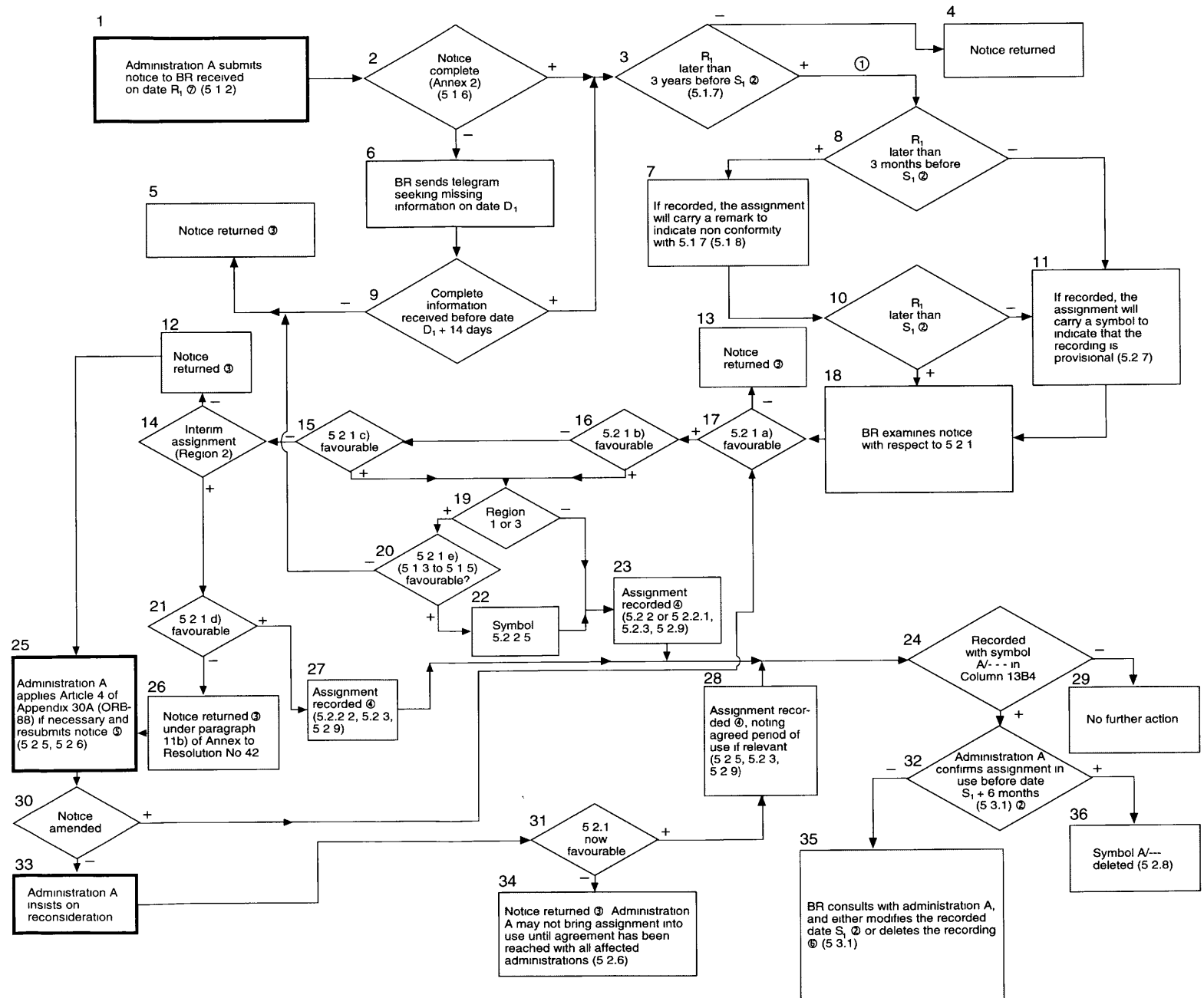
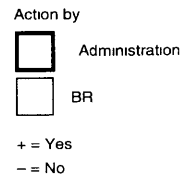


**NOTIFICATION, EXAMINATION AND REGISTRATION OF FREQUENCY ASSIGNMENTS TO  
FEEDER-LINK TRANSMITTING EARTH STATIONS AND RECEIVING SPACE STATIONS IN THE FIXED-SATELLITE  
SERVICE IN THE BANDS 14.5 - 14.8 GHz AND 17.3 - 18.1 GHz IN REGIONS 1 AND 3, AND 17.3 - 17.8 GHz IN REGION 2**  
(All references are to provisions of Article 5 of Appendix 30A (ORB-88))

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**FLOWCHART No. 28**

THIS FLOWCHART IS ISSUED AS AN AID TO  
UNDERSTANDING AND DOES NOT FORM PART  
OF THE RADIO REGULATIONS



**NOTES**

- ① When a complete notice is received, the particulars are published in Part I of the weekly Circular
- ② S<sub>1</sub> is the date of putting into use as notified by administration A
- ③ When a notice is returned to the administration A, the particulars are published in Part III of the weekly Circular
- ④ When an assignment is recorded in the Master Register, the particulars are published in Part II of the weekly Circular
- ⑤ When a notice is resubmitted the particulars are published in Part I of the weekly Circular
- ⑥ When an assignment is deleted from the Master Register, the particulars are published in Part I of the weekly Circular
- ⑦ When an administration of Region 1 or 3 wants to determine the volume of possible power control it shall request the Bureau's assistance in accordance with 5.1.1

# **RADIO REGULATIONS**

## **PREAMBLE**

- 1**           The application of the provisions of these Regulations by the permanent organs of the International Telecommunication Union does not imply the expression of any opinion whatsoever on the part of the Union concerning the sovereignty or the legal status of any country, territory or geographical area.

## **PART A**

## CHAPTER I

### Terminology

#### ARTICLE 1

#### Terms and Definitions

##### Introduction

- 2** For the purposes of these Regulations, the following terms shall have the meanings defined below. These terms and definitions do not, however, necessarily apply for other purposes. Definitions identical to those contained in the International Telecommunication Convention (Malaga-Torremolinos, 1973) are marked “(CONV.)”.\*

*Note:* If, in the text of a definition below, a term is printed in italics, this means that the term itself is defined in this Article.

##### Section I. General Terms

- 3** 1.1 *Administration:* Any governmental department or service responsible for discharging the obligations undertaken in the Convention of the International Telecommunication Union and the Regulations (CONV.).

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\* *Note by the Secretary-General:* The following provisions: **4, 26, 36, 110, 112** and **163** contain definitions identical to those in the International Telecommunication Convention (Nairobi, 1982).

- 4        1.2        *Telecommunication*: Any transmission, *emission* or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, *radio*, optical or other electromagnetic systems (CONV.).
- 5        1.3        *Radio*: A general term applied to the use of *radio waves* (CONV.).
- 6        1.4        *Radio Waves* or *Hertzian Waves*: Electromagnetic waves of frequencies arbitrarily lower than 3 000 GHz, propagated in space without artificial guide.
- 7        1.5        *Radiocommunication*: *Telecommunication* by means of *radio waves* (CONV.).
- 8        1.6        *Terrestrial Radiocommunication*: Any *radiocommunication* other than *space radiocommunication* or *radio astronomy*.
- 9        1.7        *Space Radiocommunication*: Any *radiocommunication* involving the use of one or more *space stations* or the use of one or more *reflecting satellites* or other objects in space.
- 10       1.8        *Radiodetermination*: The determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to these parameters, by means of the propagation properties of *radio waves*.
- 11       1.9        *Radionavigation*: *Radiodetermination* used for the purposes of navigation, including obstruction warning.
- 12       1.10       *Radiolocation*: *Radiodetermination* used for purposes other than those of *radionavigation*.
- 13       1.11       *Radio Direction-Finding*: *Radiodetermination* using the reception of *radio waves* for the purpose of determining the direction of a *station* or object.
- 14       1.12       *Radio Astronomy*: Astronomy based on the reception of *radio waves* of cosmic origin.

- 15** 1.13 *Coordinated Universal Time (UTC)*: Time scale, based on the second (SI), as defined and recommended by the CCIR<sup>1</sup>, and maintained by the International Time Bureau (BIH).

For most practical purposes associated with the Radio Regulations, UTC is equivalent to mean solar time at the prime meridian (0° longitude), formerly expressed in GMT.

- 15.1** <sup>1</sup> The full definition is contained in CCIR Recommendation 460-2.

- 16** 1.14 *Industrial, Scientific and Medical (ISM) Applications* (of radio frequency energy): Operation of equipment or appliances designed to generate and use locally radio frequency energy for industrial, scientific, medical, domestic or similar purposes, excluding applications in the field of *telecommunications*.

## **Section II. Specific Terms Related to Frequency Management**

- 17** 2.1 *Allocation* (of a frequency band): Entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space *radiocommunication services* or the *radio astronomy service* under specified conditions. This term shall also be applied to the frequency band concerned.
- 18** 2.2 *Allotment* (of a radio frequency or radio frequency channel): Entry of a designated frequency channel in an agreed plan, adopted by a competent conference, for use by one or more administrations for a terrestrial or space *radiocommunication service* in one or more identified countries or geographical areas and under specified conditions.
- 19** 2.3 *Assignment* (of a radio frequency or radio frequency channel): Authorization given by an administration for a radio *station* to use a radio frequency or radio frequency channel under specified conditions.

### Section III. Radio Services

- 20      3.1      *Radiocommunication Service:* A service as defined in this Section involving the transmission, *emission* and/or reception of *radio waves* for specific *telecommunication* purposes.

In these Regulations, unless otherwise stated, any radio-communication service relates to *terrestrial radiocommunication*.

- 21      3.2      *Fixed Service:* A *radiocommunication service* between specified fixed points.

- 22      3.3      *Fixed-Satellite Service:* A *radiocommunication service* be-  
Orb-88      tween *earth stations* at given positions, when one or more *satellites* are used; the given position may be a specified fixed point or any fixed point within specified areas; in some cases this service includes satellite-to-satellite links, which may also be operated in the *inter-satellite service*; the fixed-satellite service may also include *feeder links* for other *space radiocommunication services*.

- 23      3.4      *Aeronautical Fixed Service:* A *radiocommunication service* between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air transport.

- 24      3.5      *Inter-Satellite Service:* A *radiocommunication service* pro-  
WARC-92      viding links between artificial *satellites*.

- 25      3.6      *Space Operation Service:* A *radiocommunication service* concerned exclusively with the operation of *spacecraft*, in particular *space tracking*, *space telemetry* and *space telecommand*.

These functions will normally be provided within the service in which the *space station* is operating.



- 26      3.7      *Mobile Service: A radiocommunication service between mobile and land stations, or between mobile stations (CONV.).*
- 27      3.8      *Mobile-Satellite Service: A radiocommunication service:*
- between *mobile earth stations* and one or more *space stations*, or between *space stations* used by this service; or
  - between *mobile earth stations* by means of one or more *space stations*.
- This service may also include *feeder links* necessary for its operation.
- 28      3.9      *Land Mobile Service: A mobile service between base stations and land mobile stations, or between land mobile stations.*
- 29      3.10     *Land Mobile-Satellite Service: A mobile-satellite service in which mobile earth stations are located on land.*
- 30      3.11     *Maritime Mobile Service: A mobile service between coast stations and ship stations, or between ship stations, or between associated on-board communication stations; survival craft stations and emergency position-indicating radiobeacon stations may also participate in this service.*
- 31      3.12     *Maritime Mobile-Satellite Service: A mobile-satellite service in which mobile earth stations are located on board ships; survival craft stations and emergency position-indicating radiobeacon stations may also participate in this service.*
- 32      3.13     *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.

- 33**      3.14      *Ship Movement Service: A safety service in the maritime mobile 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.

- 34**      3.15      *Aeronautical Mobile Service: A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radiobeacon stations may also participate in this service on designated distress and emergency frequencies.*

- 34A**      3.15A      *Aeronautical Mobile (R)\* Service: An aeronautical mobile  
Mob-87 service reserved for communications relating to safety and regularity of flight, primarily along national or international civil air routes.*

- 34B**      3.15B      *Aeronautical Mobile (OR)\*\* Service: An aeronautical mobile  
Mob-87 service intended for communications, including those relating to flight coordination, primarily outside national or international civil air routes.*

- 35**      3.16      *Aeronautical Mobile-Satellite Service: A mobile-satellite service in which mobile earth stations are located on board aircraft;*

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\* (R): route.

\*\* (OR): off-route.

*survival craft stations and emergency position-indicating radio-beacon stations* may also participate in this service.

- 35A** 3.16A *Aeronautical Mobile-Satellite (R)\* Service*: An aeronautical  
**Mob-87** *mobile-satellite service* reserved for communications relating to safety and regularity of flights, primarily along national or international civil air routes.
- 35B** 3.16B *Aeronautical Mobile-Satellite (OR)\*\* Service*: An aeronau-  
**Mob-87** *tical mobile-satellite service* intended for communications, including those relating to flight coordination, primarily outside national and international civil air routes.
- 36** 3.17 *Broadcasting Service*: A radiocommunication service in which the transmissions are intended for direct reception by the general public. This service may include sound transmissions, *television* transmissions or other types of transmission (CONV.).
- 37** 3.18 *Broadcasting-Satellite Service*: A radiocommunication service in which signals transmitted or retransmitted by *space stations* are intended for direct reception by the general public.
- In the broadcasting-satellite service, the term “direct reception” shall encompass both *individual reception* and *community reception*.
- 38** 3.19 *Radiodetermination Service*: A radiocommunication service for the purpose of *radiodetermination*.
- 39** 3.20 *Radiodetermination-Satellite Service*: A radiocommuni-  
**Mob-87** *cation service* for the purpose of *radiodetermination* involving the use of one or more *space stations*.

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\* (R): route.

\*\* (OR): off-route.

This service may also include *feeder links* necessary for its own operation.

**40**      3.21      *Radionavigation Service: A radiodetermination service for the purpose of radionavigation.*

**41**      3.22      *Radionavigation-Satellite Service: A radiodetermination-satellite service used for the purpose of radionavigation.*

This service may also include *feeder links* necessary for its operation.

**42**      3.23      *Maritime Radionavigation Service: A radionavigation service intended for the benefit and for the safe operation of ships.*

**43**      3.24      *Maritime Radionavigation-Satellite Service: A radionavigation-satellite service in which earth stations are located on board ships.*

**44**      3.25      *Aeronautical Radionavigation Service: A radionavigation service intended for the benefit and for the safe operation of aircraft.*

**45**      3.26      *Aeronautical Radionavigation-Satellite Service: A radionavigation-satellite service in which earth stations are located on board aircraft.*

**46**      3.27      *Radiolocation Service: A radiodetermination service for the purpose of radiolocation.*

**46A**      3.27A      *Radiolocation-Satellite Service: A radiodetermination-satellite service used for the purpose of radiolocation.*  
**WARC-92**

This service may also include the *feeder links* necessary for its operation.

**47**      3.28      *Meteorological Aids Service: A radiocommunication service used for meteorological, including hydrological, observations and exploration.*

48 3.29 *Earth Exploration-Satellite Service: A radiocommunication*  
 WARC-92 *service between earth stations and one or more space stations, which*  
*may include links between space stations, in which:*

- information relating to the characteristics of the Earth and its natural phenomena, including data relating to the state of the environment, is obtained from *active sensors* or *passive sensors* on Earth *satellites*;
- similar information is collected from airborne or Earth-based platforms;
- such information may be distributed to *earth stations* within the system concerned;
- platform interrogation may be included.

This service may also include *feeder links* necessary for its operation.

49 3.30 *Meteorological-Satellite Service: An earth exploration-satellite service* for meteorological purposes.

50 3.31 *Standard Frequency and Time Signal Service: A radio-communication service* for scientific, technical and other purposes, providing the transmission of specified frequencies, time signals, or both, of stated high precision, intended for general reception.

51 3.32 *Standard Frequency and Time Signal-Satellite Service: A radiocommunication service* using *space stations* on earth *satellites* for the same purposes as those of the *standard frequency and time signal service*.

This service may also include *feeder links* necessary for its operation.

- 52      3.33      *Space Research Service: A radiocommunication service in which spacecraft or other objects in space are used for scientific or technological research purposes.*
- 53      3.34      *Amateur Service: A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.*
- 54      3.35      *Amateur-Satellite Service: A radiocommunication service using space stations on earth satellites for the same purposes as those of the amateur service.*
- 55      3.36      *Radio Astronomy Service: A service involving the use of radio astronomy.*
- 56      3.37      *Safety Service: Any radiocommunication service used permanently or temporarily for the safeguarding of human life and property (CONV.).*
- 57      3.38      *Special Service: A radiocommunication service, not otherwise defined in this Section, carried on exclusively for specific needs of general utility, and not open to public correspondence.*

#### **Section IV. Radio Stations and Systems**

- 58      4.1      *Station: One or more transmitters or receivers or a combination of transmitters and receivers, including the accessory equipment, necessary at one location for carrying on a radiocommunication service, or the radio astronomy service.*
- Each station shall be classified by the service in which it operates permanently or temporarily.
- 59      4.2      *Terrestrial Station: A station effecting terrestrial radio-communication.*

In these Regulations, unless otherwise stated, any *station* is a terrestrial station.

- 60 4.3 *Earth Station*: A *station* located either on the Earth's surface or within the major portion of the Earth's atmosphere and intended for communication:
- with one or more *space stations*; or
  - with one or more *stations* of the same kind by means of one or more reflecting *satellites* or other objects in space.
- 61 4.4 *Space Station*: A *station* located on an object which is beyond, is intended to go beyond, or has been beyond, the major portion of the Earth's atmosphere.
- 62 4.5 *Survival Craft Station*: A *mobile station* in the *maritime mobile service* or the *aeronautical mobile service* intended solely for survival purposes and located on any lifeboat, life-raft or other survival equipment.
- 63 4.6 *Fixed Station*: A *station* in the *fixed service*.
- 64 4.7 *Aeronautical Fixed Station*: A *station* in the *aeronautical fixed service*.
- 65 4.8 *Mobile Station*: A *station* in the *mobile service* intended to be used while in motion or during halts at unspecified points.
- 66 4.9 *Mobile Earth Station*: An *earth station* in the *mobile-satellite service* intended to be used while in motion or during halts at unspecified points.
- 67 4.10 *Land Station*: A *station* in the *mobile service* not intended to be used while in motion.
- 67A 4.10A *Land Earth Station*: An *earth station* in the *fixed-satellite*  
 Mob-87 *service* or, in some cases, in the *mobile-satellite service*, located at a

specified fixed point or within a specified area on land to provide a *feeder link* for the *mobile-satellite service*.

**68** 4.11 *Base Station: A land station in the land mobile service.*

**68A** 4.11A *Base Earth Station: An earth station in the fixed-satellite*  
**Mob-87** *service* or, in some cases, in the *land mobile-satellite service*, located at a specified fixed point or within a specified area on land to provide a *feeder link* for the *land mobile-satellite service*.

**69** 4.12 *Land Mobile Station: A mobile station in the land mobile service* capable of surface movement within the geographical limits of a country or continent.

**69A** 4.12A *Land Mobile Earth Station: A mobile earth station in the*  
**Mob-87** *land mobile-satellite service* capable of surface movement within the geographical limits of a country or continent.

**70** 4.13 *Coast Station: A land station in the maritime mobile service.*

**71** 4.14 *Coast Earth Station: An earth station in the fixed-satellite service* or, in some cases, in the *maritime mobile-satellite service*, located at a specified fixed point on land to provide a *feeder link* for the *maritime mobile-satellite service*.

**72** 4.15 *Ship Station: A mobile station in the maritime mobile service* located on board a vessel which is not permanently moored, other than a *survival craft station*.

**73** 4.16 *Ship Earth Station: A mobile earth station in the maritime mobile-satellite service* located on board ship.

**74** 4.17 *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.

- 75      4.18      *Port Station: A coast station in the port operations service.*
- 76      4.19      *Aeronautical Station: A land station in the aeronautical mobile service.*

In certain instances, an aeronautical station may be located, for example, on board ship or on a platform at sea.

- 77      4.20      *Aeronautical Earth Station: An earth station in the fixed-satellite service, or, in some cases, in the aeronautical mobile-satellite service, located at a specified fixed point on land to provide a feeder link for the aeronautical mobile-satellite service.*
- 78      4.21      *Aircraft Station: A mobile station in the aeronautical mobile service, other than a survival craft station, located on board an aircraft.*
- 79      4.22      *Aircraft Earth Station: A mobile earth station in the aeronautical mobile-satellite service located on board an aircraft.*
- 80      4.23      *Broadcasting Station: A station in the broadcasting service.*
- 81      4.24      *Radiodetermination Station: A station in the radiodetermination service.*
- 82      4.25      *Radionavigation Mobile Station: A station in the radionavigation service intended to be used while in motion or during halts at unspecified points.*
- 83      4.26      *Radionavigation Land Station: A station in the radionavigation service not intended to be used while in motion.*

- 84** 4.27 *Radiolocation Mobile Station:* A station in the radiolocation service intended to be used while in motion or during halts at unspecified points.
- 85** 4.28 *Radiolocation Land Station:* A station in the radiolocation service not intended to be used while in motion.
- 86** 4.29 *Radio Direction-Finding Station:* A radiodetermination station using radio direction-finding.
- 87** 4.30 *Radiobeacon Station:* A station in the radionavigation service the *emissions* of which are intended to enable a *mobile station* to determine its bearing or direction in relation to the radiobeacon station.
- 88** 4.31 *Emergency Position-Indicating Radiobeacon Station:* A station in the mobile service the *emissions* of which are intended to facilitate search and rescue operations.
- 88A** 4.31A *Satellite Emergency Position-Indicating Radiobeacon:* An  
**Mob-83** earth station in the mobile-satellite service the *emissions* of which are intended to facilitate search and rescue operations.
- 89** 4.32 *Standard Frequency and Time Signal Station:* A station in the standard frequency and time signal service.
- 90** 4.33 *Amateur Station:* A station in the amateur service.
- 91** 4.34 *Radio Astronomy Station:* A station in the radio astronomy service.
- 92** 4.35 *Experimental Station:* A station utilizing radio waves in experiments with a view to the development of science or technique.
- This definition does not include *amateur stations*.
- 93** 4.36 *Ship's Emergency Transmitter:* A ship's transmitter to be used exclusively on a distress frequency for distress, urgency or safety purposes.

- 94      4.37      *Radar*: A *radiodetermination* system based on the comparison of reference signals with radio signals reflected, or retransmitted, from the position to be determined.
- 95      4.38      *Primary Radar*: A *radiodetermination* system based on the comparison of reference signals with radio signals reflected from the position to be determined.
- 96      4.39      *Secondary Radar*: A *radiodetermination* system based on the comparison of reference signals with radio signals retransmitted from the position to be determined.
- 97      4.40      *Radar Beacon (racon)*: A transmitter-receiver associated with a fixed navigational mark which, when triggered by a *radar*, automatically returns a distinctive signal which can appear on the display of the triggering *radar*, providing range, bearing and identification information.
- 98      4.41      *Instrument Landing System (ILS)*: A *radionavigation* system which provides aircraft with horizontal and vertical guidance just before and during landing and, at certain fixed points, indicates the distance to the reference point of landing.
- 99      4.42      *Instrument Landing System Localizer*: A system of horizontal guidance embodied in the *instrument landing system* which indicates the horizontal deviation of the aircraft from its optimum path of descent along the axis of the runway.
- 100      4.43      *Instrument Landing System Glide Path*: A system of vertical guidance embodied in the *instrument landing system* which indicates the vertical deviation of the aircraft from its optimum path of descent.
- 101      4.44      *Marker Beacon*: A transmitter in the *aeronautical radionavigation service* which radiates vertically a distinctive pattern for providing position information to aircraft.
- 102      4.45      *Radio Altimeter*: *Radionavigation* equipment, on board an aircraft or *spacecraft*, used to determine the height of the

aircraft or the *spacecraft* above the Earth's surface or another surface.

**103** 4.46 *Radiosonde*: An automatic radio transmitter in the *meteorological aids service* usually carried on an aircraft, free balloon, kite or parachute, and which transmits meteorological data.

**104** 4.47 *Space System*: Any group of cooperating *earth stations* and/or *space stations* employing *space radiocommunication* for specific purposes.

**105** 4.48 *Satellite System*: A *space system* using one or more artificial earth *satellites*.

**106** 4.49 *Satellite Network*: A *satellite system* or a part of a *satellite system*, consisting of only one *satellite* and the cooperating *earth stations*.

**107** 4.50 *Satellite Link*: A radio link between a transmitting *earth station* and a receiving *earth station* through one *satellite*.

A satellite link comprises one up-link and one down-link.

**108** 4.51 *Multi-Satellite Link*: A radio link between a transmitting *earth station* and a receiving *earth station* through two or more *satellites*, without any intermediate *earth station*.

A multi-satellite link comprises one up-link, one or more satellite-to-satellite links and one down-link.

**109** 4.52 *Feeder Link*: A radio link from an *earth station* at a given  
**Orb-88** location to a *space station*, or vice versa, conveying information for a *space radiocommunication service* other than for the *fixed-satellite service*. The given location may be at a specified fixed point, or at any fixed point within specified areas.

## Section V. Operational Terms

- 110 5.1 *Public Correspondence*: Any *telecommunication* which the offices and *stations* must, by reason of their being at the disposal of the public, accept for transmission (CONV.).
- 111 5.2 *Telegraphy*\*: A form 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. For the purposes of the Radio Regulations, unless otherwise specified therein, telegraphy shall mean a form of *telecommunication* for the transmission of written matter by the use of a signal code.
- 112 5.3 *Telegram*: Written matter intended to be transmitted by *telegraphy* for delivery to the addressee. This term also includes *radiotelegrams* unless otherwise specified (CONV.).
- In this definition the term *telegraphy* has the same general meaning as defined in the Convention.
- 113 5.4 *Radiotelegram*: A *telegram*, 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 *mobile service* or of the *mobile-satellite service*.
- 114 5.5 *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 *mobile service* or the *mobile-satellite service*.

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\* *Note by the Secretary-General*: This definition is not in alignment with Annex 2 to the Convention. The corresponding definition in that Annex shall prevail to the extent that there are differences between them.

- 115      5.6      *Frequency-Shift Telegraphy*: Telegraphy by frequency modulation in which the telegraph signal shifts the frequency of the carrier between predetermined values.
- 116      5.7      *Facsimile*: A form of *telegraphy* 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 same general meaning as defined in the Convention.

- 117      5.8      *Telephony*<sup>\*</sup>: A form of *telecommunication* set up for the transmission of speech or, in some cases, other sounds.
- 118      5.9      *Radiotelephone Call*: A telephone 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 *mobile service* or of the *mobile-satellite service*.
- 119      5.10     *Simplex Operation*: Operating method in which transmission is made possible alternately in each direction of a *telecommunication* channel, for example, by means of manual control<sup>1</sup>.

- 119.1                      <sup>1</sup> In general, *duplex operation* and *semi-duplex operation* require two frequencies in *radiocommunication*; *simplex operation* may use either one or two.

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<sup>\*</sup> *Note by the Secretary-General*: This definition is not in alignment with Annex 2 to the Convention. The corresponding definition in that Annex shall prevail to the extent that there are differences between them.

- 120** 5.11 *Duplex Operation*: Operating method in which transmission is possible simultaneously in both directions of a *telecommunication* channel<sup>1</sup>.
- 120.1** <sup>1</sup> In general, *duplex operation* and *semi-duplex operation* require two frequencies in *radiocommunication*; *simplex operation* may use either one or two.
- 121** 5.12 *Semi-Duplex Operation*: A method which is *simplex operation* at one end of the circuit and *duplex operation* at the other<sup>2</sup>.
- 121.1** <sup>2</sup> In general, *duplex operation* and *semi-duplex operation* require two frequencies in *radiocommunication*; *simplex operation* may use either one or two.
- 122** 5.13 *Television*: A form of *telecommunication* for the transmission of transient images of fixed or moving objects.
- 123** 5.14 *Individual Reception* (in the broadcasting-satellite service): The reception of *emissions* from a *space station* in the *broadcasting-satellite service* by simple domestic installations and in particular those possessing small antennae.
- 124** 5.15 *Community Reception* (in the broadcasting-satellite service): The reception of *emissions* from a *space station* in the *broadcasting-satellite service* by receiving equipment, which in some cases may be complex and have antennae larger than those used for *individual reception*, and intended for use:
- by a group of the general public at one location; or
  - through a distribution system covering a limited area.
- 125** 5.16 *Telemetry*: The use of *telecommunication* for automatically indicating or recording measurements at a distance from the measuring instrument.

- 126      5.17      *Radiotelemetry: Telemetry* by means of *radio waves*.
- 127      5.18      *Space Telemetry: The use of telemetry* for the transmission from a *space station* of results of measurements made in a *spacecraft*, including those relating to the functioning of the *spacecraft*.
- 128      5.19      *Telecommand: The use of telecommunication* for the transmission of signals to initiate, modify or terminate functions of equipment at a distance.
- 129      5.20      *Space Telecommand: The use of radiocommunication* for the transmission of signals to a *space station* to initiate, modify or terminate functions of equipment on an associated space object, including the *space station*.
- 130      5.21      *Space Tracking: Determination of the orbit, velocity or instantaneous position of an object in space by means of radiodetermination, excluding primary radar, for the purpose of following the movement of the object.*

#### Section VI. Characteristics of Emissions and Radio Equipment

- 131      6.1      *Radiation: The outward flow of energy from any source in the form of radio waves.*
- 132      6.2      *Emission: Radiation* produced, or the production of *radiation*, by a radio transmitting *station*.

For example, the energy radiated by the local oscillator of a radio receiver would not be an emission but a *radiation*.

- 133      6.3      *Class of Emission: The set of characteristics of an emission, designated by standard symbols, e.g. type of modulation of the main*



carrier, modulating signal, type of information to be transmitted, and also, if appropriate, any additional signal characteristics.

- 134** 6.4 *Single-Sideband Emission*: An amplitude modulated *emission* with one sideband only.
- 135** 6.5 *Full Carrier Single-Sideband Emission*: A *single-sideband emission* without reduction of the carrier.
- 136** 6.6 *Reduced Carrier Single-Sideband Emission*: A *single-sideband emission* in which the degree of carrier suppression enables the carrier to be reconstituted and to be used for demodulation.
- 137** 6.7 *Suppressed Carrier Single-Sideband Emission*: A *single-sideband emission* in which the carrier is virtually suppressed and not intended to be used for demodulation.
- 138** 6.8 *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*.

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\* The terms associated with the definitions given by Nos. **138**, **139** and **140** shall be expressed in the working languages as follows:

Numbers	In French	In English	In Spanish
<b>138</b> (6.8)	Emission hors bande	Out-of-band emission	Emisión fuera de banda
<b>139</b> (6.9)	Rayonnement non essentiel	Spurious emission	Emisión no esencial
<b>140</b> (6.10)	Rayonnements non désirés	Unwanted emissions	Emisiones no deseadas

- 139** 6.9 *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*.
- 140** 6.10 *Unwanted Emissions\**: Consist of *spurious emissions* and *out-of-band emissions*.
- 141** 6.11 *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 stations* are concerned, the assigned frequency band includes twice the maximum Doppler shift that may occur in relation to any point of the Earth's surface.
- 142** 6.12 *Assigned Frequency*: The centre of the frequency band assigned to a *station*.

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\* The terms associated with the definitions given by Nos. **138**, **139** and **140** shall be expressed in the working languages as follows:

Numbers	In French	In English	In Spanish
<b>138</b> (6.8)	Emission hors bande	Out-of-band emission	Emisión fuera de banda
<b>139</b> (6.9)	Rayonnement non essentiel	Spurious emission	Emisión no esencial
<b>140</b> (6.10)	Rayonnements non désirés	Unwanted emissions	Emisiones no deseadas

- 143** 6.13 *Characteristic Frequency*: A frequency which can be easily identified and measured in a given *emission*.

A carrier frequency may, for example, be designated as the characteristic frequency.

- 144** 6.14 *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*.

- 145** 6.15 *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 hertz.

- 146** 6.16 *Necessary Bandwidth*: For a given *class of emission*, the width of the frequency band which is just sufficient to ensure the transmission of information at the rate and with the quality required under specified conditions.

- 147** 6.17 *Occupied Bandwidth*: The width of a frequency band such that, below the lower and above the upper frequency limits, the *mean powers* emitted are each equal to a specified percentage  $\beta/2$  of the total *mean power* of a given *emission*.

Unless otherwise specified by the CCIR for the appropriate *class of emission*, the value of  $\beta/2$  should be taken as 0.5%.

- 148** 6.18 *Right-Hand (clockwise) Polarized Wave*: 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.

149 6.19 *Left-Hand* (anticlockwise) *Polarized Wave*: 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 left-hand or anticlockwise direction.

150 6.20 *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*, using the arbitrary symbols indicated:

- *peak envelope power* (PX or pX);
- *mean power* (PY or pY);
- *carrier power* (PZ or pZ).

For different *classes of emission*, the relationships between *peak envelope power*, *mean power* and *carrier power*, under the conditions of normal operation and of no modulation, are contained in CCIR Recommendations which may be used as a guide.

For use in formulae, the symbol *p* denotes power expressed in watts and the symbol *P* denotes power expressed in decibels relative to a reference level.

151 6.21 *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 taken under normal operating conditions.

152 6.22 *Mean Power* (of a radio 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.

**153**     6.23     *Carrier Power* (of a radio transmitter): The average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle taken under the condition of no modulation.

**154**     6.24     *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 gain refers to the direction of maximum *radiation*. The gain may be considered for a specified polarization.

Depending on the choice of the reference antenna a distinction is made between:

- a) absolute or isotropic gain ( $G_i$ ), when the reference antenna is an isotropic antenna isolated in space;
- b) gain relative to a half-wave dipole ( $G_d$ ), when the reference antenna is a half-wave dipole isolated in space whose equatorial plane contains the given direction;
- c) gain relative to a short vertical antenna ( $G_v$ ), when the reference antenna is a linear conductor, much shorter than one quarter of the wavelength, normal to the surface of a perfectly conducting plane which contains the given direction.

**155**     6.25     *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 antenna (*absolute or isotropic gain*).

**156**     6.26     *Effective Radiated Power (e.r.p.)* (in a given direction): The product of the power supplied to the antenna and its *gain relative to a half-wave dipole* in a given direction.

- 157**      6.27      *Effective 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.
- 158**      6.28      *Tropospheric Scatter*: The propagation of *radio waves* by scattering as a result of irregularities or discontinuities in the physical properties of the troposphere.
- 159**      6.29      *Ionospheric Scatter*: The propagation of *radio waves* by scattering as a result of irregularities or discontinuities in the ionization of the ionosphere.

## Section VII. Frequency Sharing

- 160**      7.1      *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.
- 161**      7.2      *Permissible Interference*<sup>1</sup>: Observed or predicted *interference* which complies with quantitative *interference* and sharing criteria contained in these Regulations or in CCIR Recommendations or in special agreements as provided for in these Regulations.
- 161.1**                      <sup>1</sup> The terms “permissible interference” and “accepted interference” are used in the coordination of frequency assignments between administrations.
- 162**      7.3      *Accepted Interference*<sup>2</sup> : *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.
- 162.1**                      <sup>2</sup> The terms “permissible interference” and “accepted interference” are used in the coordination of frequency assignments between administrations.

- 163 7.4 *Harmful Interference*: Interference which endangers the functioning of a *radionavigation service* or of other *safety services* or seriously degrades, obstructs, or repeatedly interrupts a *radiocommunication service* operating in accordance with these Regulations.
- 164 7.5 *Protection Ratio (R.F.)*: 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.
- 165 7.6 *Coordination Area*: The area associated with an *earth station* outside of which a *terrestrial station* sharing the same frequency band neither causes nor is subject to interfering *emissions* greater than a permissible level.
- 166 7.7 *Coordination Contour*: The line enclosing the *coordination area*.
- 167 7.8 *Coordination Distance*: Distance on a given azimuth from an *earth station* beyond which a *terrestrial station* sharing the same frequency band neither causes nor is subject to interfering *emissions* greater than a permissible level.
- 168 7.9 *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.
- 168A 7.10 *Effective Boresight Area* (of a steerable satellite beam): An  
Orb-88 area on the surface of the Earth within which the boresight of a *steerable satellite beam* is intended to be pointed.

There may be more than one unconnected effective boresight area to which a single *steerable satellite beam* is intended to be pointed.

- 168B** 7.11 *Effective Antenna Gain Contour* (of a steerable satellite  
**Orb-88** beam): An envelope of antenna gain contours resulting from moving the boresight of a *steerable satellite beam* along the limits of the *effective boresight area*.

### Section VIII. Technical Terms Relating to Space

- 169** 8.1 *Deep Space*: Space at distances from the Earth equal to, or  
**Orb-88** greater than,  $2 \times 10^6$  kilometres.
- 170** 8.2 *Spacecraft*: A man-made vehicle which is intended to go beyond the major portion of the Earth's atmosphere.
- 171** 8.3 *Satellite*: 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.
- 172** 8.4 *Active Satellite*: A *satellite* carrying a *station* intended to transmit or retransmit radiocommunication signals.
- 173** 8.5 *Reflecting Satellite*: A *satellite* intended to reflect radiocommunication signals.
- 174** 8.6 *Active Sensor*: A measuring instrument in the *earth exploration-satellite service* or in the *space research service* by means of which information is obtained by transmission and reception of *radio waves*.
- 175** 8.7 *Passive Sensor*: A measuring instrument in the *earth exploration-satellite service* or in the *space research service* by means of which information is obtained by reception of *radio waves* of natural origin.
- 176** 8.8 *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.



- 177 8.9 *Inclination of an Orbit* (of an earth satellite): The angle determined by the plane containing the *orbit* and the plane of the Earth's equator.
- 178 8.10 *Period* (of a satellite): The time elapsing between two consecutive passages of a *satellite* through a characteristic point on its *orbit*.
- 179 8.11 *Altitude of the Apogee or of the Perigee*: The altitude of the apogee or perigee above a specified reference surface serving to represent the surface of the Earth.
- 180 8.12 *Geosynchronous Satellite*: An earth *satellite* whose period of revolution is equal to the period of rotation of the Earth about its axis.
- 181 8.13 *Geostationary Satellite*: 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.
- 182 8.14 *Geostationary-Satellite Orbit*: The *orbit* of a *geosynchro-*  
WARC-92 *nous satellite* whose circular and direct *orbit* lies in the plane of the Earth's equator.
- 183 8.15 *Steerable Satellite Beam*: A *satellite* antenna beam that can  
Orb-88 be re-pointed.
- 184  
to NOT allocated.  
207

## ARTICLE 8

**Frequency Allocations****Introduction**

- 391** § 1. In all documents of the Union where the terms *allocation*, *allotment* and *assignment* are to be used, they shall have the meaning given them in Nos. 17 to 19, the terms used in the three working languages being as follows:

Frequency distribution to:	French	English	Spanish
Services	Attribution (attribuer)	Allocation (to allocate)	Atribución (atribuir)
Areas or countries	Allotissement (allotir)	Allotment (to allot)	Adjudicación (adjudicar)
Stations	Assignment (assigner)	Assignment (to assign)	Asignación (asignar)

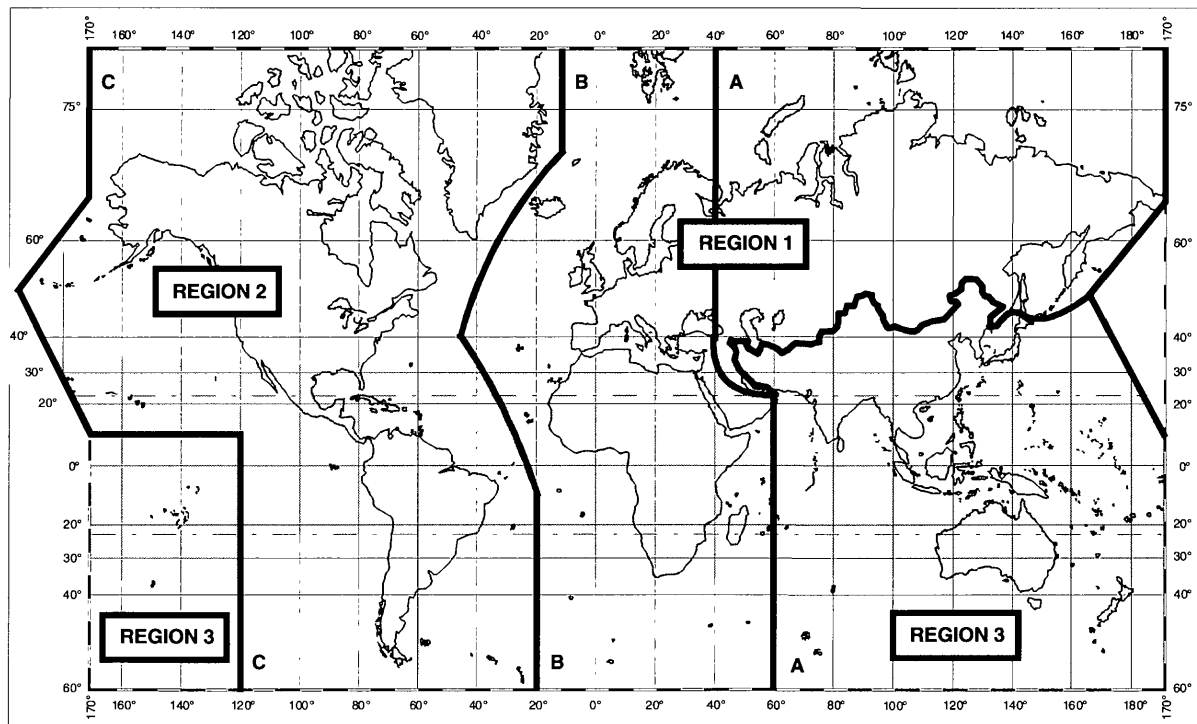
**Section I. Regions and Areas**

- 392** § 2. For the allocation of frequencies the world has been divided into three Regions<sup>1</sup> as shown on the following map and described in Nos. 393 to 399:

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**392.1**

<sup>1</sup> It should be noted that where the words “regions” or “regional” are without a capital “R” in these Regulations, they do not relate to the three Regions here defined for purposes of frequency allocation.



The shaded part represents the Tropical Zones as defined in Nos. 406 to 410 and 411.

**393**     *Region 1:*

Region 1 includes the area limited on the east by line A (lines A, B and C are defined below) and on the west by line B, excluding any of the territory of Iran which lies between these limits. It also includes that part of the territory of Turkey and the Union of Soviet Socialist Republics lying outside of these limits, the territory of the Mongolian People's Republic, and the area to the north of the U.S.S.R. which lies between lines A and C.

**394**     *Region 2:*

Region 2 includes the area limited on the east by line B and on the west by line C.

**395**     *Region 3:*

Region 3 includes the area limited on the east by line C and on the west by line A, except the territories of the Mongolian People's Republic, Turkey, the territory of the U.S.S.R. and the area to the north of the U.S.S.R. It also includes that part of the territory of Iran lying outside of those limits.

**396**                     The lines A, B and C are defined as follows:

**397**     *Line A:*

Line A extends from the North Pole along meridian 40° East of Greenwich to parallel 40° North; thence by great circle arc to the intersection of meridian 60° East and the Tropic of Cancer; thence along the meridian 60° East to the South Pole.

**398**     *Line B:*

Line B extends from the North Pole along meridian 10° West of Greenwich to its intersection with parallel 72° North; thence by great circle arc to the intersection of meridian 50° West and parallel 40° North; thence by great circle arc to the intersection of meridian 20° West and parallel 10° South; thence along meridian 20° West to the South Pole.

**399**     *Line C:*

Line C extends from the North Pole by great circle arc to the intersection of parallel 65° 30' North with the international boundary in Bering Strait; thence by great circle arc to the intersection of meridian 165° East of Greenwich and parallel 50° North; thence by great circle arc to the intersection of meridian 170° West and parallel 10° North; thence along parallel 10° North to its intersection with meridian 120° West; thence along meridian 120° West to the South Pole.

**400**     § 3        For the purposes of these Regulations, the term “African Broadcasting Area” means:

**401**         a)     African countries, parts of countries, territories and groups of territories situated between the parallels 40° South and 30° North;

**402**         b)     islands in the Indian Ocean west of meridian 60° East of Greenwich, situated between the parallel 40° South and the great circle arc joining the points 45° East, 11° 30' North and 60° East, 15° North;

**403**         c)     islands in the Atlantic Ocean east of line B defined in No. **398** of these Regulations, situated between the parallels 40° South and 30° North.

**404**     § 4.        The “European Broadcasting Area” is bounded on the west by the western boundary of Region 1, on the east by the meridian 40° East of Greenwich and on the south by the parallel 30° North so as to include the western part of the U.S.S.R., the northern part of Saudi Arabia and that part of those countries bordering the Mediterranean within these limits. In addition, Iraq, Jordan and that

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part of the territory of Turkey lying outside the above limits are included in the European Broadcasting Area.

**405** § 5. The “European Maritime Area” is bounded to the north by  
**Mob-87** a line extending along parallel 72° North from its intersection with  
 meridian 55° East of Greenwich to its intersection with meridian  
 5° West, then along meridian 5° West to its intersection with parallel  
 67° North, thence along parallel 67° North to its intersection with  
 meridian 32° West; to the west by a line extending along meridian  
 32° West to its intersection with parallel 30° North; to the south by a  
 line extending along parallel 30° North to its intersection with  
 meridian 43° East; to the east by a line extending along meridian  
 43° East to its intersection with parallel 60° North, thence along  
 parallel 60° North to its intersection with meridian 55° East and  
 thence along meridian 55° East to its intersection with parallel  
 72° North.

**406** § 6. (1) The “Tropical Zone” (see map in No. **392**) is defined as:

**407** a) the whole of that area in Region 2 between the Tropics of  
 Cancer and Capricorn;

**408** b) the whole of that area in Regions 1 and 3 contained  
 between the parallels 30° North and 35° South with the  
 addition of:

**409** 1) The area contained between the meridians 40° East and  
 80° East of Greenwich and the parallels 30° North and  
 40° North;

**410** 2) that part of Libya north of parallel 30° North.

**411** (2) In Region 2, the Tropical Zone may be extended to paral-  
 lel 33° North, subject to special agreements between the countries  
 concerned in that Region (see Article 7).

- 412        § 7.        A sub-Region is an area consisting of two or more coun-  
tries in the same Region.

## Section II. Categories of Services and Allocations

### 413        *Primary, Permitted and Secondary Services*

- 414        § 8. (1) Where, in a box of the Table in Section IV of this Article,  
a band is indicated as allocated to more than one service, either on a  
worldwide or Regional basis, such services are listed in the following  
order:

- 415            a) services the names of which are printed in “capitals”  
(example: FIXED); these are called “primary” services;
- 416            b) services the names of which are printed in “capitals  
between oblique strokes” (example: /RADIOLOCA-  
TION/); these are called “permitted” services (see  
No. 419);
- 417            c) services the names of which are printed in “normal  
characters” (example: Mobile); these are called “second-  
ary” services (see Nos. 420 to 423).

- 418            (2) Additional remarks shall be printed in normal characters  
(example: MOBILE except aeronautical mobile).

- 419            (3) Permitted and primary services have equal rights, except  
that, in the preparation of frequency plans, the primary service, as  
compared with the permitted service, shall have prior choice of fre-  
quencies.

- 420            (4) Stations of a secondary service:

- 421            a) shall not cause harmful interference to stations of primary  
or permitted services to which frequencies are already  
assigned or to which frequencies may be assigned at a  
later date;

- 422           b) cannot claim protection from harmful interference from stations of a primary or permitted service to which frequencies are already assigned or may be assigned at a later date;
- 423           c) can claim protection, however, from harmful interference from stations of the same or other secondary service(s) to which frequencies may be assigned at a later date.
- 424           (5) Where a band is indicated in a footnote of the Table as allocated to a service “on a secondary basis” in an area smaller than a Region, or in a particular country, this is a secondary service (see Nos. 420 to 423).
- 425           (6) Where a band is indicated in a footnote of the Table as allocated to a service “on a primary basis”, or “on a permitted basis” in an area smaller than a Region, or in a particular country, this is a primary service or a permitted service only in that area or country (see No. 419).
- 426           *Additional Allocations*
- 427           § 9. (1) Where a band is indicated in a footnote of the Table as “also allocated” to a service in an area smaller than a Region, or in a particular country, this is an “additional” allocation, i.e. an allocation which is added in this area or in this country to the service or services which are indicated in the Table (see No. 428).
- 428           (2) If the footnote does not include any restriction on the service or services concerned apart from the restriction to operate only in a particular area or country, stations of this service or these services shall have equality of right to operate with stations of the other primary service or services indicated in the Table.



**429** (3) If restrictions are imposed on an additional allocation in addition to the restriction to operate only in a particular area or country, this is indicated in the footnote of the Table.

**430** *Alternative Allocations*

**431** § 10. (1) Where a band is indicated in a footnote of the Table as “allocated” to one or more services in an area smaller than a Region, or in a particular country, this is an “alternative” allocation, i.e. an allocation which replaces, in this area or in this country, the allocation indicated in the Table (see No. 432).

**432** (2) If the footnote does not include any restriction on stations of the service or services concerned, apart from the restriction to operate only in a particular area or country, these stations of such a service or services shall have an equality of right to operate with stations of the primary service or services, indicated in the Table, to which the band is allocated in other areas or countries.

**433** (3) If restrictions are imposed on stations of a service to which an alternative allocation is made, in addition to the restriction to operate only in a particular country or area, this is indicated in the footnote.

**434** *Miscellaneous Provisions*

**435** § 11. (1) Where it is indicated in these Regulations that a service may operate in a specific frequency band subject to not causing harmful interference, this means also that this service cannot claim protection from harmful interference caused by other services to which the band is allocated under Chapter III of these Regulations.

**436** (2) Except if otherwise specified in a footnote, the term “fixed service”, where appearing in Section IV of this Article, does not include systems using ionospheric scatter propagation.

### Section III. Description of the Table of Frequency Allocations

- 437 § 12. (1) The heading of the Table in Section IV of this Article  
includes three columns, each of which corresponds to one of the  
Regions (see No. 392). Where an allocation occupies the whole of the  
width of the Table or only one or two of the three columns, this is a  
worldwide allocation or a Regional allocation, respectively.
- 438 (2) The frequency band referred to in each allocation is  
indicated in the left-hand top corner of the part of the Table con-  
cerned.
- 439 (3) Within each of the categories specified in Nos. 415 to 417,  
services are listed in alphabetical order according to the French  
language. The order of listing does not indicate relative priority  
within each category.
- 440 (4) In the case where there is a parenthetical addition to an  
allocation in the Table, that service allocation is restricted to the type  
of operation so indicated.
- 441 (5) The footnote references which appear in the Table below  
the allocated service or services apply to the whole of the allocation  
concerned.
- 442 (6) The footnote references which appear to the right of the  
name of a service are applicable only to that particular service.
- 443 (7) In certain cases, the names of countries appearing in the  
footnotes have been simplified in order to shorten the text.

**Section IV. Table of Frequency Allocations**  
(See No. 208)

**kHz**  
**9 – 70**

Allocation to Services		
Region 1	Region 2	Region 3
<b>Below 9</b>	(not allocated) 444 445	
<b>9 – 14</b>	RADIONAVIGATION	
<b>14 – 19.95</b>	FIXED MARITIME MOBILE 448 446 447	
<b>19.95 – 20.05</b>	STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)	
<b>20.05 – 70</b>	FIXED MARITIME MOBILE 448 447 449	

- 444** 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 (see No. **1816**).
- 445** Administrations conducting scientific research using frequencies below 9 kHz are urged to advise other administrations that may be concerned in order that such research may be afforded all practicable protection from harmful interference.
- 446** *Additional allocation:* In Bulgaria, the German Democratic Republic, **WARC-92** Czechoslovakia and the U.S.S.R., the band 14 - 17 kHz is also allocated to the radionavigation service on a permitted basis.
- 447** The stations of services to which the bands 14 - 19.95 kHz and 20.05 - **WARC-92** 70 kHz and in Region 1 also the bands 72 - 84 kHz and 86 - 90 kHz are allocated may transmit standard frequency and time signals. Such stations shall be afforded protection from harmful interference. In Bulgaria, Mongolia, Czechoslovakia and the U.S.S.R., the frequencies 25 kHz and 50 kHz will be used for this purpose under the same conditions.
- 448** The use of the bands 14 - 19.95 kHz, 20.05 - 70 kHz and 70 - 90 kHz **Mob-87** (72 - 84 kHz and 86 - 90 kHz in Region 1) by the maritime mobile service is limited to coast radiotelegraph stations (A1A and F1B only). Exceptionally, the use of class J2B or J7B emissions is authorized subject to the necessary bandwidth not exceeding that normally used for class A1A or F1B emissions in the band concerned.
- 449** *Additional allocation:* In Bulgaria, Poland, the German Democratic **WARC-92** Republic, Czechoslovakia and the U.S.S.R., the band 67 - 70 kHz is also allocated to the radionavigation service on a permitted basis.

**kHz**  
**70 – 110**

Allocation to Services		
Region 1	Region 2	Region 3
<b>70 – 72</b> RADIONAVIGATION 451	<b>70 – 90</b> FIXED MARITIME MOBILE 448 MARITIME RADIO- NAVIGATION 451 Radiolocation	<b>70 – 72</b> RADIONAVIGATION 451 Fixed Maritime Mobile 448 450
<b>72 – 84</b> FIXED MARITIME MOBILE 448 RADIONAVIGATION 451 447		<b>72 – 84</b> FIXED MARITIME MOBILE 448 RADIONAVIGATION 451
<b>84 – 86</b> RADIONAVIGATION 451		<b>84 – 86</b> RADIONAVIGATION 451 Fixed Maritime Mobile 448 450
<b>86 – 90</b> FIXED MARITIME MOBILE 448 RADIONAVIGATION 447		<b>86 – 90</b> FIXED MARITIME MOBILE 448 RADIONAVIGATION 451
<b>90 – 110</b> RADIONAVIGATION 453 Fixed 453A 454		

- 450**      *Different category of service:* In Bangladesh, Iran and Pakistan, the allocation of the bands 70 - 72 kHz and 84 - 86 kHz to the fixed and maritime mobile service is on a primary basis (see No. 425).
- 451**      In the bands 70 - 90 kHz (70 - 86 kHz in Region 1) and 110 - 130 kHz  
**Mob-87** (112 - 130 kHz in Region 1), pulsed radionavigation systems may be used on condition that they do not cause harmful interference to other services to which these bands are allocated.
- 452**      In Region 2, the establishment and operation of stations in the maritime radionavigation service in the bands 70 - 90 kHz and 110 - 130 kHz shall be subject to agreement obtained under the procedure set forth in Article 14 with administrations whose services, operating in accordance with the Table, may be affected. However, stations of the fixed, maritime mobile and radiolocation services shall not cause harmful interference to stations in the maritime radionavigation service established under such agreements.
- 453**      Administrations which operate stations in the radionavigation service in the band 90 - 110 kHz are urged to coordinate technical and operating characteristics in such a way as to avoid harmful interference to the services provided by these stations.
- 453A**      In the band 90 - 110 kHz, the United Kingdom may continue to use its  
**Mob-87** coast radiotelegraph stations in operation on 14 September 1987, on a secondary basis.
- 454**      Only classes A1A or F1B, A2C, A3C, F1C or F3C emissions are authorized for stations of the fixed service in the bands allocated to this service between 90 kHz and 160 kHz (148.5 kHz in Region 1) and for stations of the maritime mobile service in the bands allocated to this service between 110 kHz and 160 kHz (148.5 kHz in Region 1). Exceptionally, class J2B or J7B emissions are also authorized in the bands between 110 kHz and 160 kHz (148.5 kHz in Region 1) for stations of the maritime mobile service.

**kHz**  
**110 – 130**

Allocation to Services		
Region 1	Region 2	Region 3
<b>110 – 112</b> FIXED MARITIME MOBILE RADIONAVIGATION  454	<b>110 – 130</b> FIXED MARITIME MOBILE MARITIME RADIO- NAVIGATION 451 Radiolocation	<b>110 – 112</b> FIXED MARITIME MOBILE RADIONAVIGATION 451  454
<b>112 – 115</b> RADIONAVIGATION 451		<b>112 – 117.6</b> RADIONAVIGATION 451 Fixed Maritime Mobile  454 455
<b>115 – 117.6</b> RADIONAVIGATION 451 Fixed Maritime Mobile  454 456		
<b>117.6 – 126</b> FIXED MARITIME MOBILE RADIONAVIGATION 451  454		<b>117.6 – 126</b> FIXED MARITIME MOBILE RADIONAVIGATION 451  454
<b>126 – 129</b> RADIONAVIGATION 451		<b>126 – 129</b> RADIONAVIGATION 451 Fixed Maritime Mobile  454 455
<b>129 – 130</b> FIXED MARITIME MOBILE RADIONAVIGATION 451  454		<b>129 – 130</b> FIXED MARITIME MOBILE RADIONAVIGATION 451  454

- 455**      *Different category of service:* in Bangladesh, Iran and Pakistan, the allocation of the bands 112 - 117.6 kHz and 126 - 129 kHz to the fixed and maritime mobile services is on a primary basis (see No. **425**).
- 456**      *Different category of service:* in the Federal Republic of Germany, the allocation of the band 115 - 117.6 kHz to the fixed and maritime mobile services is on a primary basis (see No. **425**) and to the radionavigation service on a secondary basis (see No. **424**).



**kHz**  
**130 – 325**

Allocation to Services		
Region 1	Region 2	Region 3
<b>130 – 148.5</b> MARITIME MOBILE /FIXED/ 454 457	<b>130 – 160</b> FIXED MARITIME MOBILE  454	<b>130 – 160</b> FIXED MARITIME MOBILE RADIONAVIGATION  454
<b>148.5 – 255</b> BROADCASTING   460 461 462	<b>160 – 190</b> FIXED  459	<b>160 – 190</b> FIXED Aeronautical Radionavigation
	<b>190 – 200</b> AERONAUTICAL RADIONAVIGATION	
	<b>200 – 275</b> AERONAUTICAL RADIONAVIGATION Aeronautical Mobile	<b>200 – 285</b> AERONAUTICAL RADIONAVIGATION Aeronautical Mobile
<b>255 – 283.5</b> BROADCASTING /AERONAUTICAL RADIONAVIGATION/ 463 462 464	<b>275 – 285</b> AERONAUTICAL RADIONAVIGATION Aeronautical Mobile Maritime Radionavigation (radiobeacons)	
<b>283.5 – 315</b> MARITIME RADIONAVIGATION (radiobeacons) 466 /AERONAUTICAL RADIONAVIGATION/  465 466A	<b>285 – 315</b> MARITIME RADIONAVIGATION (radiobeacons) 466 /AERONAUTICAL RADIONAVIGATION/	
	<b>315 – 325</b> AERONAUTICAL RADIONAVIGATION Maritime Radionavigation (radiobeacons) 466 465 467	<b>315 – 325</b> MARITIME RADIONAVIGATION (radiobeacons) 466 Aeronautical Radionavigation

**457**      *Additional allocation:* in Bulgaria, Mongolia, Poland, the German Democratic Republic, Romania, Czechoslovakia and the U.S.S.R., the band 130 - 148.5 kHz is also allocated to the radionavigation service on a secondary basis. Within and between these countries this service shall have an equal right to operate.

**458\***      SUP

Mob-87

**459**      In the Region 2 polar areas (north of 60° N and south 60° S), which are subject to auroral disturbances, the aeronautical fixed service is the primary service in the band 160 - 190 kHz.

**460**      *Alternative allocation:* in Angola, Botswana, Burundi, the Congo, Malawi, Rwanda, South Africa and Zaire, the band 160 - 200 kHz is allocated to the fixed service on a primary basis.

**461**      *Additional allocation:* In Somalia, the band 200 - 255 kHz is also allocated to the aeronautical radionavigation service on a primary basis.

**462**      *Alternative allocation:* in Angola, Botswana, Burundi, Cameroon, the Central African Republic, the Congo, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Nigeria, Oman, Rwanda, South Africa, Swaziland, Tanzania, Chad, Zaire, Zambia and Zimbabwe, the band 200 - 283.5 kHz is allocated to the aeronautical radionavigation service on a primary basis.

**463**      *Different category of service:* in Sudan and Yemen (P.D.R. of), the allocation of the band 255 - 283.5 kHz to the aeronautical radionavigation service is on a primary basis (see No. 425).

**464**      *Alternative allocation:* In Tunisia, the band 255 - 283.5 kHz is allocated to the broadcasting service on a primary basis.

**464A**      SUP

WARC-92

**465**      Norwegian stations of the fixed service situated in northern areas (north of 60° N) subject to auroral disturbances are allowed to continue operation on four frequencies in the bands 283.5 - 490 kHz and 510 - 526.5 kHz.

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\* *Note by the Secretary-General:* This note has been renumbered **464A**, to preserve the chronological order.

**466** In the band 285 - 325 kHz (283.5 - 325 kHz in Region 1), in the maritime radionavigation service, radiobeacon stations may also transmit supplementary navigational information using narrow-band techniques, on condition that the prime function of the beacon is not significantly degraded.

**466A** *Additional Allocation:* in Region 1, the frequency band 285.3 - 285.7 kHz  
**Mob-87** is also allocated to the maritime radionavigation service (other than radio-beacons) on a permitted basis.

**467** *Different category of service:* in the U.S.S.R. and the Black Sea areas of Bulgaria, Roumania and Turkey, the allocation of the band 315 - 325 kHz to the maritime radionavigation service is on a primary basis (see No. 425) under the following conditions:

- a) in the Black Sea and White Sea areas, the maritime radionavigation service is the primary service and the aeronautical radionavigation service is the permitted service;
- b) in the Baltic Sea area, the assignment of frequencies in this band to new stations in the maritime or aeronautical radionavigation services shall be subject to prior consultation between the administrations concerned.

**kHz**  
**325 – 505**

Allocation to Services		
Region 1	Region 2	Region 3
325 – 405 AERONAUTICAL RADIONAVIGATION  465	325 – 335 AERONAUTICAL RADIONAVIGATION Aeronautical Mobile Maritime Radionavigation (radiobeacons)	325 – 405 AERONAUTICAL RADIONAVIGATION Aeronautical Mobile
	335 – 405 AERONAUTICAL RADIONAVIGATION Aeronautical Mobile	
405 – 415 RADIONAVIGATION 468 465	405 – 415 RADIONAVIGATION 468 Aeronautical Mobile	
415 – 435 AERONAUTICAL RADIONAVIGATION /MARITIME MOBILE/ 470 465	415 – 495 MARITIME MOBILE 470 Aeronautical Radionavigation 470A  469 469A 471 472A	
435 – 495 MARITIME MOBILE 470 Aeronautical Radionavigation 465 471 472A		
495 – 505 MOBILE (distress and calling) 472		

- 468** The frequency 410 kHz is designated for radio direction-finding in the maritime radionavigation service. 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.
- 469** *Different category of service:* in Afghanistan, Australia, China, the French Overseas Territories of Region 3, India, Indonesia, the Islamic Republic of Iran, Japan, Pakistan, Papua New Guinea and Sri Lanka, the allocation of the band 415 - 495 kHz to the aeronautical radionavigation service is on a permitted basis. Administrations in these countries shall take all practical steps necessary to ensure that aeronautical radionavigation stations in the band 435 - 495 kHz do not cause interference to reception by coast stations of ship stations transmitting on frequencies designated for ship stations on a world-wide basis (see No. **4237**).
- 469A** *Different category of service:* in Cuba, the United States of America and Mexico the allocation of the band 415 - 435 kHz to the aeronautical radionavigation service is on a primary basis.
- 470** The use of the bands 415 - 495 kHz and 505 - 526.5 kHz (505 - 510 kHz in Region 2) by the maritime mobile service is limited to radiotelegraphy.
- 470A** In Region 2, the use of the band 435 - 495 kHz by the aeronautical radionavigation service is limited to non-directional beacons not employing voice transmission.
- 471** The bands 490 - 495 kHz and 505 - 510 kHz shall be subject to the provisions of No. **3018** until the entry into force of the reduced guardband in accordance with Resolution **210 (Mob-87)**.
- 472** The frequency 500 kHz is an international distress and calling frequency for Morse radiotelegraphy. The conditions for its use are prescribed in Articles **37**, **38**, **N 38** and **60**.
- 472A** In the maritime mobile service, the frequency 490 kHz is, from the date of full implementation of the GMDSS (see Resolution **331 (Mob-87)**), to be used exclusively for the transmission by coast stations of navigational and meteorological warnings and urgent information to ships, by means of narrow-band direct-printing telegraphy. The conditions for use of the frequency 490 kHz are prescribed in Articles **N 38** and **60**, and Resolution **329 (Mob-87)**. In using the band 415 - 495 kHz for the aeronautical radionavigation service, administrations are requested to ensure that no harmful interference is caused to the frequency 490 kHz.

**kHz**  
**505 – 1 606.5**

Allocation to Services		
Region 1	Region 2	Region 3
<b>505 – 526.5</b> MARITIME MOBILE 470 /AERONAUTICAL RADIONAVIGATION/  465 471 474 476	<b>505 – 510</b> MARITIME MOBILE 470 471	<b>505 – 526.5</b> MARITIME MOBILE 470 474 /AERONAUTICAL RADIONAVIGATION/ Aeronautical Mobile Land Mobile  471
	<b>510 – 525</b> MOBILE 474 AERONAUTICAL RADIONAVIGATION	
<b>526.5 – 1 606.5</b> BROADCASTING  478	<b>525 – 535</b> BROADCASTING 477 AERONAUTICAL RADIONAVIGATION	<b>526.5 – 535</b> BROADCASTING Mobile 479
	<b>535 – 1 605</b> BROADCASTING	<b>535 – 1 606.5</b> BROADCASTING

**473** SUP

**Mob-87**

**474** The conditions for the use of frequency 518 kHz by the maritime mobile  
**Mob-87** service are prescribed in Articles 38, N 38 and 60 (see Resolution 324  
(**Mob-87**) and Article 14A).

**475** SUP

**WARC-92**

**476** *Additional allocation:* in the United Kingdom, the band 519.5 -  
526.5 kHz is also allocated to the broadcasting service on a secondary basis  
for the transmission of public utility information.

**477** In Region 2, in the band 525 - 535 kHz the carrier power of broadcasting  
stations shall not exceed 1 kW during the day and 250 W at night.

**478** *Additional allocation:* in Angola, Botswana, Lesotho, Malawi,  
Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe, the  
band 526.5 - 535 kHz is also allocated to the mobile service on a secondary  
basis.

**479** *Additional allocation:* in China, the band 526.5 - 535 kHz is also  
allocated to the aeronautical radionavigation service on a secondary basis.

**kHz**  
**1 605 – 1 800**

Allocation to Services		
Region 1	Region 2	Region 3
	<b>1 605 – 1 625</b>	
<b>1 606.5 – 1 625</b> MARITIME MOBILE 480A /FIXED/ /LAND MOBILE/  483 484	BROADCASTING 480   480A	<b>1 606.5 – 1 800</b> FIXED MOBILE RADIOLOCATION RADIONAVIGATION
<b>1 625 – 1 635</b> RADIOLOCATION 487  485 486	<b>1 625 – 1 705</b> BROADCASTING 480 /FIXED/ /MOBILE/ Radiolocation  480A	
<b>1 635 – 1 800</b> MARITIME MOBILE 480A /FIXED/ /LAND MOBILE/  483 484 488	<b>1 705 – 1 800</b> FIXED MOBILE RADIOLOCATION AERONAUTICAL RADIONAVIGATION	
		482



**480** In Region 2, the use of the band 1 605 - 1 705 kHz by stations of the  
**Orb-88** broadcasting service is subject to the Plan established by the Regional Administrative Radio Conference (Rio de Janeiro, 1988).

In Region 2, in the band 1 625 - 1 705 kHz, the relationship between the broadcasting, fixed and mobile services is shown in No. 419. However, the examination of frequency assignments to stations of the fixed and mobile services in the band 1 625 - 1 705 kHz under No. 1241 shall take account of the allotments appearing in the Plan established by the Regional Administrative Radio Conference (Rio de Janeiro, 1988).

**480A** In the band 1 605 - 1 705 kHz, in cases where a broadcasting station of  
**Mob-87** Region 2 is concerned, the service area of the maritime mobile stations in Region 1 shall be limited to that provided by ground-wave propagation.

**481** SUP  
**WARC-92**

**482** *Additional allocation:* in Australia, Indonesia, New Zealand, the Philippines, Singapore, Sri Lanka and Thailand, the band 1 606.5 - 1 705 kHz is also allocated to the broadcasting service on a secondary basis.

**483** *Different category of service:* in Bulgaria, Hungary, Mongolia, Nigeria, Poland, the German Democratic Republic, Chad, Czechoslovakia and the U.S.S.R, the allocation of the bands 1 606.5 - 1 525 kHz, 1 635 - 1 800 kHz and 2 107 - 2 160 kHz to the fixed and land mobile services is on a primary basis (see No. 425).

**484** Some countries of Region 1 use radiodetermination systems in the bands 1 606.5 - 1 625 kHz, 1 635 - 1 800 kHz, 1 850 - 2 160 kHz, 2 194 - 2 300 kHz, 2 502 - 2 850 kHz and 3 500 - 3 800 kHz. The establishment and operation of such systems are subject to agreement obtained under the procedure set forth in Article 14. The radiated mean power of these stations shall not exceed 50 W.

**485** *Additional allocation:* in Angola, Bulgaria, Hungary, Mongolia, Nigeria, Poland, the German Democratic Republic, Chad, Czechoslovakia and the U.S.S.R., the bands 1 625 - 1 635 kHz, 1 800 - 1 810 kHz and 2 160 - 2 170 kHz are also allocated to the fixed and land mobile services on a primary basis subject to agreement obtained under the procedure set forth in Article 14.

- 486** In Region 1, in the bands 1 625 - 1 635 kHz, 1 800 - 1 810 kHz and 2 160 - 2 170 kHz (except in the countries listed in No. **485** and those listed in No. **499** for the band 2 160 - 2 170 kHz), existing stations in the fixed and mobile, except aeronautical mobile, services (and stations of the aeronautical mobile (OR) service in the band 2 160 - 2 170 kHz) may continue to operate on a primary basis until satisfactory replacement assignments have been found and implemented in accordance with Resolution **38**.
- 487** In Region 1, the establishment and operation of stations of the radiolocation service in the bands 1 625 - 1 635 kHz, 1 800 - 1 810 kHz and 2 160 - 2 170 kHz shall be subject to agreement obtained under the procedure set forth in Article **14** (see also No. **486**). The radiated mean power of radiolocation stations shall not exceed 50 W. Pulse systems are prohibited.
- 488** In the Federal Republic of Germany, Denmark, Finland, Hungary, Ireland, Israel, Jordan, Malta, Norway, Poland, The German Democratic Republic, the United Kingdom, Sweden, Czechoslovakia and the U.S.S.R., administrations may allocate up to 200 kHz to their amateur service in the bands 1 715 - 1 800 kHz and 1 850 - 2 000 kHz. However, when allocating the bands within this range to their amateur service, administrations shall, after prior consultation with administrations of neighbouring countries, take such steps as may be necessary to prevent harmful interference from their amateur service to the fixed and mobile services of other countries. The mean power of any amateur station shall not exceed 10 W.

**kHz**  
**1 800 – 2 065**

Allocation to Services		
Region 1	Region 2	Region 3
<b>1 800 – 1 810</b> RADIOLOCATION 487 485 486	<b>1 800 – 1 850</b> AMATEUR	<b>1 800 – 2 000</b> AMATEUR FIXED MOBILE except aeronautical mobile RADIONAVIGATION Radiolocation
<b>1 810 – 1 850</b> AMATEUR 490 491 492 493		
<b>1 850 – 2 000</b> FIXED MOBILE except aeronautical mobile  484 488 495	<b>1 850 – 2 000</b> AMATEUR FIXED MOBILE except aeronautical mobile RADIOLOCATION RADIONAVIGATION 494	
<b>2 000 – 2 025</b> FIXED MOBILE except aeronautical mobile (R) 484 495	<b>2 000 – 2 065</b> FIXED MOBILE	
<b>2 025 – 2 045</b> FIXED MOBILE except aeronautical mobile (R) Meteorological Aids 496 484 495		

- 489** In Region 3, the Loran system operates either on 1 850 kHz or 1 950 kHz,  
**Mob-87** the bands occupied being 1 825 - 1 875 kHz and 1 925 - 1 975 kHz respectively. Other services to which the band 1 800 - 2 000 kHz is allocated may use any frequency therein on condition that no harmful interference is caused to the Loran system operating on 1 850 kHz or 1 950 kHz.
- 490** *Alternative allocation:* in the Federal Republic of Germany, Angola, Austria, Belgium, Bulgaria, Cameroon, the Congo, Denmark, Egypt, Spain, Ethiopia, France, Greece, Italy, the Lebanon, Luxembourg, Malawi, the Netherlands, Portugal, Syria, the German Democratic Republic, Somalia, Tanzania, Tunisia, Turkey and the U.S.S.R., the band 1 810 - 1 830 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.
- 491** *Additional allocation:* In Saudi Arabia, Iraq, Israel, Libya, Poland, Roumania, Chad, Czechoslovakia, Togo and Yugoslavia, the band 1 810 - 1 830 kHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.
- 492** In Region 1, the use of the band 1 810 - 1 850 kHz by the amateur service is subject to the condition that satisfactory replacement assignments have been found and implemented in accordance with Resolution 38, for frequencies to all existing stations of the fixed and mobile, except aeronautical mobile, services operating in this band (except for the stations of the countries listed in Nos. 490, 491 and 493). On completion of satisfactory transfer, the authorization to use the band 1 810 - 1 830 kHz by the amateur service in countries situated totally or partially north of 40° N shall be given only after consultation with the countries mentioned in Nos. 490 and 491 to define the necessary steps to be taken to prevent harmful interference between amateur stations and stations of other services operating in accordance with Nos. 490 and 491.
- 493** *Alternative allocation:* In Burundi and Lesotho, the band 1 810 - 1 850 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.
- 494** *Alternative allocation:* In Argentina, Bolivia, Chile, Mexico, Paraguay, Peru, Uruguay and Venezuela, the band 1 850 - 2 000 kHz is allocated to the fixed, mobile except aeronautical mobile, radiolocation and radionavigation services on a primary basis.
- 495** In Region 1, in making assignments to stations in the fixed and mobile services in the bands 1 850 - 2 045 kHz, 2 194 - 2 498 kHz, 2 502 - 2 625 kHz and 2 650 - 2 850 kHz, administrations should bear in mind the special requirements of the maritime mobile service.

- 496** In Region 1, the use of the band 2 025 - 2 045 kHz by the meteorological aids service is limited to oceanographic buoy stations.

**kHz**  
**2 045 – 2 501**

Allocation to Services		
Region 1	Region 2	Region 3
<b>2 045 – 2 160</b> MARITIME MOBILE /FIXED/ /LAND MOBILE/ 483 484		
	<b>2 065 – 2 107</b> MARITIME MOBILE 497 498	
	<b>2 107 – 2 170</b> FIXED MOBILE	
<b>2 160 – 2 170</b> RADIOLOCATION 487 485 486 499		
<b>2 170 – 2 173.5</b> MARITIME MOBILE		
<b>2 173.5 – 2 190.5</b> MOBILE (distress and calling) 500 500A 500B 501		
<b>2 190.5 – 2 194</b> MARITIME MOBILE		
<b>2 194 – 2 300</b> FIXED MOBILE except aeronautical mobile (R) 484 495 502	<b>2 194 – 2 300</b> FIXED MOBILE  502	
<b>2 300 – 2 498</b> FIXED MOBILE except aeronautical mobile (R) BROADCASTING 503 495	<b>2 300 – 2 495</b> FIXED MOBILE BROADCASTING 503	
	<b>2 495 – 2 501</b> STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)	
<b>2 498 – 2 501</b> STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)		

- 497**  
**Mob-87** In Region 2, except in Greenland, coast stations and ship stations using radiotelephony in the band 2 065 - 2 107 kHz shall be limited to class R3E or J3E emissions and to a peak envelope power not exceeding 1 kW. Preferably, the following carrier frequencies should be used: 2 065.0 kHz, 2 079.0 kHz, 2 082.5 kHz, 2 086.0 kHz, 2 093.0 kHz, 2 096.5 kHz, 2 100.0 kHz and 2 103.5 kHz. In Argentina, Brazil and Uruguay, the carrier frequencies 2 068.5 kHz and 2 075.5 kHz are also used for this purpose, while the frequencies within the band 2 072 - 2 075.5 kHz are used as provided in No. **4323BD**.
- 498** In Regions 2 and 3, provided no harmful interference is caused to the maritime mobile service, the frequencies between 2 065 kHz and 2 107 kHz may be used by stations of the fixed service communicating only within national borders and whose mean power does not exceed 50 W. In notifying the frequencies, the attention of the International Frequency Registration Board should be drawn to these provisions.
- 499** *Additional allocation:* in Saudi Arabia, Botswana, Ethiopia, Iraq, Lesotho, Libya, Malawi, Somalia, Swaziland and Zambia, the band 2 160 - 2 170 kHz is also allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis. The mean power of stations in these services shall not exceed 50 W.
- 500**  
**Mob-87** The carrier frequency 2 182 kHz is an international distress and calling frequency for radiotelephony. The conditions for the use of the band 2 173.5 - 2 190.5 kHz are prescribed in Articles **37**, **38**, **N 38** and **60**.
- 500A**  
**Mob-87** The frequencies 2 187.5 kHz, 4 207.5 kHz, 6 312 kHz, 8 414.5 kHz, 12 577 kHz and 16 804.5 kHz are international distress frequencies for digital selective calling. The conditions for the use of these frequencies are prescribed in Article **N 38**.
- 500B**  
**Mob-87** The frequencies 2 174.5 kHz, 4 177.5 kHz, 6 268 kHz, 8 376.5 kHz, 12 520 kHz and 16 695 kHz are international distress frequencies for narrow-band direct-printing telegraphy. The conditions for the use of these frequencies are prescribed in Article **N 38**.
- 501**  
**Mob-87** The carrier frequencies 2 182 kHz, 3 023 kHz, 5 680 kHz, 8 364 kHz and the frequencies 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 conditions for the use of the frequencies are prescribed in Articles **38** and **N 38**.

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.

**502**      *Alternative allocation:* in Belgium, Cyprus, Denmark, Spain, France, Greece, Iceland, Italy, Malta, Norway, the Netherlands, Portugal, the United Kingdom, Singapore, Sri Lanka, Sweden, Turkey and Yugoslavia, the band 2 194 - 2 300 kHz is allocated to the maritime mobile service on a primary basis and to the fixed and land mobile services on a permitted basis.

**503**      For the conditions for the use of the bands 2 300 - 2 495 kHz (2 498 kHz in Region 1), 3 200 - 3 400 kHz, 4 750 - 4 995 kHz and 5 005 - 5 060 kHz by the broadcasting service, see Nos. **406** to **410**, **411** and **2666** to **2673**.



**kHz**  
**2 501 – 3 230**

Allocation to Services		
Region 1	Region 2	Region 3
<b>2 501 – 2 502</b>	STANDARD FREQUENCY AND TIME SIGNAL Space Research	
<b>2 502 – 2 625</b> FIXED MOBILE except aeronautical mobile (R)  484 495 504	<b>2 502 – 2 505</b>  STANDARD FREQUENCY AND TIME SIGNAL	
	<b>2 505 – 2 850</b>  FIXED  MOBILE	
<b>2 625 – 2 650</b> MARITIME MOBILE MARITIME RADIONAVIGATION  484		
<b>2 650 – 2 850</b> FIXED MOBILE except aeronautical mobile (R)  484 495		
<b>2 850 – 3 025</b>	AERONAUTICAL MOBILE (R)  501 505	
<b>3 025 – 3 155</b>	AERONAUTICAL MOBILE (OR)	
<b>3 155 – 3 200</b>	FIXED MOBILE except aeronautical mobile (R)  506 507	
<b>3 200 – 3 230</b>	FIXED MOBILE except aeronautical mobile (R) BROADCASTING 503  506	

- 504**      *Alternative allocation:* in Belgium, Cyprus, Denmark, Spain, France, Greece, Iraq, Italy, Malta, Norway, the Netherlands, Portugal, the United Kingdom, Sweden, Turkey and Yugoslavia, the band 2 502 - 2 625 kHz is allocated to the maritime mobile service on a primary basis and to the fixed and land mobile services on a permitted basis.
- 505**      The carrier (reference) frequencies 3 023 kHz and 5 680 kHz may also be  
**Mob-87** used, in accordance with Articles 38 and N 38 by stations of the maritime mobile service engaged in coordinated search and rescue operations.
- 506**      Administrations are urged to authorize the use of the band 3 155 - 3 195 kHz to provide a common worldwide channel for low power wireless hearing aids. Additional channels for these devices may be assigned by administrations in the bands between 3 155 kHz and 3 400 kHz to suit local needs.
- It should be noted that frequencies in the range 3 000 kHz to 4 000 kHz are suitable for hearing aid devices which are designed to operate over short distances within the induction field.
- 507**      *Alternative allocation:* in Belgium, Cameroon, Cyprus, the Ivory Coast, Denmark, Egypt, Spain, France, Greece, Iceland, Italy, Liberia, Malta, Norway, the Netherlands, the United Kingdom, Singapore, Sri Lanka, Sweden, Togo, Turkey and Yugoslavia, the band 3 155 - 3 200 kHz is allocated to the maritime mobile service on a primary basis and to the fixed and land mobile services on a permitted basis.

**kHz**  
**3 230 – 4 063**

Allocation to Services		
Region 1	Region 2	Region 3
<b>3 230 – 3 400</b> FIXED MOBILE except aeronautical mobile BROADCASTING 503 506 508		
<b>3 400 – 3 500</b> AERONAUTICAL MOBILE (R)		
<b>3 500 – 3 800</b> AMATEUR 510 FIXED MOBILE except aeronautical mobile 484	<b>3 500 – 3 750</b> AMATEUR 510 509 511	<b>3 500 – 3 900</b> AMATEUR 510 FIXED MOBILE
<b>3 800 – 3 900</b> FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	<b>3 750 – 4 000</b> AMATEUR 510 FIXED MOBILE except aeronautical mobile (R)	
<b>3 900 – 3 950</b> AERONAUTICAL MOBILE (OR) 513		
<b>3 950 – 4 000</b> FIXED BROADCASTING	511 512 514 515	<b>3 900 – 3 950</b> AERONAUTICAL MOBILE BROADCASTING
		<b>3 950 – 4 000</b> FIXED BROADCASTING 516
<b>4 000 – 4 063</b> FIXED MARITIME MOBILE 517 516		

- 508**        *Additional allocation:* in Australia, Brazil, Canada, the United States, Japan, Mexico, New Zealand, Peru and Uruguay, the band 3 230 - 3 400 kHz is also allocated to the radiolocation service on a secondary basis.
- 509**        *Additional allocation:* in Honduras, Mexico, Peru and Venezuela, the band 3 500 - 3 750 kHz is also allocated to the fixed and mobile services on a primary basis.
- 510**        For the use of the bands allocated to the amateur service at 3.5 MHz, 7.0 MHz, 10.1 MHz, 14.0 MHz, 18.068 MHz, 21.0 MHz, 24.89 MHz and 144 MHz in the event of natural disasters, see Resolution **640**.
- 511**        *Additional allocation:* in Brazil, the band 3 700 - 4 000 kHz is also allocated to the radiolocation service on a primary basis.
- 512**        *Alternative allocation:* in Argentina, Bolivia, Chile, Ecuador, Paraguay, Peru and Uruguay, the band 3 750 - 4 000 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.
- 513**        *Alternative allocation:* in Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe, the band 3 900 - 3 950 kHz is allocated to the broadcasting service on a primary basis. The use of this band by the broadcasting service is subject to agreement obtained under the procedure set forth in Article 14 with neighbouring countries having services operating in accordance with the Table.
- 514**        *Additional allocation:* in Canada, the band 3 950 - 4 000 kHz is also allocated to the broadcasting service on a primary basis. The power of broadcasting stations operating in this band shall not exceed that necessary for a national service within the frontier of this country and shall not cause harmful interference to other services operating in accordance with the Table.
- 515**        *Additional allocation:* in Greenland, the band 3 950 - 4 000 kHz is also allocated to the broadcasting service on a primary basis. The power of the broadcasting stations operating in this band shall not exceed that necessary for a national service and shall in no case exceed 5 kW.
- 516**        In Region 3, the stations of those services to which the band 3 995 - 4 005 kHz is allocated may transmit standard frequency and time signals.
- 517**        The use of the band 4 000 - 4 063 kHz by the maritime mobile service is limited to ship stations using radiotelephony (see No. **4374** and Appendix 16).
- Mob-87**

**kHz**  
**4 063 – 5 450**

Allocation to Services		
Region 1	Region 2	Region 3
<b>4 063 – 4 438</b>	MARITIME MOBILE 500A 500B 520 520A 520B 518 519	
<b>4 438 – 4 650</b> FIXED MOBILE except aeronautical mobile (R)		<b>4 438 – 4 650</b> FIXED MOBILE except aeronautical mobile
<b>4 650 – 4 700</b>	AERONAUTICAL MOBILE (R)	
<b>4 700 – 4 750</b>	AERONAUTICAL MOBILE (OR)	
<b>4 750 – 4 850</b> FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING 503	<b>4 750 – 4 850</b> FIXED MOBILE except aeronautical mobile (R) BROADCASTING 503	<b>4 750 – 4 850</b> FIXED BROADCASTING 503 Land Mobile
<b>4 850 – 4 995</b>	FIXED LAND MOBILE BROADCASTING 503	
<b>4 995 – 5 003</b>	STANDARD FREQUENCY AND TIME SIGNAL (5 000 kHz)	
<b>5 003 – 5 005</b>	STANDARD FREQUENCY AND TIME SIGNAL Space Research	
<b>5 005 – 5 060</b>	FIXED BROADCASTING 503	
<b>5 060 – 5 250</b>	FIXED Mobile except aeronautical mobile 521	
<b>5 250 – 5 450</b>	FIXED MOBILE except aeronautical mobile	

- 518** In Afghanistan, Argentina, Australia, Botswana, Burkina Faso, China, India, Mali, Niger, Central African Republic, Chad and the U.S.S.R., in the bands 4 063 - 4 123 kHz, 4 130 - 4 133 kHz and 4 408 - 4 438 kHz, stations of limited power in the fixed service which are situated at least 600 km from the coast may operate on condition that harmful interference is not caused to the maritime mobile service.
- 519** On condition that harmful interference is not caused to the maritime mobile service, the frequencies in the bands 4 063 - 4 123 kHz and 4 130 - 4 438 kHz may be used exceptionally by stations in the fixed service communicating only within the boundary of the country in which they are located with a mean power not exceeding 50 W.
- 520** The conditions for the use of the carrier frequencies 4 125 kHz and **Mob-87** 6 215 kHz are prescribed in Articles 37, 38, N 38 and 60.
- 520A** The frequency 4 209.5 kHz is used exclusively for the transmission by **Mob-87** coast stations of meteorological and navigational warnings and urgent information to ships by means of narrow-band direct-printing techniques (see Resolution 332 (**Mob-87**)).
- 520B** The frequencies 4 210 kHz, 6 314 kHz, 8 416.5 kHz, 12 579 kHz, **Mob-87** 16 806.5 kHz, 19 680.5 kHz, 22 376 kHz and 26 100.5 kHz are the international frequencies for the transmission of Maritime Safety Information (MSI) (see Resolution 333 (**Mob-87**) and Appendix 31).
- 521** *Different category of service:* In the U.S.S.R., the allocation of the band 5 130 - 5 250 kHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. 425).

. kHz  
**5 450 – 7 100**

Allocation to Services		
Region 1	Region 2	Region 3
<b>5 450 – 5 480</b> FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	<b>5 450 – 5 480</b> AERONAUTICAL MOBILE (R)	<b>5 450 – 5 480</b> FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE
<b>5 480 – 5 680</b>	AERONAUTICAL MOBILE (R) 501 505	
<b>5 680 – 5 730</b>	AERONAUTICAL MOBILE (OR) 501 505	
<b>5 730 – 5 900</b> FIXED LAND MOBILE	<b>5 730 – 5 900</b> FIXED MOBILE except aeronautical mobile (R)	<b>5 730 – 5 900</b> FIXED Mobile except aeronautical mobile (R)
<b>5 900 – 5 950</b>	BROADCASTING 521A 521B 521C	
<b>5 950 – 6 200</b>	BROADCASTING	
<b>6 200 – 6 525</b>	MARITIME MOBILE 500A 500B 520 520B 522	
<b>6 525 – 6 685</b>	AERONAUTICAL MOBILE (R)	
<b>6 685 – 6 765</b>	AERONAUTICAL MOBILE (OR)	
<b>6 765 – 7 000</b>	FIXED Land Mobile 525 524	
<b>7 000 – 7 100</b>	AMATEUR 510 AMATEUR-SATELLITE 526 527	

**521A** The use of the bands 5 900 – 5 950 kHz, 7 300 - 7 350 kHz, 9 400 -  
**WARC-92** 9 500 kHz, 11 600 - 11 650 kHz, 12 050 - 12 100 kHz, 13 570 - 13 600 kHz,  
 13 800 - 13 870 kHz, 15 600 - 15 800 kHz, 17 480 - 17 550 kHz and 18 900 -  
 19 020 kHz by the broadcasting service is limited to single-sideband  
 emissions with the characteristics specified in Appendix 45 to the Radio  
 Regulations.

**521B** The use of the bands 5 900 - 5 950 kHz, 7 300 - 7 350 kHz, 9 400 -  
**WARC-92** 9 500 kHz, 11 600 - 11 650 kHz, 12 050 - 12 100 kHz, 13 570 - 13 600 kHz,  
 13 800 - 13 870 kHz, 15 600 - 15 800 kHz, 17 480 - 17 550 kHz and 18 900 -  
 19 020 kHz by the broadcasting service shall be subject to the planning  
 procedures to be drawn up by a competent world administrative radio  
 conference.

**521C** The band 5 900 - 5 950 kHz is allocated, until 1 April 2007, to the fixed  
**WARC-92** service on a primary basis, as well as to the following services: in Region 1 to  
 the land mobile service on a primary basis, in Region 2 to the mobile except  
 aeronautical mobile (R) service on a primary basis, and in Region 3 to the  
 mobile except aeronautical mobile (R) service on a secondary basis, subject  
 to application of the procedure referred to in Resolution 21 (WARC-92).  
 After 1 April 2007, frequencies in this band may be used by stations in the  
 above-mentioned services, communicating only within the boundary of the  
 country in which they are located, on the condition that harmful interference  
 is not caused to the broadcasting service. When using frequencies for these  
 services, administrations are urged to use the minimum power required and to  
 take account of the seasonal use of frequencies by the broadcasting service  
 published in accordance with the Radio Regulations.

**522** On condition that harmful interference is not caused to the maritime  
 mobile service, the bands 6 200 - 6 213.5 kHz and 6 220.5 - 6 525 kHz may be  
 used exceptionally by stations in the fixed service, communicating only  
 within the boundary of the country in which they are located, with a mean  
 power not exceeding 50 W. At the time of notification of these frequencies,  
 the attention of the International Frequency Registration Board will be drawn  
 to the above conditions.

**523** SUP  
**Mob-83**

**524** The band 6 765 - 6 795 kHz (centre frequency 6 780 kHz) is designated  
 for industrial, scientific and medical (ISM) applications. 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 relevant CCIR Recommendations.

**525**        *Different category of service:* in Mongolia and the U.S.S.R., the allocation of the band 6 765 - 7 000 kHz to the land mobile service is on a primary basis (see No. 425).

**526**        *Additional allocation:* in Angola, Iraq, Kenya, Rwanda, Somalia and Togo, the band 7 000 - 7 050 kHz is also allocated to the fixed service on a primary basis.

**527**        *Alternative allocation:* in Egypt, Ethiopia, Guinea, Libya, Madagascar, Malawi and Tanzania, the band 7 000 - 7 050 kHz is allocated to the fixed service on a primary basis.

**kHz**  
**7 100 – 10 003**

Allocation to Services		
Region 1	Region 2	Region 3
<b>7 100 – 7 300</b> BROADCASTING	<b>7 100 – 7 300</b> AMATEUR 510 528	<b>7 100 – 7 300</b> BROADCASTING
<b>7 300 – 7 350</b>	BROADCASTING 521A 521B 528A	
<b>7 350 – 8 100</b>	FIXED Land Mobile 529	
<b>8 100 – 8 195</b>	FIXED MARITIME MOBILE	
<b>8 195 – 8 815</b>	MARITIME MOBILE 500A 500B 520B 529A 501	
<b>8 815 – 8 965</b>	AERONAUTICAL MOBILE (R)	
<b>8 965 – 9 040</b>	AERONAUTICAL MOBILE (OR)	
<b>9 040 – 9 400</b>	FIXED	
<b>9 400 – 9 500</b>	BROADCASTING 521A 521B 529B	
<b>9 500 – 9 900</b>	BROADCASTING 530 531	
<b>9 900 – 9 995</b>	FIXED	
<b>9 995 – 10 003</b>	STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz) 501	

**528** The use of the band 7 100 - 7 300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3.

**528A** The band 7 300 - 7 350 kHz is allocated, until 1 April 2007, to the fixed  
**WARC-92** service on a primary basis and to the land mobile service on a secondary basis, subject to application of the procedure referred to in Resolution **21 (WARC-92)**. After 1 April 2007, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

**529** In Region 3, the stations of those services to which the band 7 995 - 8 005 kHz is allocated may transmit standard frequency and time signals.

**529A** The conditions for the use of the carrier frequencies 8 291 kHz,  
**Mob-87** 12 290 kHz and 16 420 kHz are prescribed in Articles **38**, **N 38** and **60**.

**529B** The bands 9 400 - 9 500 kHz, 11 600 - 11 650 kHz, 12 050 - 12 100 kHz,  
**WARC-92** 15 600 - 15 800 kHz, 17 480 - 17 550 kHz and 18 900 - 19 020 kHz are allocated to the fixed service on a primary basis until 1 April 2007, subject to application of the procedure referred to in Resolution **21 (WARC-92)**. After 1 April 2007, frequencies in these bands may be used by stations in the fixed service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies in the fixed service, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

**530** On condition that harmful interference is not caused to the broadcasting service, frequencies in the bands 9 775 - 9 900 kHz, 11 650 - 11 700 kHz and 11 975 - 12 050 kHz may be used by stations in the fixed service communicating only within the boundary of the country in which they are located, each station using a total radiated power not exceeding 24 dBW.

- 531** The bands 9 775 - 9 900 kHz, 11 650 - 11 700 kHz, 11 975 - 12 050 kHz,  
**HFBC-87** 13 600 - 13 800 kHz, 15 450 - 15 600 kHz, 17 550 - 17 700 kHz and 21 750 - 21 850 kHz are allocated to the fixed service on a primary basis subject to the procedure described in Resolution 8. The use of these bands by the broadcasting service shall be subject to provisions established by the World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (see Resolution 508). The provisions of Resolution 512 (HFBC-87) also apply. Within these bands, the date of commencement of operations in the broadcasting service on a planned channel shall not be earlier than the date of completion of satisfactory transfer, according to the procedures described in Resolution 8, of all assignments to stations in the fixed service operating in accordance with the Table and other provisions of the Radio Regulations, which are recorded in the Master Register and which may be affected by broadcasting operations on that channel.

**kHz**  
**10 003 – 13 410**

Allocation to Services		
Region 1	Region 2	Region 3
10 003 – 10 005	STANDARD FREQUENCY AND TIME SIGNAL Space Research 50I	
10 005 – 10 100	AERONAUTICAL MOBILE (R) 50I	
10 100 – 10 150	FIXED Amateur 510	
10 150 – 11 175	FIXED Mobile except aeronautical mobile (R)	
11 175 – 11 275	AERONAUTICAL MOBILE (OR)	
11 275 – 11 400	AERONAUTICAL MOBILE (R)	
11 400 – 11 600	FIXED	
11 600 – 11 650	BROADCASTING 521A 521B 529B	
11 650 – 12 050	BROADCASTING 530 53I	
12 050 – 12 100	BROADCASTING 521A 521B 529B	
12 100 – 12 230	FIXED	
12 230 – 13 200	MARITIME MOBILE 500A 500B 520B 529A	
13 200 – 13 260	AERONAUTICAL MOBILE (OR)	
13 260 – 13 360	AERONAUTICAL MOBILE (R)	
13 360 – 13 410	FIXED RADIO ASTRONOMY 533	

**532** SUP

**WARC-92**

**533** In making assignments to stations of other services to which the band 13 360 - 13 410 kHz 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. **343** and **344** and Article **36**).

**kHz**  
**13 410 – 15 600**

Allocation to Services		
Region 1	Region 2	Region 3
<b>13 410 – 13 570</b>	FIXED Mobile except aeronautical mobile (R) 534	
<b>13 570 – 13 600</b>	BROADCASTING 521A 521B 534A	
<b>13 600 – 13 800</b>	BROADCASTING 531	
<b>13 800 – 13 870</b>	BROADCASTING 521A 521B 534A	
<b>13 870 – 14 000</b>	FIXED Mobile except aeronautical mobile (R)	
<b>14 000 – 14 250</b>	AMATEUR 510 AMATEUR-SATELLITE	
<b>14 250 – 14 350</b>	AMATEUR 510 535	
<b>14 350 – 14 990</b>	FIXED Mobile except aeronautical mobile (R)	
<b>14 990 – 15 005</b>	STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz) 501	
<b>15 005 – 15 010</b>	STANDARD FREQUENCY AND TIME SIGNAL Space Research	
<b>15 010 – 15 100</b>	AERONAUTICAL MOBILE (OR)	
<b>15 100 – 15 600</b>	BROADCASTING 531	

- 534** The band 13 553 - 13 567 kHz (centre frequency 13 560 kHz) is designated for industrial, scientific and medical (ISM) applications. Radio-communication services operating within this band must accept harmful interference which may be caused by these applications. ISM equipment operating in this band is subject to the provisions of No. 1815.
- 534A** The bands 13 570 - 13 600 kHz and 13 800 - 13 870 kHz are allocated, **WARC-92** until 1 April 2007, to the fixed service on a primary basis and to the mobile except aeronautical mobile (R) service on a secondary basis, subject to application of the procedure referred to in Resolution 21 (**WARC-92**). After 1 April 2007, frequencies in these bands may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies in these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.
- 535** *Additional allocation:* in Afghanistan, China, the Ivory Coast, Iran and the U.S.S.R., the band 14 250 - 14 350 kHz is also allocated to the fixed service on a primary basis. Stations of the fixed service shall not use a radiated power exceeding 24 dBW.



**kHz**  
**15 600 – 19 800**

Allocation to Services		
Region 1	Region 2	Region 3
<b>15 600 – 15 800</b>	BROADCASTING 521A 521B 529B	
<b>15 800 – 16 360</b>	FIXED 536	
<b>16 360 – 17 410</b>	MARITIME MOBILE 500A 500B 520B 529A	
<b>17 410 – 17 480</b>	FIXED	
<b>17 480 – 17 550</b>	BROADCASTING 521A 521B 529B	
<b>17 550 – 17 900</b>	BROADCASTING 531	
<b>17 900 – 17 970</b>	AERONAUTICAL MOBILE (R)	
<b>17 970 – 18 030</b>	AERONAUTICAL MOBILE (OR)	
<b>18 030 – 18 052</b>	FIXED	
<b>18 052 – 18 068</b>	FIXED Space Research	
<b>18 068 – 18 168</b>	AMATEUR 510 AMATEUR-SATELLITE 538	
<b>18 168 – 18 780</b>	FIXED Mobile except aeronautical mobile	
<b>18 780 – 18 900</b>	MARITIME MOBILE	
<b>18 900 – 19 020</b>	BROADCASTING 521A 521B 529B	
<b>19 020 – 19 680</b>	FIXED	
<b>19 680 – 19 800</b>	MARITIME MOBILE 520B	

**536** In Region 3, the stations of those services to which the band 15 995 - 16 005 kHz is allocated may transmit standard frequency and time signals.

**537** SUP

WARC-92

**538** *Additional allocation:* in the U.S.S.R., the band 18 068 - 18 168 kHz is also allocated to the fixed service on a primary basis for use within the boundary of the U.S.S.R., with a peak envelope power not exceeding 1 kW.

**kHz**  
**19 800 – 23 350**

Allocation to Services		
Region 1	Region 2	Region 3
<b>19 800 – 19 990</b>	FIXED	
<b>19 990 – 19 995</b>	STANDARD FREQUENCY AND TIME SIGNAL Space Research 501	
<b>19 995 – 20 010</b>	STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz) 501	
<b>20 010 – 21 000</b>	FIXED Mobile	
<b>21 000 – 21 450</b>	AMATEUR 510 AMATEUR-SATELLITE	
<b>21 450 – 21 850</b>	BROADCASTING 531	
<b>21 850 – 21 870</b>	FIXED 539	
<b>21 870 – 21 924</b>	AERONAUTICAL FIXED	
<b>21 924 – 22 000</b>	AERONAUTICAL MOBILE (R)	
<b>22 000 – 22 855</b>	MARITIME MOBILE 520B 540	
<b>22 855 – 23 000</b>	FIXED 540	
<b>23 000 – 23 200</b>	FIXED Mobile except aeronautical mobile (R) 540	
<b>23 200 – 23 350</b>	AERONAUTICAL FIXED AERONAUTICAL MOBILE (OR)	

- 539**        *Alternative allocation:* in Bulgaria, Hungary, Mongolia, Poland, Czechoslovakia and the U.S.S.R., the band 21 850 - 21 870 kHz is allocated to the aeronautical fixed and the aeronautical mobile (R) services on a primary basis.
- 540**        *Additional allocation:* in Nigeria, the band 22 720 - 23 200 kHz is also allocated to the meteorological aids service (radiosondes) on a primary basis.

**kHz**  
**23 350 – 27 500**

Allocation to Services		
Region 1	Region 2	Region 3
<b>23 350 – 24 000</b>	FIXED MOBILE except aeronautical mobile 541 542	
<b>24 000 – 24 890</b>	FIXED LAND MOBILE 542	
<b>24 890 – 24 990</b>	AMATEUR 510 AMATEUR-SATELLITE 542	
<b>24 990 – 25 005</b>	STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz)	
<b>25 005 – 25 010</b>	STANDARD FREQUENCY AND TIME SIGNAL Space Research	
<b>25 010 – 25 070</b>	FIXED MOBILE except aeronautical mobile	
<b>25 070 – 25 210</b>	MARITIME MOBILE	
<b>25 210 – 25 550</b>	FIXED MOBILE except aeronautical mobile	
<b>25 550 – 25 670</b>	RADIO ASTRONOMY 545	
<b>25 670 – 26 100</b>	BROADCASTING	
<b>26 100 – 26 175</b>	MARITIME MOBILE 520B	
<b>26 175 – 27 500</b>	FIXED MOBILE except aeronautical mobile 546	

- 541** The use of the band 23 350 - 24 000 kHz by the maritime mobile service is limited to inter-ship radiotelegraphy.
- 542** *Additional allocation:* in Kenya, the band 23 600 - 24 900 kHz is also allocated to the meteorological aids service (radiosondes) on a primary basis.
- 543 and 544** SUP  
WARC-92
- 545** The band 25 550 - 25 600 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis subject to the procedure described in Resolution 8. The use of this band by the radio astronomy service shall be subject to the completion of the satisfactory transfer of all assignments to stations in the fixed and mobile, except aeronautical mobile, services operating in this band and recorded in the Master Register, in accordance with the procedure described in Resolution 8. The band 25 600 - 25 670 kHz is allocated to the broadcasting service on a primary basis, subject to provisions to be established by the world administrative radio conference for the planning of HF bands allocated to the broadcasting service (see Resolution 508). After completion of all the above-mentioned provisions, all emissions capable of causing harmful interference to the radio astronomy service in the band 25 550 - 25 670 kHz shall be avoided. The use of passive sensors by other services will also be authorized.
- 546** The band 26 957 - 27 283 kHz (centre frequency 27 120 kHz) is designated for industrial, scientific and medical (ISM) applications. Radiocommunication services operating within this band must accept harmful interference which may be caused by these applications. ISM equipment operating in this band is subject to the provisions of No. 1815.

**MHz**  
**27.5 – 40.98**

Allocation to Services		
Region 1	Region 2	Region 3
<b>27.5 – 28</b>	METEOROLOGICAL AIDS FIXED MOBILE	
<b>28 – 29.7</b>	AMATEUR AMATEUR-SATELLITE	
<b>29.7 – 30.005</b>	FIXED MOBILE	
<b>30.005 – 30.01</b>	SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH	
<b>30.01 – 37.5</b>	FIXED MOBILE	
<b>37.5 – 38.25</b>	FIXED MOBILE Radio Astronomy 547	
<b>38.25 – 39.986</b>	FIXED MOBILE	
<b>39.986 – 40.02</b>	FIXED MOBILE Space Research	
<b>40.02 – 40.98</b>	FIXED MOBILE 548	

- 547** In making assignments to stations of other services to which the band 37.5 - 38.25 MHz 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. **343** and **344** and Article **36**).
- 548** The band 40.66 - 40.70 MHz (centre frequency 40.68 MHz) is designated for industrial, scientific and medical (ISM) applications. Radiocommunication services operating within this band must accept harmful interference which may be caused by these applications. ISM equipment operating in this band is subject to the provisions of No. **1815**.



MHz  
40.98 – 68

Allocation to Services		
Region 1	Region 2	Region 3
40.98 – 41.015	FIXED MOBILE Space Research 549 550	
41.015 – 44	FIXED MOBILE 549 550	
44 – 47	FIXED MOBILE 552	
47 – 68 BROADCASTING       553 554 555 559 561	47 – 50 FIXED MOBILE	47 – 50 FIXED MOBILE BROADCASTING
	50 – 54 AMATEUR 556 557 558 560	
	54 – 68 BROADCASTING Fixed Mobile 562	54 – 68 FIXED MOBILE BROADCASTING

- 549**            *Additional allocation:* in Botswana, Burundi, Lesotho, Malawi, Namibia, Rwanda, South Africa, Swaziland, Zaire, Zambia and Zimbabwe the band 41 - 44 MHz is also allocated to the aeronautical radionavigation service on a primary basis.
- 550**            *Additional allocation:* in Iran and Japan, the band 41 - 44 MHz is also allocated to the radiolocation service on a secondary basis.
- 551**            SUP  
**WARC-92**
- 552**            *Additional allocation:* in Australia and New Zealand, the band 44 - 47 MHz is also allocated to the broadcasting service on a primary basis.
- 553**            *Additional allocation:* in Hungary, Kenya, Mongolia, Czechoslovakia and the U.S.S.R., the bands 47 - 48.5 MHz and 56.5 - 58 MHz are also allocated to the fixed and land mobile services on a secondary basis.
- 554**            *Additional allocation:* in Albania, the Federal Republic of Germany, Austria, Belgium, Bulgaria, Côte d'Ivoire, Denmark, Spain, Finland, France, Gabon, Greece, Ireland, Israel, Italy, Jordan, Lebanon, Libya, Liechtenstein, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Nigeria, Norway, the Netherlands, Poland, the German Democratic Republic, the United Kingdom, Senegal, Sweden, Switzerland, Swaziland, Syria, Togo, Tunisia, Turkey and Yugoslavia, the band 47 - 68 MHz and in Romania, the band 47 - 58 MHz, are also allocated to the land mobile service on a permitted basis. However, stations of the land mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations of countries other than those mentioned in connection with the band.
- 555**            *Additional allocation:* in Angola, Cameroon, the Congo, Madagascar, Mozambique, Somalia, Sudan, Tanzania and Chad, the band 47 - 68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a permitted basis.
- 556**            *Alternative allocation:* in New Zealand, the band 50 - 51 MHz is allocated to the fixed, mobile and broadcasting services on a primary basis; the band 53 - 54 MHz is allocated to the fixed and mobile services on a primary basis.
- 557**            *Alternative allocation:* in Afghanistan, Bangladesh, Brunei, India, Indonesia, Iran, Malaysia, Pakistan, Singapore and Thailand, the band 50 - 54 MHz is allocated to the fixed, mobile and broadcasting services on a primary basis.

- 558**      *Additional allocation:* in Australia, China and the Democratic People's Republic of Korea, the band 50 - 54 MHz is also allocated to the broadcasting service on a primary basis.
- 559**      *Alternative allocation:* in Botswana, Burundi, Lesotho, Malawi, Namibia, Rwanda, South Africa, Swaziland, Zaire, Zambia and Zimbabwe, the band 50 - 54 MHz is allocated to the amateur service on a primary basis.
- 560**      *Additional allocation:* in New Zealand, the band 51 - 53 MHz is also allocated to the fixed and mobile services on a primary basis.
- 561**      *Additional allocation:* in Botswana, Burundi, Lesotho, Malawi, Mali, Namibia, Rwanda, South Africa, Swaziland, Zaire, Zambia and Zimbabwe, the band 54 - 68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.
- 562**      *Different category of service:* in the French Overseas Departments in Region 2, Guyana, Jamaica and Mexico, the allocation of the band 54 - 68 MHz to the fixed and mobile services is on a primary basis (see No. 425).

**MHz**  
**68 – 75.2**

Allocation to Services									
Region 1			Region 2			Region 3			
<b>68 – 74.8</b> FIXED MOBILE except aeronautical mobile			<b>68 – 72</b> BROADCASTING Fixed Mobile 563			<b>68 – 74.8</b> FIXED MOBILE      566 568 571			
			<b>72 – 73</b> FIXED MOBILE						
			<b>73 – 74.6</b> RADIO ASTRONOMY 570						
			<b>74.6 – 74.8</b> FIXED MOBILE						
564 565 567 568 571									
<b>74.8 – 75.2</b>									
AERONAUTICAL RADIONAVIGATION 572 572A									

**563** *Different category of service:* in Cuba, the French Overseas Departments in Region 2, Guyana, Jamaica and Mexico, the allocation of the band 68 - 72 MHz to the fixed and mobile services is on a primary basis (see No. 425).

**564** *Alternative allocation:* in Bulgaria, Hungary, Poland, Roumania and Czechoslovakia, the band 68 - 73 MHz is allocated to the broadcasting service on a primary basis and used in accordance with the decisions in the Final Acts of the Special Regional Conference, Geneva, 1960.

**565** *Alternative allocation:* in Mongolia and the U.S.S.R., the bands 68 - 73 MHz and 76 - 87.5 MHz are allocated to the broadcasting service on a primary basis. The services to which these bands are allocated in other countries and the broadcasting service in Mongolia and the U.S.S.R. are subject to agreements with the neighbouring countries concerned.

**566** *Additional allocation:* in Australia, China, the Republic of Korea, the Philippines, the Democratic People's Republic of Korea and Western Samoa, the band 68 - 74 MHz is also allocated to the broadcasting service on a primary basis.

**567** *Additional allocation:* in Bulgaria, Hungary, Mongolia, Poland, Czechoslovakia and the U.S.S.R., the band 73 - 74 MHz is also allocated to the broadcasting service on a primary basis. The use of this band by the broadcasting service in Bulgaria, Hungary, Mongolia, Poland, Czechoslovakia and the U.S.S.R. is subject to agreement obtained under the procedure set forth in Article 14.

**568** In making assignments to stations of other services to which the band 73 - 74.6 MHz 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. 343 and 344 and Article 36).

**569** SUP  
**WARC-92**

**570** *Additional allocation:* in Colombia, Costa Rica, Cuba, El Salvador, Ecuador, Guatemala, Guyana, Honduras and Nicaragua, the band 73 - 74.6 MHz is also allocated to the fixed and mobile services on a secondary basis.

**571** *Additional allocation:* in Bulgaria, China, Mongolia, Poland, Czechoslovakia and the U.S.S.R., the bands 74.6 - 74.8 MHz and 75.2 - 75.4 MHz are also allocated to the aeronautical radionavigation service, on a primary basis, for ground-based transmitters only.

**572** The frequency 75 MHz is assigned to marker beacons. Administrations  
**WARC-92** shall refrain from assigning frequencies close to the limits of the guardband to stations of other services which, because of their power or geographical position, might cause harmful interference or otherwise place a constraint on marker beacons.

Every effort should be made to improve further the characteristics of airborne receivers and to limit the power of transmitting stations close to the limits 74.8 MHz and 75.2 MHz.

**572A** *Additional allocation:* in Afghanistan, the Federal Republic of Germany,  
**Mob-87** Austria, Belgium, Cyprus, Denmark, Egypt, Spain, France, Greece, Israel, Italy, Japan, Jordan, Lebanon, Malta, Morocco, Monaco, Norway, the Netherlands, Portugal, the United Kingdom, Sweden, Switzerland, Syria and Turkey, the band 74.8 - 75.2 MHz is also allocated to the mobile service on a secondary basis subject to agreement obtained under the procedure set forth in Article 14. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of Article 14.

**MHz**  
**75.2 – 137**

Allocation to Services		
Region 1	Region 2	Region 3
<b>75.2 – 87.5</b> FIXED MOBILE except aeronautical mobile  565 571 575 578	<b>75.2 – 75.4</b> FIXED MOBILE 571	
	<b>75.4 – 76</b> FIXED MOBILE	<b>75.4 – 87</b> FIXED MOBILE
	<b>76 – 88</b> BROADCASTING Fixed Mobile 576	573 574 577 579
		<b>87 – 100</b> FIXED MOBILE BROADCASTING
<b>87.5 – 100</b> BROADCASTING  581	<b>88 – 100</b> BROADCASTING	580
<b>100 – 108</b>	BROADCASTING 584 585 586 587 588 589	
<b>108 – 117.975</b>	AERONAUTICAL RADIONAVIGATION 590A	
<b>117.975 – 136</b>	AERONAUTICAL MOBILE (R) 501 591 592 593 594	
<b>136 – 137</b>	AERONAUTICAL MOBILE (R) Fixed Mobile except aeronautical mobile (R) 591 594A 595	

- 573        *Additional allocation:* in Western Samoa, the band 75.4 - 87 MHz is also allocated to the broadcasting service on a primary basis.
- 574        *Additional allocation:* in China, the Republic of Korea, Japan, the Philippines and the Democratic People's Republic of Korea, the band 76 - 87 MHz is also allocated to the broadcasting service on a primary basis.
- 575        *Additional allocation:* in Bulgaria, Hungary, Poland, Roumania and Czechoslovakia, the band 76 - 87.5 MHz is also allocated to the broadcasting service on a primary basis and used in accordance with the decisions contained in the Final Acts of the Special Regional Conference, Geneva, 1960.
- 576        *Different category of service:* in the United States, the French Overseas Departments in Region 2, Guyana, Jamaica, Mexico and Paraguay, the allocation of the band 76 - 88 MHz to the fixed and mobile services is on a primary basis (see No. 425).
- 577        In Region 3 (except in the Republic of Korea, India, Japan, Malaysia, the Philippines, Singapore and Thailand), the band 79.75 - 80.25 MHz is also allocated to the radio astronomy service on a primary basis. In making assignments to stations of other services, administrations are urged to take all practicable steps in the band 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. 343 and 344 and Article 36).
- 578        *Alternative allocation:* in Albania, the band 81 - 87.5 MHz is allocated to the broadcasting service on a primary basis and used in accordance with the decisions contained in the Final Acts of the Special Regional Conference, Geneva, 1960.
- 579        *Additional allocation:* in Afghanistan and Australia, the band 85 - 87 MHz is also allocated to the broadcasting service on a primary basis. The introduction of the broadcasting service in these countries is subject to special agreements between the administrations concerned.
- 580        *Alternative allocation:* in New Zealand, the band 87 - 88 MHz is allocated to the land mobile service on a primary basis.
- 581        *Additional allocation:* in the Federal Republic of Germany, France, WARC-92 Ireland, Israel, Italy, Liechtenstein, Monaco, the United Kingdom and Switzerland, the band 87.5 - 88 MHz is also allocated to the land mobile service on a permitted basis and subject to agreement obtained under the procedure set forth in Article 14.



**582** SUP  
**WARC-92**

**583** SUP  
**Mob-87**

**584** Broadcasting stations in the band 100 - 108 MHz in Region 1 shall be established and operated in accordance with an agreement and associated plan for the band 87.5 - 108 MHz to be drawn up by a regional broadcasting conference (see Resolution 510). Prior to the date of entry into force of this agreement, broadcasting stations may be introduced subject to agreement between administrations concerned, on the understanding that such an operation shall in no case prejudice the establishment of the plan.

**585** *Additional allocation:* in China, the Republic of Korea, the Philippines and Singapore, the band 100 - 108 MHz is also allocated to the fixed and mobile services on a permitted basis.

**586** *Alternative allocation:* in New Zealand, the band 100 - 108 MHz is allocated to the land mobile service on a primary basis and to the broadcasting service on a secondary basis.

**587** *Additional allocation:* in Bulgaria, Israel, Kenya, Lebanon, Mongolia, the  
**WARC-92** German Democratic Republic, the United Kingdom, Somalia, Syria, Czechoslovakia, Turkey and the USSR, the band 104 - 108 MHz is also allocated to the mobile, except aeronautical mobile (R), service on a permitted basis until 31 December 1995 and, thereafter, on a secondary basis.

**588** *Additional allocation:* in Finland and Yugoslavia, the band 104 - 108 MHz is also allocated to the fixed service on a permitted basis, until 31 December 1995. The effective radiated power of any station shall not exceed 25 W.

**589** *Additional allocation:* in France, Romania, Sweden and Yugoslavia, the  
**Mob-87** band 104 - 108 MHz is also allocated to the mobile, except aeronautical mobile (R), service on a permitted basis until 31 December 1995.

**590** SUP  
**Mob-87**

**590A** *Additional allocation:* in Afghanistan, the Federal Republic of Germany,  
**Mob-87** Austria, Cyprus, Denmark, Egypt, Spain, France, Israel, Italy, Japan, Jordan, Lebanon, Malta, Morocco, Monaco, Norway, Pakistan, Portugal, the United Kingdom, Sweden, Switzerland, Syria and Turkey, the band 108 - 111.975 MHz is also allocated to the mobile service on a secondary basis

subject to agreement obtained under the procedure set forth in Article 14. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of Article 14.

**591** Subject to agreement obtained under the procedure set forth in Article 14, the band 117.975 - 137 MHz is also allocated to the aeronautical mobile-satellite (R) service on a secondary basis and on the condition that harmful interference is not caused to the aeronautical mobile (R) service.

**592** The bands 121.45 - 121.55 MHz 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 radiobeacons transmitting at 121.5 MHz and 243 MHz (see Nos. 3259 and 3267).

**593** In the band 117.975 - 136 MHz, 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 under the conditions laid down in Articles 38 and N 38 for distress and safety purposes with stations of the aeronautical mobile service.

**594** *Additional allocation:* in Angola, Bulgaria, Hungary, Iran, Iraq, Japan, Mongolia, Mozambique, Papua New Guinea, Poland, the German Democratic Republic, Roumania, Czechoslovakia and the U.S.S.R., the band 132 - 136 MHz is also allocated to the aeronautical mobile (OR) service on a permitted basis.

**594A** *Different category of service:* as from 1 January 1990, in Bulgaria, Poland, the German Democratic Republic, Romania, Czechoslovakia, Turkey and the USSR, the allocation of the band 136 - 137 MHz to the aeronautical mobile (OR) service is on a permitted basis.

**595** Until 1 January 1990, the band 136 - 137 MHz is also 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 shall only occur after that date. After 1 January 1990, the band 136 - 137 MHz will also be allocated to the above-mentioned space radiocommunication services on a secondary basis (see Resolution 408 (Mob-87)).

**MHz**  
**137 – 138**

Allocation to Services		
Region 1	Region 2	Region 3
<b>137 – 137.025</b>	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 599B SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 596 597 598 599 599A	
<b>137.025 – 137.175</b>	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-Satellite (space-to-Earth) 599B Mobile except aeronautical mobile (R) 596 597 598 599 599A	
<b>137.175 – 137.825</b>	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 599B SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 596 597 598 599 599A	
<b>137.825 – 138</b>	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-Satellite (space-to-Earth) 599B Mobile except aeronautical mobile (R) 596 597 598 599 599A	

- 596** *Different category of service:* in Afghanistan, Saudi Arabia, Bahrain, WARC-92 Bangladesh, Brunei, Darussalam, China, Cuba, the United Arab Emirates, India, Indonesia, Iran, Iraq, Malaysia, Oman, Pakistan, Philippines, Qatar, Singapore, Sri Lanka, Thailand, Yemen and Yugoslavia, the band 137 - 138 MHz is allocated to the fixed and mobile, except aeronautical mobile (R), services is on a primary basis (see No. 425).
- 597** *Different category of service:* in Israel and Jordan, the allocation of the WARC-92 band 137 - 138 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. 425).
- 598** *Different category of service:* in Austria, Bulgaria, Egypt, Finland, WARC-92 France, Greece, Hungary, the Lebanon, Mongolia, Poland, the German Democratic Republic, Romania, Syria, Czechoslovakia and the U.S.S.R., the allocation of the band 137 - 138 MHz to the aeronautical mobile (OR) service is on a primary basis (see No. 425).
- 599** *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.
- 599A** The use of the band 137 - 138 MHz by the mobile-satellite service is WARC-92 subject to the application of the coordination and notification procedures set forth in Resolution 46 (WARC-92). However, coordination of a space station of the mobile-satellite service with respect to terrestrial services is required only if the power flux-density produced by the station exceeds  $-125 \text{ dB(W/m}^2\text{/4 kHz)}$  at the Earth's surface. The above power flux-density limit shall apply until such time as a competent world administrative radio conference revises it. In making assignments to the space stations in the mobile-satellite service in the above band, administrations shall take all practicable steps to protect the radio astronomy service in the 150.05 - 153 MHz band from harmful interference from unwanted emissions.
- 599B** The use of the bands 137 - 138 MHz, 148 - 149.9 MHz and 400.15 - WARC-92 401 MHz by the mobile-satellite service and the band 149.9 - 150.05 MHz by the land mobile-satellite service is limited to non-geostationary-satellite systems.

**MHz**  
**138 – 148**

Allocation to Services		
Region 1	Region 2	Region 3
<b>138 – 143.6</b> AERONAUTICAL MOBILE (OR)  600 601 602 604	<b>138 – 143.6</b> FIXED MOBILE /RADIOLOCATION/ Space Research (space-to-Earth)	<b>138 – 143.6</b> FIXED MOBILE Space Research (space-to-Earth)  599 603
<b>143.6 – 143.65</b> AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space-to-Earth)  601 602 604	<b>143.6 – 143.65</b> FIXED MOBILE SPACE RESEARCH (space-to-Earth) /RADIOLOCATION/	<b>143.6 – 143.65</b> FIXED MOBILE SPACE RESEARCH (space-to-Earth)  599 603
<b>143.65 – 144</b> AERONAUTICAL MOBILE (OR)  600 601 602 604	<b>143.65 – 144</b> FIXED MOBILE /RADIOLOCATION/ Space Research (space-to-Earth)	<b>143.65 – 144</b> FIXED MOBILE Space Research (space-to-Earth)  599 603
<b>144 – 146</b> AMATEUR 510 AMATEUR-SATELLITE 605 606		
<b>146 – 148</b> FIXED MOBILE except aeronautical mobile (R)	<b>146 – 148</b> AMATEUR  607	<b>146 – 148</b> AMATEUR FIXED MOBILE  607

- 600**      *Additional allocation:* in the Federal Republic of Germany, Austria, Belgium, France, Israel, Italy, Liechtenstein, Luxembourg, the United Kingdom, Sweden, Switzerland and Czechoslovakia, 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.
- 601**      *Additional allocation:* in the Federal Republic of Germany, Saudi Arabia, Austria, Bahrain, Belgium, Denmark, The United Arab Emirates, Spain, Finland, Greece, Ireland, Israel, Kenya, Kuwait, Liechtenstein, Luxembourg, Mali, Malta, Norway, the Netherlands, Qatar, the United Kingdom, Somalia, Sweden, Switzerland, Tanzania, Tunisia, Turkey and Yugoslavia, the band 138 - 144 MHz is also allocated to the maritime mobile and land mobile services on a primary basis.
- 602**      *Alternative allocation:* in Angola, Botswana, Burundi, Cameroon, the Central African Republic, the Congo, Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Lesotho, Liberia, Libya, Malawi, Mozambique, Namibia, Nigeria, Oman, Rwanda, Sierra Leone, South Africa, Swaziland, Chad, Togo, Zaire, Zambia and Zimbabwe, the band 138 - 144 MHz is allocated to the fixed and mobile services on a primary basis.
- 603**      *Additional allocation:* in China, the band 138 - 144 MHz is also allocated to the radiolocation service on a primary basis.
- 604**      *Additional allocation:* in Ethiopia, Finland, Kenya, Malta, Somalia, **WARC-92** Sudan, Tanzania and Yugoslavia, the band 138 - 144 MHz is also allocated to the fixed service on a primary basis.
- 605**      *Additional allocation:* in Singapore, the band 144 - 145 MHz is also allocated to the fixed and mobile services on a primary basis. Such use is limited to systems in operation on or before 1 January 1980, which in any case shall cease by 31 December 1995.
- 606**      *Additional allocation:* in China, the band 144 - 146 MHz is also allocated to the aeronautical mobile (OR) service on a secondary basis.
- 607**      *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.

**MHz**  
**148 – 156.8375**

Allocation to Services		
Region 1	Region 2	Region 3
<b>148 – 149.9</b> <b>FIXED</b> <b>MOBILE except</b> <b>aeronautical mobile (R)</b> <b>MOBILE-SATELLITE</b> <b>(Earth-to-space) 599B</b>  <b>608 608A 608C</b>	<b>148 – 149.9</b>  <b>FIXED</b> <b>MOBILE</b> <b>MOBILE-SATELLITE (Earth-to-space) 599B</b>   <b>608 608A 608C</b>	
<b>149.9 – 150.05</b>	<b>LAND MOBILE-SATELLITE (Earth-to-space)</b> <b>599B 609B</b> <b>RADIONAVIGATION-SATELLITE</b>  <b>608B 609 609A</b>	
<b>150.05 – 153</b> <b>FIXED</b> <b>MOBILE except</b> <b>aeronautical mobile</b> <b>RADIO ASTRONOMY</b>  <b>610</b>	<b>150.05 – 156.7625</b>  <b>FIXED</b> <b>MOBILE</b>	
<b>153 – 154</b> <b>FIXED</b> <b>MOBILE except</b> <b>aeronautical mobile (R)</b> <b>Meteorological Aids</b>		
<b>154 – 156.7625</b> <b>FIXED</b> <b>MOBILE except</b> <b>aeronautical mobile (R)</b>  <b>613 613A</b>		
<b>156.7625 – 156.8375</b>	<b>MARITIME MOBILE (distress and calling)</b>  <b>501 613</b>	

**608** Subject to agreement obtained under the procedure set forth in Article 14, the band 148 - 149.9 MHz may be used by the space operation service (Earth-to-space). The bandwidth of an individual transmission shall not exceed  $\pm 25$  kHz.

**608A** The use of the band 148 - 149.9 MHz by the mobile-satellite service is  
**WARC-92** subject to the application of the coordination and notification procedures set forth in Resolution 46 (WARC-92). The mobile-satellite service shall not constrain the development and use of fixed, mobile and space operation services in the band 148 - 149.9 MHz. Mobile earth stations in the mobile-satellite service shall not produce a power flux-density in excess of  $-150$  dB(W/m<sup>2</sup>/4 kHz) outside national boundaries.

**608B** The use of the band 149.9 - 150.05 MHz by the land mobile-satellite  
**WARC-92** service is subject to the application of the coordination and notification procedures set forth in Resolution 46 (WARC-92). The land mobile-satellite service shall not constrain the development and use of the radionavigation-satellite service in the band 149.9 - 150.05 MHz. Land mobile earth stations of the land mobile-satellite service shall not produce power flux-density in excess of  $-150$  dB(W/m<sup>2</sup>/4 kHz) outside national boundaries.

**608C** Stations of the mobile-satellite service in the band 148 - 149.9 MHz shall  
**WARC-92** not cause harmful interference to, or claim protection from stations of the fixed or mobile services in the following countries: Algeria, the Federal Republic of Germany, Saudi Arabia, Australia, Austria, Bangladesh, Belarus, Belgium, Brunei Darussalam, Bulgaria, Cameroon, Canada, Cyprus, Colombia, Congo, Cuba, Denmark, Egypt, the United Arab Emirates, Ecuador, Spain, Ethiopia, the Russian Federation, Finland, France, Ghana, Greece, Honduras, Hungary, Iran, Ireland, Iceland, Israel, Italy, Japan, Jordan, Kenya, Libya, Liechtenstein, Luxembourg, Malaysia, Mali, Malta, Mauritania, Mozambique, Namibia, Norway, New Zealand, Oman, Pakistan, Panama, Papua New Guinea, the Netherlands, Philippines, Poland, Portugal, Qatar, Syria, Romania, the United Kingdom, Singapore, Sri Lanka, Sweden, Switzerland, Suriname, Swaziland, Tanzania, Chad, the Czech and Slovak Federal Republic, Thailand, Tunisia, Turkey, Ukraine, Yemen and Yugoslavia that operate in accordance with the Table of Frequency Allocations.

**609** Emissions of the radionavigation-satellite service in the 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.

**609A** Recognizing that the use of the band 149.9 - 150.05 MHz by the fixed  
**Mob-87** and mobile services may cause harmful interference to the radionavigation-satellite service, administrations are urged not to authorize such use in application of No. 342.



**609B** In the band 149.9 - 150.05 MHz, the allocation to the land mobile-  
**WARC-92** satellite service shall be on a secondary basis until 1 January 1997.

**610** In making assignments to stations of other services to which the band  
 150.05 - 153 MHz is allocated, administrations are urged to take all  
 practicable steps to protect the radio astronomy service from harmful inter-  
 ference. Emissions from space or airborne stations can be particularly serious  
 sources of interference to the radio astronomy service (see Nos. 343 and 344  
 and Article 36).

**611** *Additional allocation:* in Australia and India, the band 150.05 - 153 MHz  
 is also allocated to the radio astronomy service on a primary basis.

**612** SUP  
**WARC-92**

**613** The frequency 156.8 MHz is the international distress, safety and calling  
**Mob-87** frequency for the maritime mobile VHF radiotelephone service. The con-  
 ditions for the use of this frequency are contained in Articles 38 and N 38.

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 the administration (see  
 Articles 38, N 38 and 60).

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 frequency 156.8 MHz and the frequency bands in which  
 priority is given to the maritime mobile service may be used for radio-  
 communications on inland waterways subject to agreement between inter-  
 ested and affected administrations and taking into account current frequency  
 usage and existing agreements.

**613A** In the maritime mobile VHF service the frequency 156.525 MHz is to be  
**Mob-87** used exclusively for digital selective calling for distress, safety and calling  
 (see Resolution 323 (**Mob-87**)). The conditions for the use of this frequency  
 are prescribed in Articles 38, N 38 and 60 and in Appendix 18.

**MHz**  
**156.8375 – 235**

Allocation to Services		
Region 1	Region 2	Region 3
<b>156.8375 – 174</b> FIXED MOBILE except aeronautical mobile  613 613B 615	<b>156.8375 – 174</b> FIXED MOBILE  613 616 617 618	
<b>174 – 223</b> BROADCASTING      621 623 628 629	<b>174 – 216</b> BROADCASTING Fixed Mobile 620	<b>174 – 223</b> FIXED MOBILE BROADCASTING    619 624 625 626 630
	<b>216 – 220</b> FIXED MARITIME MOBILE Radiolocation 627 627A	
	<b>220 – 225</b> AMATEUR FIXED MOBILE Radiolocation 627	
<b>223 – 230</b> BROADCASTING Fixed Mobile  622 628 629 631 632 635	<b>225 – 235</b> FIXED MOBILE	<b>223 – 230</b> FIXED MOBILE BROADCASTING AERONAUTICAL RADIONAVIGATION Radiolocation  636 637
<b>230 – 235</b> FIXED MOBILE  629 632 635 638 639		<b>230 – 235</b> FIXED MOBILE AERONAUTICAL RADIONAVIGATION  637

**613B** *Additional allocation:* in Ireland and in the United Kingdom, the band  
**Mob-87** 161.3875 - 161.4125 MHz is also allocated to the maritime radionavigation  
 service on a primary basis, subject to agreement obtained under the procedure  
 set forth in Article 14.

**614** SUP  
**WARC-92**

**615** *Alternative allocation:* in Morocco, the band 162 - 174 MHz is allocated  
 to the broadcasting service on a primary basis. The use of this band shall be  
 subject to agreement with administrations having services, operating or  
 planned, in accordance with the Table which are likely to be affected. Sta-  
 tions in existence on 1 January 1981, with their technical characteristics as of  
 that date, are not affected by such agreement.

**616** *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 14.

**617** *Additional allocation:* in Afghanistan, China and Pakistan, the band 167 -  
 174 MHz is also allocated to the broadcasting service on a primary basis. The  
 introduction of the broadcasting service into this band shall be subject to  
 agreement with the neighbouring countries in Region 3 whose services are  
 likely to be affected.

**618** *Additional allocation:* in Japan, the band 170 - 174 MHz is also allocated  
 to the broadcasting service on a primary basis.

**619** *Additional allocation:* in China, the band 174 - 184 MHz is also allocated  
 to the space research (space-to-Earth) and the space operation (space-to-  
 Earth) services on a primary basis subject to agreement obtained under the  
 procedure set forth in Article 14. These services shall not cause harmful inter-  
 ference to, or claim protection from, existing or planned broadcasting  
 stations.

**620** *Different category of service:* in Mexico, the allocation of the band 174 -  
 216 MHz to the fixed and mobile services is on a primary basis (see No. 425).

**621** *Additional allocation:* in the Federal Republic of Germany, Austria,  
**WARC-92** Belgium, Denmark, Spain, Finland, France, Israel, Italy, Liechtenstein,  
 Malta, Monaco, Norway, the Netherlands, the United Kingdom, Sweden, and  
 Switzerland, the band 174 - 223 MHz is also allocated to the land mobile  
 service on a permitted basis. However, the stations of the land mobile service  
 shall not cause harmful interference to, or claim protection from, broad-  
 casting stations, existing or planned, in countries other than those listed in  
 this footnote.

- 622**            *Different category of service:* In the Federal Republic of Germany, WARC-92 Austria, Belgium, Denmark, Spain, Finland, France, Israel, Italy, Liechtenstein, Luxembourg, Malta, Monaco, Norway, the Netherlands, Portugal, the United Kingdom, Sweden and Switzerland, the band 223 - 230 MHz is allocated to the land mobile service on a permitted basis (see No. 425). However, the stations of the land mobile service shall not cause harmful interference to, or claim protection from, broadcasting stations, existing or planned, in countries other than those listed in this footnote.
- 623**            *Additional allocation:* in the Congo, Ethiopia, Gambia, Guinea, Kenya, Libya, Malawi, Mali, Uganda, Senegal, Sierra Leone, Somalia, Tanzania and Zimbabwe, the band 174 - 223 MHz is also allocated to the fixed and mobile services on a secondary basis.
- 624**            *Additional allocation:* in Bangladesh, India, Pakistan and the Philippines, the band 200 - 216 MHz is also allocated to the aeronautical radionavigation service on a primary basis.
- 625**            *Additional allocation:* in Australia and Papua New Guinea, the bands 204 - 208 MHz and 222 - 223 MHz are also allocated to the aeronautical radionavigation service on a primary basis.
- 626**            *Additional allocation:* In China, India and Thailand, the band 216 - 223 MHz is also allocated to the aeronautical radionavigation service on a primary basis and to the radiolocation service on a secondary basis.
- 627**            In Region 2, no new stations in the radiolocation service may be authorized in the band 216 - 225 MHz. Stations authorized prior to 1 January WARC-92 1990 may continue to operate on a secondary basis.
- 627A**           *Additional allocation:* in Canada, the band 216 - 220 MHz is also allocated to the land mobile service on a primary basis. Mob-87
- 628**            *Additional allocation:* in Somalia, the band 216 - 225 MHz is also allocated to the aeronautical radionavigation service on a primary basis, subject to not causing harmful interference to existing or planned broadcasting services in other countries.
- 629**            *Additional allocation:* in Oman, the United Kingdom and Turkey, the band 216 - 235 MHz is also allocated to the radiolocation service on a secondary basis.
- 630**            *Additional allocation:* in Japan, the band 222 - 223 MHz is also allocated to the aeronautical radionavigation service on a primary basis and to the radiolocation service on a secondary basis.

- 631**      *Different category of service:* in Spain and Portugal, the band 223 - 230 MHz is allocated to the fixed service on a permitted basis (see No. 425). Stations of this service shall not cause harmful interference to, or claim protection from, broadcasting stations of other countries, whether existing or planned, that operate in accordance with the Table.
- 632**      *Additional allocation:* in Saudi Arabia, Bahrain, the United Arab Emirates, Israel, Jordan, Oman, Qatar and Syria, the band 223 - 235 MHz is also allocated to the aeronautical radionavigation service on a permitted basis.
- 633 and 634**      SUP  
WARC-92
- 635**      *Alternative allocation:* in Botswana, Lesotho, Malawi, Mozambique, WARC-92 Namibia, South Africa, Swaziland, Zambia and Zimbabwe, the bands 223 - 238 MHz and 246 - 254 MHz are allocated to the broadcasting service on a primary basis, subject to agreement obtained under the procedure set forth in Article 14.
- 636**      *Alternative allocation:* in New Zealand, Western Samoa and the Niue and Cook Islands, the band 225 - 230 MHz is allocated to the fixed, mobile and aeronautical radionavigation services on a primary basis.
- 637**      *Additional allocation:* in China, the band 225 - 235 MHz is also allocated to the radio astronomy service on a secondary basis.
- 638**      *Additional allocation:* in Nigeria, the band 230 - 235 MHz is also allocated to the aeronautical radionavigation service on a primary basis, subject to agreement obtained under the procedure set forth in Article 14.
- 639**      *Additional allocation:* in Yugoslavia, the band 230 - 235 MHz is also allocated to the aeronautical radionavigation service on a primary basis, until 1 January 1995. The use of this band by the aeronautical radionavigation service in Yugoslavia is restricted to the stations in operation by 1 January 1980.

**MHz**  
**235 – 335.4**

Allocation to Services		
Region 1	Region 2	Region 3
<b>235 – 267</b>	FIXED MOBILE 501 592 635 640 641 642	
<b>267 – 272</b>	FIXED MOBILE Space Operation (space-to-Earth) 641 643	
<b>272 – 273</b>	SPACE OPERATION (space-to-Earth) FIXED MOBILE 641	
<b>273 – 312</b>	FIXED MOBILE 641	
<b>312 – 315</b>	FIXED MOBILE Mobile-Satellite (Earth-to-space) 641 641A	
<b>315 – 322</b>	FIXED MOBILE 641	
<b>322 – 328.6</b>	FIXED MOBILE RADIO ASTRONOMY 644	
<b>328.6 – 335.4</b>	AERONAUTICAL RADIONAVIGATION 645 645A	

- 640** *Additional allocation:* in New Zealand, the band 235 - 239.5 MHz is also allocated to the aeronautical radionavigation service on a primary basis.
- 641** Subject to agreement obtained under the procedure set forth in Article 14, the bands 235 - 322 MHz and 335.4 - 399.9 MHz may be used by the mobile-satellite service, on condition that stations in this service do not cause harmful interference to those of other services operating or planned to be operated in accordance with the Table.
- 641A** The bands 312 - 315 MHz (Earth-to-space) and 387 - 390 MHz (space-to-  
**WARC-92** Earth) in the mobile-satellite service may also be used by non-geostationary-satellite systems. Such use is subject to the application of the coordination and notification procedures set forth in Resolution 46 (WARC-92).
- 642** The frequency 243 MHz is the frequency in this band for use by survival  
**Mob-87** craft stations and equipment used for survival purposes (see Article 38).
- 643** Subject to agreement obtained under the procedure set forth in Article 14, the band 267 - 272 MHz may be used by administrations for space telemetry in their countries on a primary basis.
- 644** In making assignments to stations of other services to which the band 322 - 328.6 MHz 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. 343 and 344 and Article 36).
- 645** Limited to Instrument Landing Systems (glide path).
- 645A** *Additional allocation:* in Afghanistan, the Federal Republic of Germany,  
**Mob-87** Austria, Belgium, Cyprus, Denmark, Egypt, Spain, France, Greece, Israel, Italy, Japan, Jordan, Malta, Morocco, Monaco, Norway, the Netherlands, Portugal, the United Kingdom, Sweden, Switzerland, Syria and Turkey, the band 328.6 - 335.4 MHz is also allocated to the mobile service on a secondary basis subject to agreement obtained under the procedure set forth in Article 14. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of Article 14.

**MHz**  
**335.4 – 402**

Allocation to Services		
Region 1	Region 2	Region 3
<b>335.4 – 387</b>	FIXED MOBILE 641	
<b>387 – 390</b>	FIXED MOBILE Mobile-Satellite (space-to-Earth) 641 641A	
<b>390 – 399.9</b>	FIXED MOBILE 641	
<b>399.9 – 400.05</b>	RADIONAVIGATION-SATELLITE 609 645B	
<b>400.05 – 400.15</b>	STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) 646 647	
<b>400.15 – 401</b>	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 599B SPACE RESEARCH (space-to-Earth) 647A Space Operation (space-to-Earth) 647 647B	
<b>401 – 402</b>	METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) Earth Exploration-Satellite (Earth-to-space) Fixed Meteorological-Satellite (Earth-to-space) Mobile except aeronautical mobile	



**645B** Recognizing that the use of the band 399.9 - 400.05 MHz by the fixed  
**Mob-87** and mobile services may cause harmful interference to the radionavigation satellite service, administrations are urged not to authorize such use in application of No. 342.

**646** Emissions shall be confined in a band of  $\pm 25$  kHz about the standard frequency 400.1 MHz.

**647** *Additional allocation:* in Afghanistan, Saudi Arabia, Bahrain, Bulgaria,  
**WARC-92** Colombia, Costa Rica, Cuba, Egypt, the United Arab Emirates, Ecuador, Hungary, Indonesia, Iran, Iraq, Israel, Jordan, Kuwait, Liberia, Malaysia, Nigeria, Oman, Pakistan, the Philippines, Poland, Qatar, Syria, the German Democratic Republic, Romania, Singapore, Somalia, Sri Lanka, Czechoslovakia, Thailand, the U.S.S.R. and Yugoslavia, the band 400.05 - 401 MHz is also allocated to the fixed and mobile services on a primary basis.

**647A** The band 400.15 - 401 MHz is also allocated to the space research service  
**WARC-92** in the space-to-space direction for communications with manned space vehicles. In this application, the space research service will not be regarded as a safety service.

**647B** The use of the band 400.15 - 401 MHz by the mobile-satellite service is  
**WARC-92** subject to the application of the coordination and notification procedures set forth in Resolution 46 (WARC-92). However, coordination of a space station of the mobile-satellite service with respect to terrestrial services is required only if the power flux-density produced by the station exceeds  $-125$  dB(W/m<sup>2</sup>/4 kHz) at the Earth's surface. The above power flux-density limit shall apply until such time as a competent world administrative radio conference revises it. In making assignments to the space stations in the mobile-satellite service in the above band, administrations shall take all practicable steps to protect the radio astronomy service in the band 406.1 - 410 MHz from harmful interference from unwanted emissions.

**MHz**  
**402 – 430**

Allocation to Services		
Region 1	Region 2	Region 3
<b>402 – 403</b>	METEOROLOGICAL AIDS Earth Exploration-Satellite (Earth-to-space) Fixed Meteorological-Satellite (Earth-to-space) Mobile except aeronautical mobile	
<b>403 – 406</b>	METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile 648	
<b>406 – 406.1</b>	MOBILE-SATELLITE (Earth-to-space) 649 649A	
<b>406.1 – 410</b>	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 648 650	
<b>410 – 420</b>	FIXED MOBILE except aeronautical mobile Space Research (space-to-space) 651A	
<b>420 – 430</b>	FIXED MOBILE except aeronautical mobile Radiolocation 651 652 653	

- 648** *Additional allocation:* in Canada, the bands 405.5 - 406 MHz and 406.1 - 410 MHz are also allocated to the mobile-satellite, except aeronautical mobile-satellite, service (Earth-to-space), on a primary basis, subject to agreement obtained under the procedure set forth in Article 14.
- 649** The use of the band 406 - 406.1 MHz by the mobile-satellite service is  
**Mob-87** limited to low power satellite emergency position-indicating radiobeacons (see also Articles 38 and N 38).
- 649A** Any emission capable of causing harmful interference to the authorized  
**Mob-87** uses of the band 406 - 406.1 MHz is prohibited.
- 650** In making assignments to stations of other services to which the band 406.1 - 410 MHz 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. 343 and 344 and Article 36).
- 651** *Different category of service:* in Australia, the United States, India, Japan and the United Kingdom, the allocation of the bands 420 - 430 MHz and 440 - 450 MHz to the radiolocation service is on a primary basis (see No. 425).
- 651A** Use of the band 410 - 420 MHz by the space research service is limited to  
**WARC-92** communications within 5 km of an orbiting, manned space vehicle.
- 652** *Additional allocation:* in Australia, the United States, Jamaica and the Philippines, the bands 420 - 430 MHz and 440 - 450 MHz are also allocated to the amateur service on a secondary basis.
- 653** *Additional allocation:* in China, India, the German Democratic Republic, the United Kingdom and the U.S.S.R., the band 420 - 460 MHz is also allocated to the aeronautical radionavigation service (radio altimeters) on a secondary basis.

**MHz**  
**430 – 470**

Allocation to Services		
Region 1	Region 2	Region 3
<b>430 – 440</b> AMATEUR RADIOLOCATION 653 654 655 656 657 658 659 661 662 663 664 665	<b>430 – 440</b> RADIOLOCATION Amateur  653 658 659 660 660A 663 664	
<b>440 – 450</b>	FIXED MOBILE except aeronautical mobile Radiolocation 651 652 653 666 667 668	
<b>450 – 460</b>	FIXED MOBILE 653 668 669 670	
<b>460 – 470</b>	FIXED MOBILE Meteorological-Satellite (space-to-Earth) 669 670 671 672	

- 654**      *Different category of service:* in France, the allocation of the band 430 - 434 MHz to the amateur service is on a secondary basis (see No. 424).
- 655**      *Different category of service:* in Denmark, Libya, Norway and Sweden, the allocation of the bands 430 - 432 MHz and 438 - 440 MHz to the radio-location service is on a secondary basis (see No. 424).
- 656**      *Alternative allocation:* in Denmark, Norway and Sweden, the bands 430 - 432 MHz and 438 - 440 MHz are allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.
- 657**      *Additional allocation:* in Finland, Libya and Yugoslavia, the bands 430 - 432 MHz and 438 - 440 MHz are also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.
- 658**      *Additional allocation:* in Afghanistan, Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burkina Faso, Burundi, Egypt, the United Arab Emirates, Ecuador, Ethiopia, Greece, Guinea, India, Indonesia, Iran, Iraq, Israel, Italy, Jordan, Kenya, Kuwait, the Lebanon, Libya, Liechtenstein, Malaysia, Malta, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syria, Singapore, Somalia, Switzerland, Tanzania, Thailand, Togo, Turkey and Yemen, the band 430 - 440 MHz is also allocated to the fixed service on a primary basis and the bands 430 - 435 MHz and 438 - 440 MHz are also allocated to the mobile, except aeronautical mobile, service on a primary basis.
- 659**      *Additional allocation:* in Angola, Bulgaria, Cameroon, the Congo, WARC-92 Djibouti, Gabon, Hungary, Malawi, Mali, Mongolia, Niger, Pakistan, Poland, the German Democratic Republic, Dem. People's Rep. of Korea, Romania, Rwanda, Chad, Czechoslovakia and the U.S.S.R., the band 430 - 440 MHz is also allocated to the fixed service on a primary basis.
- 660**      *Different category of service:* in Argentina, Colombia, Costa Rica, Cuba, Guyana, Honduras, Panama and Venezuela, the allocation of the band 430 - 440 MHz to the amateur service is on a primary basis (see No. 425).
- 660A**      *Additional allocation:* in Mexico, the bands 430 - 435 MHz and 438 - Mob-87 440 MHz are also allocated on a primary basis to the land mobile service, subject to agreement obtained under the procedure set forth in Article 14.

- 661** In Region 1, except in the countries mentioned in No. 662, the band 433.05 - 434.79 MHz (centre frequency 433.92 MHz) is designated for industrial, scientific and medical (ISM) applications. 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 relevant CCIR Recommendations.
- 662** In the Federal Republic of Germany, Austria, Liechtenstein, Portugal, Switzerland and Yugoslavia, the band 433.05 - 434.79 MHz (centre frequency 433.92 MHz) is designated for industrial, scientific and medical (ISM) applications. Radiocommunication services of these countries operating within this band must accept harmful interference which may be caused by these applications. ISM equipment operating in this band is subject to the provisions of No. 1815.
- 663** *Additional allocation:* in the French Overseas Departments in Region 2  
**WARC-92** and India, the band 433.75 - 434.25 MHz is also allocated to the space operation service (Earth-to-space) on a primary basis. In France and in Brazil, the band is allocated to the same service on a secondary basis.
- 664** In the bands 435 - 438 MHz, 1 260 - 1 270 MHz, 2 400 - 2 450 MHz, 3 400 - 3 410 MHz (in Regions 2 and 3 only) and 5 650 - 5 670 MHz, the amateur-satellite service may operate subject to not causing harmful interference to other services operating in accordance with the Table (see No. 435). Administrations authorizing such use shall ensure that any harmful interference caused by emissions from a station in the amateur-satellite service is immediately eliminated in accordance with the provisions of No. 2741. The use of the bands 1 260 - 1 270 MHz and 5 650 - 5 670 MHz by the amateur-satellite service is limited to the Earth-to-space direction.
- 665** *Additional allocation:* in Austria, the band 438 - 440 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.
- 666** *Additional allocation:* in Canada, New Zealand and Papua New Guinea, the band 440 - 450 MHz is also allocated to the amateur service on a secondary basis.
- 667** *Different category of service:* in Canada, the allocation of the band 440 - 450 MHz to the radiolocation service is on a primary basis (see No. 425).

**668** Subject to agreement obtained under the procedure set forth in Article 14, the band 449.75 - 450.25 MHz may be used for the space operation service (Earth-to-space) and the space research service (Earth-to-space).

**669** In the maritime mobile service, the frequencies 457.525 MHz, 457.550 MHz, 457.575 MHz, 467.525 MHz, 467.550 MHz and 467.575 MHz may be used by on-board communication stations. The use of these frequencies in territorial waters may be subject to the national regulations of the administration concerned. The characteristics of the equipment used shall conform to those specified in Appendix 20.

**670** In the territorial waters of Canada, the United States and the Philippines, the preferred frequencies for use by on-board communication stations shall be 457.525 MHz, 457.550 MHz, 457.575 MHz and 457.600 MHz paired, respectively, with 467.750 MHz, 467.775 MHz, 467.800 MHz and 467.825 MHz. The characteristics of the equipment used shall conform to those specified in Appendix 20.

**671** Earth exploration-satellite service applications, other than the meteorological-satellite service, may also be used in the bands 460 - 470 MHz and 1 690 - 1 710 MHz for space-to-Earth transmissions subject to not causing harmful interference to stations operating in accordance with the Table.

**672** *Different category of service:* in Afghanistan, Bulgaria, China, Cuba, **WARC-92** Japan, Mongolia, Poland, Czechoslovakia and the U.S.S.R., the allocation of the band 460 - 470 MHz to the meteorological-satellite service (space-to-Earth) is on a primary basis (see No. 425) and is subject to agreement obtained under the procedure set forth in Article 14.

**MHz**  
**470 – 890**

Allocation to Services												
Region 1.				Region 2				Region 3				
<b>470 – 790</b> <b>BROADCASTING</b>  Fixed Mobile  674 675				<b>470 – 512</b> <b>BROADCASTING</b> Fixed Mobile  674 675				<b>470 – 585</b> <b>FIXED</b> <b>MOBILE</b> <b>BROADCASTING</b>  673 677 679				
				<b>512 – 608</b> <b>BROADCASTING</b>  678				<b>585 – 610</b> <b>FIXED</b> <b>MOBILE</b> <b>BROADCASTING</b> <b>RADIONAVIGATION</b>  688 689 690				
				<b>608 – 614</b> <b>RADIO ASTRONOMY</b> Mobile-Satellite except aeronautical mobile- satellite (Earth-to-space)				<b>610 – 890</b> <b>FIXED</b> <b>MOBILE</b> <b>BROADCASTING</b>				
				<b>614 – 806</b> <b>BROADCASTING</b> Fixed Mobile  675 692 692A 693								
				<b>806 – 890</b> <b>FIXED</b> <b>MOBILE</b> <b>BROADCASTING</b>								
<b>676 677A 683 684</b> <b>685 686 686A 687</b> <b>689 693 694</b>												
<b>790 – 862</b> <b>FIXED</b> <b>BROADCASTING</b>  694 695 695A 696 697 700B 702												
<b>862 – 890</b> <b>FIXED</b> <b>MOBILE</b> except aeronautical mobile <b>BROADCASTING 703</b>  700B 704								677 688 689 690 691 693 701				



- 673** *Additional allocation:* in China, the band 470 - 485 MHz is also allocated to the space research (space-to-Earth) and the space operation (space-to-Earth) services on a primary basis subject to agreement obtained under the procedure set forth in Article 14, subject to not causing harmful interference to existing and planned broadcasting stations.
- 674** *Different category of service:* in Mexico and Venezuela, the allocation of  
**Mob-87** the band 470 - 512 MHz to the fixed and mobile services, and in Argentina and Uruguay to the mobile service, is on a primary basis (see No. 425), subject to agreement obtained under the procedure set forth in Article 14.
- 675** *Different category of service:* in Chile, Colombia, Cuba, Ecuador, the  
**WARC-92** United States, Guyana, Honduras, Jamaica, Mexico and Panama, the allocation of the bands 470 - 512 MHz and 614 - 806 MHz to the fixed and mobile services is on a primary basis (see No. 425), subject to agreement obtained under the procedure set forth in Article 14.
- 676** *Additional allocation:* in Burundi, Cameroon, the Congo, Ethiopia, Israel,  
**WARC-92** Kenya, Lebanon, Libya, Malawi, Senegal, Sudan, Syria, and Yemen, the band 470 - 582 MHz is also allocated to the fixed service on a secondary basis.
- 677** *Alternative allocation:* in Pakistan, the bands 470 - 582 MHz and 610 - 890 MHz are allocated to the broadcasting service on a primary basis.
- 677A** *Additional allocation:* in the Federal Republic of Germany, Austria,  
**Mob-87** Belgium, Cyprus, Denmark, Spain, Finland, France, Ireland, Israel, Italy, Libya, Malta, Morocco, Monaco, Norway, the Netherlands, Portugal, the United Kingdom, Sweden, Switzerland, Swaziland, Syria, Tunisia and Turkey, the band 470 - 790 MHz is also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting. Stations of the land mobile service in the countries mentioned in this footnote, shall not cause harmful interference to existing or planned stations operating in accordance with the Table of Frequency Allocations in countries other than those listed in this footnote.
- 678** *Additional allocation:* in Costa Rica, Cuba, El Salvador, Ecuador, the  
**WARC-92** United States, Guatemala, Guyana, Honduras, Jamaica, Mexico and Venezuela, the band 512 - 608 MHz is also allocated to the fixed and mobile services on a primary basis, subject to agreement obtained under the procedure set forth in Article 14.
- 679** *Additional allocation:* in India, the band 549.75 - 550.25 MHz is also allocated to the space operation service (space-to-Earth) on a secondary basis.

**680\*** and **681** SUP  
Mob-87

**682** SUP  
WARC-92

**683** *Additional allocation:* in Oman, the band 582 - 606 MHz is also allocated to the radionavigation service on a secondary basis.

**684** *Additional allocation:* in Israel, Libya, Syria and Sudan, the band 582 - 790 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis.

**685** *Additional allocation:* in Denmark and Kuwait, the band 590 - 598 MHz is also allocated to the aeronautical radionavigation service on a primary basis until 1 January 1995.

**686** *Additional allocation:* in the United Kingdom, the band 590 - 598 MHz is also allocated to the aeronautical radionavigation service on a primary basis. All new assignments to stations in the aeronautical radionavigation service, including those transferred from the adjacent bands, shall be subject to coordination with the Administrations of the following countries: the Federal Republic of Germany, Belgium, Denmark, Spain, France, Ireland, Luxembourg, Morocco, Norway and the Netherlands.

**686A** *Additional allocation:* in the United Kingdom, the band 598 - 606 MHz is also allocated to the aeronautical radionavigation service on a primary basis until 31 December 1994. All new assignments to stations in the aeronautical radionavigation service in this band are subject to the agreement of the Administrations of the following countries: the Federal Republic of Germany, Belgium, Denmark, Spain, France, Ireland, Luxembourg, Morocco, Norway and the Netherlands.

**687** *Additional allocation:* in the African Broadcasting Area (see Nos. **400** to **403**), the band 606 - 614 MHz is also allocated to the radio astronomy service on a permitted basis.

**688** *Additional allocation:* in China, the band 606 - 614 MHz is also allocated to the radio astronomy service on a primary basis.

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\* *Note by the Secretary-General:* This note has been renumbered **686A**, to preserve the chronological order.

- 689** In Region 1, except in the African Broadcasting Area (see Nos. **400** to **403**), and in Region 3, the band 608 - 614 MHz is also allocated to the radio astronomy service on a secondary 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. **343** and **344** and Article **36**).
- 690** *Additional allocation:* in India, the band 608 - 614 MHz is also allocated to the radio astronomy service on a primary basis.
- 691** *Additional allocation:* in New Zealand, the band 610 - 620 MHz is also allocated to the amateur service on a secondary basis.
- 692** *Different category of service:* in Costa Rica, El Salvador and Honduras, the allocation of the band 614 - 806 MHz to the fixed service is on a primary basis (see No. **425**), subject to agreement obtained under the procedure set forth in Article **14**.
- 692A** *Additional allocation:* in Cuba, the band 614 - 890 MHz is also allocated  
**Mob-87** to the radionavigation service on a primary basis, subject to agreement obtained under the procedure set forth in Article **14**.
- 693** Within the frequency band 620 - 790 MHz, assignments may be made to television stations using frequency modulation in the broadcasting-satellite service subject to agreement between the administrations concerned and those having services, operating in accordance with the Table, which may be affected (see Resolutions **33** and **507**). Such stations shall not produce a power flux-density in excess of the value  $-129 \text{ dB(W/m}^2\text{)}$  for angles of arrival less than  $20^\circ$  (see Recommendation **705**) within the territories of other countries without the consent of the administrations of those countries.
- 694** *Additional allocation:* in Bulgaria, Hungary, Mongolia, Poland, the German Democratic Republic, Roumania, Czechoslovakia and the U.S.S.R., the band 645 - 862 MHz is also allocated to the aeronautical radionavigation service on a permitted basis.
- 695** *Alternative allocation:* in Spain and France, the band 790 - 830 MHz is allocated to the broadcasting service on a primary basis.
- 695A** *Additional allocation:* in Austria, Italy, the United Kingdom and  
**Mob-87** Swaziland, the band 790 - 862 MHz is also allocated to the land mobile service on a secondary basis.

**696** *Alternative allocation:* in Greece, Italy, Morocco and Tunisia, the band 790 - 838 MHz is allocated to the broadcasting service on a primary basis.

**697** *Additional allocation:* in the Federal Republic of Germany, Burkina Faso, WARC-92 Cameroon, Côte d'Ivoire, Denmark, Egypt, Finland, Israel, Kenya, Libya, Liechtenstein, Monaco, Norway, the Netherlands, Portugal, Sweden, Switzerland and Yugoslavia, the band 790 - 830 MHz, and in these same countries and in Spain, France, Malta, the Gabonese Republic and Syria, the band 830 - 862 MHz, are also allocated to the mobile, except aeronautical mobile, service on a primary basis. However, stations of the mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, stations of services operating in accordance with the Table in countries other than those mentioned in connection with the band.

**698 and 699** SUP  
Mob-87

**700** *Additional allocation:* in Region 2, the band 806 - 890 MHz is also allocated to the mobile-satellite service on a primary basis. The use of this service is intended for operation within national boundaries and subject to agreement obtained under the procedure set forth in Article 14.  
Mob-87

**700A** *Additional allocation:* in Canada, the United States and Mexico, the WARC-92 bands 849 - 851 MHz and 894 - 896 MHz are also allocated to the aeronautical mobile service on a primary basis, for public correspondence with aircraft. The use of the band 849 - 851 MHz is limited to transmissions from aeronautical stations and the use of the band 894 - 896 MHz is limited to transmissions from aircraft stations.

**700B** *Additional allocation:* in Belarus, the Russian Federation and Ukraine, WARC-92 the bands 806 - 840 MHz (Earth-to-space) and 856 - 890 MHz (space-to-Earth) are also allocated to the mobile-satellite, except aeronautical mobile-satellite (R), service. The use of these bands by this service shall not cause harmful interference to, or claim protection from, services in other countries operating in accordance with the Table of Frequency Allocations and is subject to special agreements between the administrations concerned.

- 701**            *Additional allocation:* in Region 3, the bands 806 - 890 MHz and 942 - 960 MHz are also allocated to the mobile-satellite, except aeronautical mobile-satellite (R), service on a primary basis. The use of this service is limited to operation within national boundaries and subject to agreement obtained under the procedure set forth in Article 14. In seeking such agreement, appropriate protection shall be afforded to services operating in accordance with the Table, to ensure that no harmful interference is caused to such services.
- 702**            *Alternative allocation:* in Italy, the band 838 - 854 MHz is allocated to the broadcasting service on a primary basis as from 1 January 1995.
- 703**            In Region 1, in the band 862 - 960 MHz, stations of the broadcasting service shall be operated only in the African Broadcasting Area (see Nos. 400 to 403) excluding Algeria, Egypt, Spain, Libya and Morocco, subject to agreement obtained under the procedure set forth in Article 14.
- 704**            *Additional allocation:* in Bulgaria, Hungary, Mongolia, Poland, the German Democratic Republic, Roumania, Czechoslovakia and the U.S.S.R., the band 862 - 960 MHz is also allocated to the aeronautical radionavigation service on a permitted basis until 1 January 1998. Up to this date, the aeronautical radionavigation service may use the band, subject to agreement obtained under the procedure set forth in Article 14. After this date, the aeronautical radionavigation service may continue to operate on a secondary basis.



- 704A**      *Additional allocation:* in Brazil, Canada and the United States of  
**Mob-87**      America, the band 890 - 896 MHz is also allocated to the mobile-satellite service on a primary basis. The use of this service is intended for operation within national boundaries and subject to agreement obtained under the procedure set forth in Article 14. In seeking such agreement, appropriate protection shall be afforded to services operating in accordance with the Table.
- 705**      *Different category of service:* in the United States, the allocation of the band 890 - 942 MHz to the radiolocation service is on a primary basis (see No. 425) and subject to agreement obtained under the procedure set forth in Article 14.
- 706**      *Different category of service:* in Australia, the allocation of the band 890 - 942 MHz to the radiolocation service is on a primary basis (see No. 425).
- 707**      In Region 2, the band 902 - 928 MHz (centre frequency 915 MHz) is designated for industrial, scientific and medical (ISM) applications. Radio-communication services operating within this band must accept harmful interference which may be caused by these applications. ISM equipment operating in this band is subject to the provisions of No. 1815.
- 707A**      *Different category of service:* in Chile, the band 903 - 905 MHz is  
**Mob-87**      allocated to the mobile, except aeronautical mobile, service on a primary basis and is subject to agreement obtained under the procedure set forth in Article 14.
- 708**      SUP  
**WARC-92**
- 709**      The band 960 - 1 215 MHz is reserved on a worldwide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground-based facilities.
- 710**      Use of the radionavigation-satellite service in the band 1 215 - 1 260 MHz shall be subject to the condition that no harmful interference is caused to the radionavigation service authorized under No. 712.
- 711**      *Additional allocation:* in Afghanistan, Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, China, the United Arab Emirates, Ethiopia, Guinea, Guyana, India, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Kuwait, the Lebanon, Libya, Malawi, Morocco, Mozambique, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syria, Somalia, Sudan, Sri Lanka, Chad, Thailand, Togo and Yemen (P.D.R. of), the band 1 215 - 1 300 MHz is also allocated to the fixed and mobile services on a primary basis.

- 712**            *Additional allocation:* in Algeria, the Federal Republic of Germany, Austria, Bahrain, Belgium, Benin, Burundi, Cameroon, China, Denmark, the United Arab Emirates, France, Greece, India, Iran, Iraq, Kenya, Liechtenstein, Luxembourg, Mali, Mauritania, Norway, Oman, Pakistan, the Netherlands, Portugal, Qatar, Senegal, Somalia, Sudan, Sri Lanka, Sweden, Switzerland, Tanzania, Turkey and Yugoslavia, the band 1 215 - 1 300 MHz is also allocated to the radionavigation service on a primary basis.
- 712A**            *Additional allocation:* in Cuba, the band 1 215 - 1 300 MHz is also allocated to the radionavigation service on a primary basis subject to the agreement obtained under the procedure set forth in Article 14.
- Mob-87**
- 713**            In the bands 1 215 - 1 300 MHz, 3 100 - 3 300 MHz, 5 250 - 5 350 MHz, 8 550 - 8 650 MHz, 9 500 - 9 800 MHz and 13.4 - 14.0 GHz, radiolocation stations installed on spacecraft may also be employed for the earth exploration-satellite and space research services on a secondary basis.



**MHz**  
**1 240 – 1 452**

Allocation to Services		
Region 1	Region 2	Region 3
<b>1 240 – 1 260</b>	RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) 710 Amateur 711 712 712A 713 714	
<b>1 260 – 1 300</b>	RADIOLOCATION Amateur 664 711 712 712A 713 714	
<b>1 300 – 1 350</b>	AERONAUTICAL RADIONAVIGATION 717 Radiolocation 715 716 718	
<b>1 350 – 1 400</b> FIXED MOBILE RADIOLOCATION 718 719 720	<b>1 350 – 1 400</b> RADIOLOCATION 714 718 720	
<b>1 400 – 1 427</b>	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 721 722	
<b>1 427 – 1 429</b>	SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile 722	
<b>1 429 – 1 452</b> FIXED MOBILE except aeronautical mobile 722 723B	<b>1 429 – 1 452</b> FIXED MOBILE 723 722	

**MHz**  
**1 452 – 1 530**

Allocation to Services		
Region 1	Region 2	Region 3
<b>1 452 – 1 492</b> FIXED MOBILE except aeronautical mobile BROADCASTING 722A 722B BROADCASTING-SATELLITE 722A 722B 722 723B	<b>1 452 – 1 492</b> FIXED MOBILE 723 BROADCASTING 722A 722B BROADCASTING-SATELLITE 722A 722B  722 722C	
<b>1 492 – 1 525</b> FIXED MOBILE except aeronautical mobile  722 723B	<b>1 492 – 1 525</b> FIXED MOBILE 723 MOBILE-SATELLITE (space-to-Earth)  722 722C 723C	<b>1 492 – 1 525</b> FIXED MOBILE 723  722
<b>1 525 – 1 530</b> SPACE OPERATION (space-to-Earth) FIXED MARITIME MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite Land Mobile-Satellite (space-to-Earth) 726B Mobile except aeronautical mobile 724  722 723B 725 726A 726D	<b>1 525 – 1 530</b> SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite Fixed Mobile 723   722 723A 726A 726D	<b>1 525 – 1 530</b> SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite Mobile 723 724   722 726A 726D

**MHz**  
**1 530 – 1 545**

Allocation to Services		
Region 1	Region 2	Region 3
<b>1 530 – 1 533</b> SPACE OPERATION (space-to-Earth) MARITIME MOBILE-SATELLITE (space-to-Earth) LAND MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite Fixed Mobile except aeronautical mobile 722 723B 726A 726D	<b>1 530 – 1 533</b> SPACE OPERATION (space-to-Earth) MARITIME MOBILE-SATELLITE (space-to-Earth) LAND MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite Fixed Mobile 723 722 726A 726C 726D	
<b>1 533 – 1 535</b> SPACE OPERATION (space-to-Earth) MARITIME MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite Fixed Mobile except aeronautical mobile Land Mobile-Satellite (space-to-Earth) 726B 722 723B 726A 726D	<b>1 533 – 1 535</b> SPACE OPERATION (space-to-Earth) MARITIME MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite Fixed Mobile 723 Land Mobile-Satellite (space-to-Earth) 726B 722 726A 726C 726D	
<b>1 535 – 1 544</b>	MARITIME MOBILE-SATELLITE (space-to-Earth) Land Mobile-Satellite (space-to-Earth) 726B 722 726A 726C 726D 727	
<b>1 544 – 1 545</b>	MOBILE-SATELLITE (space-to-Earth) 722 726D 727 727A	

- 714**        *Additional allocation:* in Canada and the United States, the bands 1 240 - 1 300 MHz and 1 350 - 1 370 MHz are also allocated to the aeronautical radionavigation service on a primary basis.
- 715**        *Additional allocation:* in Indonesia, the band 1 300 - 1 350 MHz is also allocated to the fixed and mobile services on a primary basis.
- 716**        *Alternative allocation:* in Ireland and the United Kingdom, the band 1 300 - 1 350 MHz is allocated to the radiolocation service on a primary basis.
- 717**        The use of the bands 1 300 - 1 350 MHz, 2 700 - 2 900 MHz and 9 000 - 9 200 MHz by the aeronautical radionavigation service is restricted to ground-based radars and to associated airborne transponders which transmit only on frequencies in these bands and only when actuated by radars operating in the same band.
- 718**        In making assignments to stations of other services, administrations are urged to take all practicable steps to protect the spectral line observations of the radio astronomy service from harmful interference in the band 1 330 - 1 400 MHz. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. **343** and **344** and Article **36**).
- 719**        In Bulgaria, Mongolia, Poland, the German Democratic Republic,  
**WARC-92** Romania, Czechoslovakia and the U.S.S.R., the existing installations of the radionavigation service may continue to operate in the band 1 350 - 1 400 MHz.
- 720**        The bands 1 370 - 1 400 MHz, 2 640 - 2 655 MHz, 4 950 - 4 990 MHz and 15.20 - 15.35 GHz are also allocated to the space research (passive) and earth exploration-satellite (passive) services on a secondary basis.
- 721**        All emissions in the band 1 400 - 1 427 MHz are prohibited.
- 722**        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.        ~
- 722A**        Use of the band 1 452 - 1 492 MHz by the broadcasting-satellite service,  
**WARC-92** and by the broadcasting service, is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (WARC-92)**.

**722B** *Different category of service:* in the Federal Republic of Germany, Bangladesh, Botswana, Bulgaria, Burkina Faso, Colombia, Cuba, Denmark, WARC-92 Egypt, Ecuador, Spain, Greece, Hungary, Ireland, Italy, Jordan, Kenya, Malawi, Mozambique, Panama, Poland, Portugal, United Kingdom, Sri Lanka, Sweden, Swaziland, Czech and Slovak Federal Republic, Yemen, Yugoslavia and Zimbabwe, the allocation of the band 1 452 - 1 492 MHz to the broadcasting-satellite service and the broadcasting service is on a secondary basis until 1 April 2007.

**722C** *Alternative allocation:* in the United States, the band 1 452 - 1 525 MHz WARC-92 is allocated to the fixed and mobile services on a primary basis. (See also No. 723.)

**723** In Region 2, in Australia and Papua New Guinea, the use of the band 1 435 - 1 535 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service.

**723A** *Different category of service:* in Cuba, the band 1 525 - 1 530 MHz is Mob-87 allocated to the aeronautical mobile service on a primary basis, under the conditions specified in No. 723.

**723B** *Additional allocation:* in Belarus, the Russian Federation and Ukraine, WARC-92 the band 1 429 - 1 535 MHz is also allocated to the aeronautical mobile service on a primary basis exclusively for the purposes of aeronautical telemetry within the national territory. As of 1 April 2007, the use of the band 1 452 - 1 492 MHz is subject to agreement between the administrations concerned.

**723C** The use of the band 1 492 - 1 525 MHz by the mobile-satellite service is WARC-92 subject to the application of the coordination and notification procedures set forth in Resolution 46 (WARC-92). However, with the exception of the situation referred to in No. 723, on a provisional basis, coordination of space stations of the mobile-satellite service with respect to terrestrial services is required only if the power flux-density produced at the Earth's surface exceeds the limits in No. 2566. In respect of assignments operating in this band, the provisions of Section II, paragraph 2.2 of Resolution 46 (WARC-92) shall also be applied to geostationary transmitting space stations with respect to terrestrial stations.

**724** *Different category of service:* in Afghanistan, Saudi Arabia, Bahrain, WARC-92 Bulgaria, Cameroon, Egypt, the United Arab Emirates, France, Iran, Iraq, Israel, Kuwait, the Lebanon, Morocco, Mongolia, Oman, Poland, Qatar, Syria, the German Democratic Republic, Romania, Czechoslovakia, the U.S.S.R., Yemen and Yugoslavia, the allocation of the band 1 525 - 1 530 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. 425).

**725** *Additional allocation:* in the U.S.S.R., the band 1 525 - 1 530 MHz is also allocated to the aeronautical mobile service on a primary basis.

**726** SUP

**WARC-92**

**726A** The bands 1 525 - 1 544 MHz, 1 545 - 1 559 MHz, 1 626.5 - 1 645.5 MHz  
**WARC-92** and 1 646.5 - 1 660.5 MHz shall not be used for feeder links of any service. In exceptional circumstances, however, an earth station at a specified fixed point in any of the mobile-satellite services may be authorized by an administration to communicate via space stations using these bands.

**726B** The use of the bands 1 525 - 1 530 MHz, 1 533 - 1 544 MHz, 1 626.5 -  
**WARC-92** 1 631.5 MHz and 1 634.5 - 1 645.5 MHz by the land mobile-satellite service is limited to non-speech low bit-rate data transmissions.

**726C** *Additional allocation:* in Argentina, Australia, Brazil, Canada, the United  
**WARC-92** States, Malaysia and Mexico, the band 1 530 - 1 544 MHz is also allocated to the mobile-satellite (space-to-Earth) service, and the band 1 626.5 - 1 645.5 MHz is also allocated to the mobile-satellite (Earth-to-space) service, on a primary basis subject to the following conditions: maritime mobile-satellite distress and safety communications shall have priority access and immediate availability over all other mobile-satellite communications operating under this provision. Communications of mobile-satellite system stations not participating in the global maritime distress and safety system (GMDSS) shall operate on a secondary basis to distress and safety communications of stations operating in the GMDSS. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services.

**726D** The use of the bands 1 525 - 1 559 MHz and 1 626.5 - 1 660.5 MHz by the  
**WARC-92** mobile-satellite services are subject to the application of the coordination and notification procedures set forth in Resolution 46 (WARC-92). In Regions 1 and 3 in the band 1 525 - 1 530 MHz coordination of space stations of the mobile-satellite services with respect to terrestrial services is required only if the power flux-density produced at the Earth's surface exceeds the limits in No. 2566. In respect of assignments operating in the band 1 525 - 1 530 MHz, the provisions of Section II, paragraph 2.2 of Resolution 46 (WARC-92) shall also be applied to geostationary transmitting space stations with respect to terrestrial stations.

**727**            *Additional allocation:* In Afghanistan, Saudi Arabia, Bahrain, Bangladesh, the Congo, Egypt, the United Arab Emirates, Ethiopia, Iran, Iraq, Israel, Jordan, Kuwait, the Lebanon, Malta, Morocco, Niger, Oman, Pakistan, Qatar, Syria, Somalia, Sudan, Sri Lanka, Chad, Thailand, Togo, Yemen (P.D.R. of) and Zambia, the bands 1540 - 1645.5 MHz and 1646.5 - 1660 MHz are also allocated to the fixed service on a secondary basis.

**727A**            The use of the band 1544 - 1545 MHz by the mobile-satellite service  
**Mob-87** (space-to-Earth) is limited to distress and safety communications (see Article N 38).

**728\***            SUP  
**Mob-87**

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\* *Note by the Secretary-General:* This note has been renumbered **734B**, to preserve the chronological order.

**MHz**  
**1 545 – 1 613.8**

Allocation to Services		
Region 1	Region 2	Region 3
<b>1 545 – 1 555</b>	AERONAUTICAL MOBILE-SATELLITE (R) (space-to-Earth)  722 726A 726D 727 729 729A 730	
<b>1 555 – 1 559</b>	LAND MOBILE-SATELLITE (space-to-Earth)  722 726A 726D 727 730 730A 730B 730C	
<b>1 559 – 1 610</b>	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth)  722 727 730 731	
<b>1 610 – 1 610.6</b> MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION  722 727 730 731 731E 732 733 733A 733B 733E 733F	<b>1 610 – 1 610.6</b> MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION RADIODETERMINATION- SATELLITE (Earth-to-space)  722 731E 732 733 733A 733C 733D 733E	<b>1 610 – 1 610.6</b> MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION Radiodetermination-Satellite (Earth-to-space)  722 727 730 731E 732 733 733A 733B 733E
<b>1 610.6 – 1 613.8</b> MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION  722 727 730 731 731E 732 733 733A 733B 733E 733F 734	<b>1 610.6 – 1 613.8</b> MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION RADIODETERMINATION- SATELLITE (Earth-to-space)  722 731E 732 733 733A 733C 733D 733E 734	<b>1 610.6 – 1 613.8</b> MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION Radiodetermination-Satellite (Earth-to-space)  722 727 730 731E 732 733 733A 733B 733E 734



**MHz**  
**1 613.8 – 1 656.5**

Allocation to Services												
Region 1				Region 2				Region 3				
<b>1 613.8 – 1 626.5</b> MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION Mobile-Satellite (space-to-Earth)  722 727 730 731 731E 731F 732 733 733A 733B 733E 733F				<b>1 613.8 – 1 626.5</b> MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION RADIODETERMINATION- SATELLITE (Earth-to-space) Mobile-Satellite (space-to-Earth)  722 731E 731F 732 733 733A 733C 733D 733E				<b>1 613.8 – 1 626.5</b> MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION Radiodetermination-Satellite (Earth-to-space) Mobile-Satellite (space-to-Earth)  722 727 730 731E 731F 732 733 733A 733B 733E				
<b>1 626.5 – 1 631.5</b> MARITIME MOBILE- SATELLITE (Earth-to-space) Land Mobile-Satellite (Earth-to-space) 726B  722 726A 726D 727 730				<b>1 626.5 – 1 631.5</b> MOBILE-SATELLITE (Earth-to-space)   722 726A 726C 726D 727 730								
<b>1 631.5 – 1 634.5</b>				MARITIME MOBILE-SATELLITE (Earth-to-space) LAND MOBILE-SATELLITE (Earth-to-space)  722 726A 726C 726D 727 730 734A								
<b>1 634.5 – 1 645.5</b>				MARITIME MOBILE-SATELLITE (Earth-to-space) Land Mobile-Satellite (Earth-to-space) 726B  722 726A 726C 726D 727 730								
<b>1 645.5 – 1 646.5</b>				MOBILE-SATELLITE (Earth-to-space)  722 726D 734B								
<b>1 646.5 – 1 656.5</b>				AERONAUTICAL MOBILE-SATELLITE (R) (Earth-to-space)  722 726A 726D 727 729A 730 735								

**729** Transmissions in the band 1 545 - 1 555 MHz from terrestrial aeronautical  
**Mob-87** stations directly to aircraft stations, or between aircraft stations, in the aeronautical mobile (R) service are also authorized when such transmissions are used to extend or supplement the satellite-to-aircraft links.

**729A** Notwithstanding any other provisions of the Radio Regulations relating to  
**Mob-87** restrictions in the use of the bands allocated to the aeronautical mobile-satellite (R) service for public correspondence, the bands 1 545 - 1 555 MHz and 1 646.5 - 1 656.5 MHz may be authorized by administrations for public correspondence with aircraft earth stations. Such communications must cease immediately, if necessary, to permit transmission of messages with priority 1 to 6 in Article 51.

**730** *Additional allocation:* in the Federal Republic of Germany, Austria,  
**WARC-92** Bulgaria, Cameroon, Spain, France, Guinea, Hungary, Indonesia, Libya, Mali, Mongolia, Nigeria, Poland, the German Democratic Republic, Romania, Senegal, Tanzania, Czechoslovakia and the U.S.S.R., the bands 1 550 - 1 645.5 MHz and 1 646.5 - 1 660 MHz are also allocated to the fixed service on a primary basis.

**730A** In the bands 1 555 - 1 559 MHz and 1 656.5 - 1 660.5 MHz admin-  
**Mob-87** istrations may also authorize aircraft earth stations and ship earth stations to communicate with space stations in the land mobile-satellite service (see Resolution 208 (Mob-87)).

**730B** *Alternative allocation:* in Australia, Canada and Mexico, the band 1 555 -  
**WARC-92** 1 559 MHz is allocated to the mobile-satellite (space-to-Earth) service, the band 1 656.5 - 1 660 MHz is allocated to the mobile-satellite (Earth-to-space) service, and the band 1 660 - 1 660.5 MHz is allocated to the mobile-satellite (Earth-to-space) and the radio astronomy services, on a primary basis.

**730C** *Alternative allocation:* in Argentina and the United States, the band  
**WARC-92** 1 555 - 1 559 MHz is allocated to the mobile-satellite (space-to-Earth) service, the band 1 656.5 - 1 660 MHz is allocated to the mobile-satellite (Earth-to-space) service, and the band 1 660 - 1 660.5 MHz is allocated to the mobile-satellite (Earth-to-space) and radio astronomy services, on a primary basis subject to the following conditions: the aeronautical mobile-satellite (R) service shall have priority access and immediate availability over all other mobile-satellite communications within a network operating under this provision; mobile-satellite systems shall be interoperable with the aeronautical mobile-satellite (R) service; account shall be taken of the priority of safety-related communications in the other mobile-satellite services.

**731** *Alternative allocation:* in Sweden, the band 1 590 - 1 626.5 MHz is allocated to the aeronautical radionavigation service on a primary basis.  
**Mob-87**

**731A to 731D SUP**  
**WARC-92**

**731E** The use of the band 1 610 - 1 626.5 MHz by the mobile-satellite service  
**WARC-92** (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to the application of the coordination and notification procedures set forth in Resolution **46 (WARC-92)**. A mobile earth station operating in either of the services in this band shall not produce an e.i.r.p. density in excess of -15 dB(W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. **732**, unless otherwise agreed by the affected administrations. In the part of the band where such systems are not operating, a value of -3 dB(W/4 kHz) is applicable. Stations of the mobile-satellite service shall not cause harmful interference to, or claim protection from, stations in the aeronautical radionavigation service, stations operating in accordance with the provisions of No. **732** and stations in the fixed service operating in accordance with the provisions of No. **730**.

**731F** The use of the band 1 613.8 - 1 626.5 MHz by the mobile-satellite service  
**WARC-92** (space-to-Earth) is subject to the application of the coordination and notification procedures set forth in Resolution **46 (WARC-92)**

**732** The band 1 610 - 1 626.5 MHz is reserved on a worldwide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground-based or satellite-borne facilities. Such satellite use is a subject to agreement obtained under the procedure set forth in Article **14**.

**733** The bands 1 610 - 1 626.5 MHz, 5 000 - 5 250 MHz and 15.4 - 15.7 GHz are also allocated to the aeronautical mobile-satellite (R) service on a primary basis. Such use is subject to agreement obtained under the procedure set forth in Article **14**.

**733A** With respect to the radiodetermination-satellite and mobile-satellite services the provisions of No. **953** do not apply in the band 1 610 - 1 626.5 MHz.  
**WARC-92**

**733B** *Different category of service:* in Angola, Australia, Burundi, Côte d'Ivoire, Ethiopia, India, the Islamic Republic of Iran, Israel, Italy, Jordan, Kenya, Lebanon, Liberia, Libya, Madagascar, Mali, Pakistan, Papua New  
**Mob-87**

Guinea, Senegal, Sudan, Swaziland, Syria, Tanzania, Thailand, Togo, Zaire and Zambia the allocation of the band 1 610 - 1 626.5 MHz to the radio-determination-satellite service (Earth-to-space) is on a primary basis (see No. 425) subject to agreement obtained under the procedure set forth in Article 14 with other countries not listed in this provision.

**733C** *Different category of service:* in Venezuela, the allocation to the radio-determination-satellite service in the band 1 610 - 1 626.5 MHz (Earth-to-space) is on a secondary basis.  
**Mob-87**

**733D** *Alternative allocation:* in Cuba, the band 1 610 - 1 626.5 MHz is allocated exclusively to the aeronautical radionavigation service on a primary basis.  
**Mob-87**

**733E** Harmful interference shall not be caused to stations of the radio astronomy service using the band 1 610.6 - 1 613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services. (No. 2904 applies.)  
**WARC-92**

**733F** In Region 1, the bands 1 610 - 1 626.5 MHz (Earth-to-space) and 2 483.5 - 2 500 MHz (space-to-Earth) are also allocated to the radiodetermination-satellite service on a secondary basis.  
**Mob-87**

**734** In making assignments to stations of other services, administrations are urged to take all practicable steps to protect the radio astronomy service in the band 1 610.6 - 1 613.8 MHz from harmful interference. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 343 and 344 and Article 36).  
**WARC-92**

**734A** Land earth stations and ship earth stations in the mobile-satellite service operating in the bands 1 631.5 - 1 634.5 MHz and 1 656.5 - 1 660 MHz shall not cause harmful interference to the stations in the fixed service operating in the countries listed in No. 730.  
**Mob-87**

**734B** The use of the band 1 645.5 - 1 646.5 MHz by the mobile-satellite service (Earth-to-space) and for inter-satellite links is limited to distress and safety communications (see Article N 38).  
**Mob-87**

**735** Transmissions in the band 1 646.5 - 1 656.5 MHz from aircraft stations in the aeronautical mobile (R) service directly to terrestrial aeronautical stations, or between aircraft stations, are also authorized when such transmissions are used to extend or supplement the aircraft-to-satellite links.  
**Mob-87**

**MHz**  
**1 656.5 – 1 675**

Allocation to Services		
Region 1	Region 2	Region 3
<b>1 656.5 – 1 660</b>	LAND MOBILE-SATELLITE (Earth-to-space) 722 726A 726D 727 730 730A 730B 730C 734A	
<b>1 660 – 1 660.5</b>	LAND MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY 722 726A 726D 730A 730B 730C 736	
<b>1 660.5 – 1 668.4</b>	RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 722 736 737 738 739	
<b>1 668.4 – 1 670</b>	METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 722 736	
<b>1 670 – 1 675</b>	METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE 740A 722	

**MHz**  
**1 675 – 1 930**

Allocation to Services		
Region 1	Region 2	Region 3
<b>1 675 – 1 690</b> METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile  722	<b>1 675 – 1 690</b> METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space)  722 735A	<b>1 675 – 1 690</b> METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile  722
<b>1 690 – 1 700</b> METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed Mobile except aeronautical mobile  671 722 741	<b>1 690 – 1 700</b> METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (Earth-to-space)  671 722 735A 740	<b>1 690 – 1 700</b> METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth)  671 722 740 742
<b>1 700 – 1 710</b> FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile  671 722	<b>1 700 – 1 710</b> FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space)  671 722 735A	<b>1 700 – 1 710</b> FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile  671 722 743
<b>1 710 – 1 930</b> FIXED MOBILE 740A  722 744 745 746 746A		

**735A** In the band 1 675 - 1 710 MHz, stations in the mobile-satellite service shall not cause harmful interference to, nor constrain the development of, the meteorological-satellite and meteorological aids services (see Resolution **213 (WARC-92)**) and the use of this band shall be subject to the provisions of Resolution **46 (WARC-92)**.

**736** In making assignments to stations of other services to which the band 1 660 - 1 670 MHz 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. **343** and **344** and Article **36**).

**737** *Different category of service:* in Afghanistan, Saudi Arabia, Bahrain, Benin, Bulgaria, Cameroon, the Central African Republic, the Congo, Cuba, Egypt, the United Arab Emirates, Ethiopia, Hungary, India, Indonesia, Iran, Israel, Kenya, Kuwait, the Lebanon, Malaysia, Mongolia, Oman, Uganda, Pakistan, Poland, Qatar, Syria, the German Democratic Republic, Singapore, Somalia, Sri Lanka, Chad, Czechoslovakia, Thailand, Tunisia, the U.S.S.R., Yemen A.R., Yemen (P.D.R. of) and Yugoslavia, the allocation of the band 1 660.5 - 1 668.4 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis until 1 January 1990 (see No. **425**).

**738** *Additional allocation:* in Bangladesh, India, Indonesia, Nigeria, Pakistan, Sri Lanka and Thailand, the band 1 660.5 - 1 668.4 MHz is also allocated to the meteorological aids service on a secondary basis.

**739** In view of the successful detection by radio astronomers of two hydroxyl spectral lines in the region of 1 665 MHz and 1 667 MHz, administrations are urged to give all practicable protection in the band 1 660.5 - 1 668.4 MHz for future research in radio astronomy, particularly by eliminating air-to-ground transmissions in the meteorological aids service in the band 1 664.4 - 1 668.4 MHz as soon as practicable.

**740** *Additional allocation:* in Afghanistan, Costa Rica, Cuba, India, Iran, Malaysia, Pakistan, Singapore, Sri Lanka and Thailand, the band 1 690 - 1 700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

**740A** The bands 1 670 - 1 675 MHz and 1 800 - 1 805 MHz are intended for use, **WARC-92** on a worldwide basis, by administrations wishing to implement aeronautical

public correspondence. The use of the band 1 670 - 1 675 MHz by stations in the systems for public correspondence with aircraft is limited to transmissions from aeronautical stations and the use of the band 1 800 - 1 805 MHz is limited to transmissions from aircraft stations.

**741**      *Different category of service:* in Saudi Arabia, Austria, Bahrain, Bulgaria, the Congo, Egypt, the United Arab Emirates, Ethiopia, Guinea, Hungary, Iraq, Israel, Jordan, Kenya, Kuwait, the Lebanon, Mauritania, Mongolia, Oman, Poland, Qatar, Syria, the German Democratic Republic, Roumania, Somalia, Tanzania, Czechoslovakia, the U.S.S.R., Yemen A.R., Yemen (P.D.R. of) and Yugoslavia, the allocation of the band 1 690 - 1 700 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. 425).

**742**      *Additional allocation:* in Australia and Indonesia, the band 1 690 - 1 700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis.

**743**      *Additional allocation:* in India, Indonesia, Japan and Thailand, the band 1 700 - 1 710 MHz is also allocated to the space research service (space-to-Earth) on a primary basis.

**743A**      SUP  
**WARC-92**

**744**      The band 1 718.8 - 1 722.2 MHz 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. 343 and 344 and Article 36).

**745**      Subject to agreement obtained under the procedure set forth in Article 14 and having particular regard to tropospheric scatter systems, the band 1 750 - 1 850 MHz may also be used for space operation (Earth-to-space) and space research (Earth-to-space) services in Region 2, in Afghanistan, Australia, India, Indonesia, Japan and Thailand.

**746**      *Additional allocation:* in Bulgaria, Cuba, Mali, Mongolia, Poland, the  
**WARC-92** German Democratic Republic, Romania, Czechoslovakia and the U.S.S.R., the band 1 770 - 1 790 MHz is also allocated to the meteorological-satellite service on a primary basis, subject to agreement obtained under the procedure set forth in Article 14.



**746A** The bands 1 885 - 2 025 MHz and 2 110 - 2 200 MHz are intended for use,  
**WARC-92** on a worldwide basis, by administrations wishing to implement the future public land mobile telecommunication systems (FPLMTS). Such use does not preclude the use of these bands by other services to which these bands are allocated. The bands should be made available for FPLMTS in accordance with Resolution **212 (WARC-92)**.

**MHz**  
**1 930 – 2 110**

Allocation to Services		
Region 1	Region 2	Region 3
<b>1 930 – 1 970</b> FIXED MOBILE  746A	<b>1 930 – 1 970</b> FIXED MOBILE Mobile-Satellite (Earth-to-space)  746A	<b>1 930 – 1 970</b> FIXED MOBILE  746A
<b>1 970 – 1 980</b> FIXED MOBILE  746A	<b>1 970 – 1 980</b> FIXED MOBILE MOBILE-SATELLITE (Earth-to-space)  746A 746B 746C	<b>1 970 – 1 980</b> FIXED MOBILE  746A
<b>1 980 – 2 010</b>	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space)  746A 746B 746C	
<b>2 010 – 2 025</b>	FIXED MOBILE  746A	
<b>2 025 – 2 110</b>	SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE 747A SPACE RESEARCH (Earth-to-space) (space-to-space)  750A	

**746B** The use of the bands 1 970 - 2 010 MHz and 2 160 - 2 200 MHz by the  
**WARC-92** mobile-satellite service shall not commence before 1 January 2005 and is subject to the application of the coordination and notification procedures set forth in Resolution **46 (WARC-92)**. In the band 2 160 - 2 200 MHz coordination of space stations of the mobile-satellite service with respect to terrestrial services is required only if the power flux-density produced at the Earth's surface exceeds the limits in No. **2566**. In respect of assignments operating in this band, the provisions of Section II, paragraph 2.2 of Resolution **46 (WARC-92)** shall also be applied to geostationary transmitting space stations with respect to terrestrial stations.

**746C** In the United States, the use of the bands 1 970 - 2 010 MHz and 2 160 -  
**WARC-92** 2 200 MHz by the mobile-satellite service shall not commence before 1 January 1996.

**747** SUP  
**WARC-92**

**747A** In making assignments to the mobile service in the bands 2 025 -  
**WARC-92** 2 110 MHz and 2 200 - 2 290 MHz, administrations shall take into account Resolution **211 (WARC-92)**.

**748 to 750** SUP  
**WARC-92**

**750A** Administrations are urged to take all practicable measures to ensure that  
**WARC-92** space-to-space transmissions between two or more non-geostationary satellites, in the space research, space operations and Earth exploration-satellite services in the bands 2 025 - 2 110 MHz and 2 200 - 2 290 MHz, shall not impose any constraints on Earth-to-space, space-to-Earth and other space-to-space transmissions of those services and in those bands between geostationary and non-geostationary satellites.

**MHz**  
**2 110 – 2 290**

Allocation to Services		
Region 1	Region 2	Region 3
<b>2 110 – 2 120</b>	FIXED MOBILE SPACE RESEARCH (deep space) (Earth-to-space) 746A	
<b>2 120 – 2 160</b> FIXED MOBILE 746A	<b>2 120 – 2 160</b> FIXED MOBILE Mobile-Satellite (space-to-Earth) 746A	<b>2 120 – 2 160</b> FIXED MOBILE 746A
<b>2 160 – 2 170</b> FIXED MOBILE 746A	<b>2 160 – 2 170</b> FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 746A 746B 746C	<b>2 160 – 2 170</b> FIXED MOBILE 746A
<b>2 170 – 2 200</b>	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 746A 746B 746C	
<b>2 200 – 2 290</b>	SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE 747A SPACE RESEARCH (space-to-Earth) (space-to-space) 750A	

**MHz**  
**2 290 – 2 500**

Allocation to Services		
Region 1	Region 2	Region 3
<b>2 290 – 2 300</b> FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)		
<b>2 300 – 2 450</b> FIXED MOBILE Amateur Radiolocation 664 751A 752	<b>2 300 – 2 450</b> FIXED MOBILE RADIOLOCATION Amateur 664 750B 751 751B 752	
<b>2 450 – 2 483.5</b> FIXED MOBILE Radiolocation 752 753	<b>2 450 – 2 483.5</b> FIXED MOBILE RADIOLOCATION 751 752	
<b>2 483.5 – 2 500</b> FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) Radiolocation  733F 752 753 753A 753B 753C 753F	<b>2 483.5 – 2 500</b> FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) RADIOLOCATION RADIODETERMINATION-SATELLITE (space-to-Earth) 753A 752 753D 753F	<b>2 483.5 – 2 500</b> FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) RADIOLOCATION Radiodetermination-Satellite (space-to-Earth) 753A 752 753C 753F

**750B** *Additional allocation:* in the United States and India, the band 2310 -  
**WARC-92** 2360 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial sound broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution **528** (WARC-92).

**751** In Australia, the United States and Papua New Guinea, the use of the  
**WARC-92** band 2300 - 2390 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services. In Canada, the use of the band 2300 - 2483.5 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services.

**751A** In France, the use of the band 2310 - 2360 MHz by the aeronautical  
**WARC-92** mobile service for telemetry has priority over other uses by the mobile service.

**751B** Space stations of the broadcasting-satellite service in the band 2310 -  
**WARC-92** 2360 MHz operating in accordance with No. **750B** that may affect the services to which this band is allocated in other countries shall be coordinated and notified in accordance with Resolution **33** (WARC-79). Complementary terrestrial broadcasting stations shall be subject to bilateral coordination with neighbouring countries prior to their bringing into use.

**752** The band 2400 - 2500 MHz (centre frequency 2450 MHz) is designated  
 for industrial, scientific and medical (ISM) applications. Radio services operating within this band must accept harmful interference which may be caused by these applications. ISM equipment operating in this band is subject to the provisions of No. **1815**.

**753** *Different category of service:* in France, the band 2450 - 2500 MHz is  
**WARC-92** allocated on a primary basis to the radiolocation service (see No. **425**). Such use is subject to agreement with administrations having services operating or planned to operate in accordance with the Table of Frequency Allocations which may be affected.

**753A** In respect of the radiodetermination-satellite service in the band 2483.5 -  
**Mob-87** 2500 MHz, the provisions of No. **953** do not apply.

**753B** In Region 1, in countries other than those listed in No. **753C**, harmful  
**Mob-87** interference shall not be caused to, or protection shall not be claimed from, stations of the radiolocation service by stations of the radiodetermination satellite service.

**753C**            *Different category of service:* in Angola, Australia, Bangladesh, Burundi,  
**WARC-92** China, Côte d'Ivoire, Ethiopia, India, the Islamic Republic of Iran, Israel,  
Italy, Jordan, Kenya, Lebanon, Liberia, Libya, Madagascar, Mali, Pakistan,  
Papua New Guinea, Senegal, Sudan, Swaziland, Syria, Tanzania, Thailand,  
Togo, Zaire and Zambia, the allocation of the band 2483.5 - 2 500 MHz to  
the radiodetermination-satellite service (space-to-Earth) is on a primary basis  
(see No. **425**) subject to agreement obtained under the procedure of Article 14  
with other countries not listed in this provision.

**753D**            *Alternative allocation:* in Cuba, the band 2483.5 - 2 500 MHz is allocated  
**Mob-87** only to the fixed, mobile and radiolocation services on a primary basis.

**753E**            SUP  
**WARC-92**

**753F**            The use of the band 2483.5 - 2 500 MHz by the mobile-satellite and the  
**WARC-92** radiodetermination-satellite services is subject to the application of the coordi-  
nation and notification procedures set forth in Resolution **46 (WARC-92)**.  
Coordination of space stations of the mobile-satellite and radiodetermination-  
satellite services with respect to terrestrial services is required only if the  
power flux-density produced at the Earth's surface exceeds the limits in  
No. **2566**. In respect of assignments operating in this band, the provisions of  
Section II, paragraph 2.2 of Resolution **46 (WARC-92)** shall also be applied  
to geostationary transmitting space stations with respect to terrestrial stations.

**MHz**  
**2 500 – 2 655**

Allocation to Services		
Region 1	Region 2	Region 3
<b>2 500 – 2 520</b> FIXED 762 763 764 MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) 754 754B 755A 756 759 760A	<b>2 500 – 2 520</b> FIXED 762 764 FIXED-SATELLITE (space-to-Earth) 761 MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) 754 754A 755 755A 760A	
<b>2 520 – 2 655</b> FIXED 762 763 764 MOBILE except aeronautical mobile BROADCASTING- SATELLITE 757 760 720 754 754B 756 757A 758 759	<b>2 520 – 2 655</b> FIXED 762 764 FIXED-SATELLITE (space-to-Earth) 761 MOBILE except aeronautical mobile BROADCASTING- SATELLITE 757 760 720 754 755	<b>2 520 – 2 535</b> FIXED 762 764 FIXED-SATELLITE (space-to-Earth) 761 MOBILE except aeronautical mobile BROADCASTING- SATELLITE 757 760 754
		<b>2 535 – 2 655</b> FIXED 762 764 MOBILE except aeronautical mobile BROADCASTING- SATELLITE 757 760 720 757A



**754** Subject to agreement obtained under the procedure set forth in Article 14,  
**WARC-92** the band 2 520 - 2 535 MHz (until 1 January 2005 the band 2 500 - 2 535 MHz) may also be used for the mobile-satellite (space-to-Earth), except aeronautical mobile-satellite, service for operation limited to within national boundaries. The coordination and notification procedures set forth in Resolution 46 (**WARC-92**) apply. However, coordination of space stations of the mobile-satellite service with respect to terrestrial services is required only if the power flux-density produced by the station exceeds the limits in No. 2566.

**754A** *Additional allocation:* subject to agreement obtained under the procedure  
**Mob-87** set forth in Article 14, the band 2 500 - 2 516.5 MHz may also be used in India, the Islamic Republic of Iran, Papua New Guinea and Thailand for the radiodetermination-satellite service (space-to-Earth) for operation limited to within national boundaries.

**754B** *Additional allocation:* in France, the band 2 500 - 2 550 MHz is also  
**WARC-92** allocated to the radiolocation service on a primary basis. Such use is subject to agreement with the administrations having services operating or planned to operate in accordance with the Table which may be affected.

**755** *Additional allocation:* in Canada, the band 2 500 - 2 550 MHz is also allocated to the radiolocation service on a primary basis.

**755A** In the band 2 500 - 2 520 MHz, the power flux-density at the surface of  
**WARC-92** the Earth from space stations operating in the mobile-satellite (space-to-Earth) service shall not exceed  $-152 \text{ dB(W/m}^2/4 \text{ kHz)}$  in Argentina, unless otherwise agreed by the administrations concerned.

**756** *Additional allocation:* in the United Kingdom, the band 2 500 - 2 600 MHz is also allocated to the radiolocation service on a secondary basis.

**757** The use of the band 2 520 - 2 670 MHz by the broadcasting-satellite  
**WARC-92** service is limited to national and regional systems for community reception and such use shall be subject to agreement obtained under the procedure set forth in Article 14. The power flux-density at the Earth's surface shall not exceed the values given in Nos. 2561 to 2564.

**757A** *Additional allocation:* in Bangladesh, Belarus, China, the Republic of  
**WARC-92** Korea, the Russian Federation, India, Japan, Pakistan, Singapore, Sri Lanka, Thailand and Ukraine, the band 2 535 - 2 655 MHz is also allocated to the

broadcasting-satellite service (sound) and complementary terrestrial broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to provisions of Resolution 528 (WARC-92). The provisions of Nos. 757 and 2561 to 2564 do not apply to this additional allocation.

**758** *Alternative allocation:* in the Federal Republic of Germany and Greece, WARC-92 the band 2 520 - 2 670 MHz is allocated to the fixed service on a primary basis.

**759** *Alternative allocation:* in Bulgaria and the U.S.S.R., the band 2 500 - 2 690 MHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

**760** In the design of systems in the broadcasting-satellite service in the bands between 2 500 MHz and 2 690 MHz, administrations are urged to take all necessary steps to protect the radio astronomy service in the band 2 690 - 2 700 MHz.

**760A** The allocation of the frequency band 2 500 - 2 520 MHz to the mobile-satellite service (space-to-Earth) shall be effective on 1 January 2005 and is WARC-92 subject to the application of the coordination and notification procedures set forth in Resolution 46 (WARC-92). Coordination of space stations of the mobile-satellite service with respect to terrestrial services is required only if the power flux-density produced at the Earth's surface exceeds the limits in No. 2566. In respect of assignments operating in this band, the provisions of Section II, paragraph 2.2 of Resolution 46 (WARC-92) shall also be applied to geostationary transmitting space stations with respect to terrestrial stations.

**761** The use of the bands 2 500 - 2 690 MHz in Region 2 and 2 500 - 2 535 MHz and 2 655 - 2 690 MHz in Region 3 by the fixed-satellite service is limited to national and regional systems; such use shall be subject to agreement obtained under the procedure set forth in Article 14, giving particular attention to the broadcasting-satellite service in Region 1. In the direction space-to-Earth, the power flux-density at the Earth's surface shall not exceed the values given in Nos. 2561 to 2564.

**762** Administrations shall make all practicable efforts to avoid developing new tropospheric scatter systems in the band 2 500 - 2 690 MHz.

- 763** Subject to agreement obtained under the procedure set forth in Article 14, the band 2 500 - 2 690 MHz may be used for tropospheric scatter systems in Region 1.
- 764** When planning new tropospheric scatter radio-relay links in the band 2 500 - 2 690 MHz, all possible measures shall be taken to avoid directing the antennae of these links towards the geostationary-satellite orbit.

**MHz**  
**2 655 – 2 690**

Allocation to Services		
Region 1	Region 2	Region 3
<b>2 655 – 2 670</b> <b>FIXED</b> 762 763 764 <b>MOBILE</b> except aeronautical mobile <b>BROADCASTING-SATELLITE</b> 757 760 Earth Exploration-Satellite (passive) Radio Astronomy Space Research (passive)  758 759 765 766	<b>2 655 – 2 670</b> <b>FIXED</b> 762 764 <b>FIXED-SATELLITE</b> (Earth-to-space) (space-to-Earth) 761 <b>MOBILE</b> except aeronautical mobile <b>BROADCASTING-SATELLITE</b> 757 760 Earth Exploration-Satellite (passive) Radio Astronomy Space Research (passive)  765 766	<b>2 655 – 2 670</b> <b>FIXED</b> 762 764 <b>FIXED-SATELLITE</b> (Earth-to-space) 761 <b>MOBILE</b> except aeronautical mobile <b>BROADCASTING-SATELLITE</b> 757 760 Earth Exploration-Satellite (passive) Radio Astronomy Space Research (passive)  765 766
<b>2 670 – 2 690</b> <b>FIXED</b> 762 763 764 <b>MOBILE</b> except aeronautical mobile <b>MOBILE-SATELLITE</b> (Earth-to-space) Earth Exploration-Satellite (passive) Radio Astronomy Space Research (passive)  764A 765 766	<b>2 670 – 2 690</b> <b>FIXED</b> 762 764 <b>FIXED-SATELLITE</b> (Earth-to-space) (space-to-Earth) 761 <b>MOBILE</b> except aeronautical mobile <b>MOBILE-SATELLITE</b> (Earth-to-space) Earth Exploration-Satellite (passive) Radio Astronomy Space Research (passive)  764A 765 766	<b>2 670 – 2 690</b> <b>FIXED</b> 762 764 <b>FIXED-SATELLITE</b> (Earth-to-space) 761 <b>MOBILE</b> except aeronautical mobile <b>MOBILE-SATELLITE</b> (Earth-to-space) Earth Exploration-Satellite (passive) Radio Astronomy Space Research (passive)  764A 765 766

**764A** The allocation of the frequency band 2 670 - 2 690 MHz to the mobile-satellite service shall be effective from 1 January 2005. When introducing mobile-satellite systems in this band administrations shall take all necessary steps to protect the satellite systems operating in this band prior to 3 March 1992. The coordination of mobile-satellite systems in the band shall be in accordance with Resolution **46 (WARC-92)**.

**765** In making assignments to stations of other services, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference in the band 2 655 - 2 690 MHz. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. **343** and **344** and Article **36**).

**766** Subject to agreement obtained under the procedure set forth in Article **14**, the band 2 655 - 2 670 MHz (until 1 January 2005 the band 2 655 - 2 690 MHz) may also be used for the mobile-satellite (Earth-to-space), except aeronautical mobile-satellite, service for operation limited to within national boundaries. The coordination and notification procedures set forth in Resolution **46 (WARC-92)** apply.

**MHz**  
**2 690 – 3 400**

Allocation to Services		
Region 1	Region 2	Region 3
<b>2 690 – 2 700</b>	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 767 768 769	
<b>2 700 – 2 900</b>	AERONAUTICAL RADIONAVIGATION 717 Radiolocation 770 771	
<b>2 900 – 3 100</b>	RADIONAVIGATION 773 Radiolocation 772 775A	
<b>3 100 – 3 300</b>	RADIOLOCATION 713 777 778	
<b>3 300 – 3 400</b> RADIOLOCATION   778 779 780	<b>3 300 – 3 400</b> RADIOLOCATION Amateur Fixed Mobile 778 780	<b>3 300 – 3 400</b> RADIOLOCATION Amateur   778 779

- 767**            *Additional allocation:* in the Federal Republic of Germany and Austria, the band 2 690 - 2 695 MHz is also allocated to the fixed service on a primary basis. Such use is limited to equipment in operation by 1 January 1985.
- 768**            All emissions in the band 2 690 - 2 700 MHz are prohibited, except those provided for by Nos. **767** and **769**.
- 769**            *Additional allocation:* in Afghanistan, Saudi Arabia, Bahrain, Brunei  
**WARC-92** Darussalam, Bulgaria, Cameroon, the Central African Republic, the Congo, Côte d'Ivoire, Cuba, Egypt, the United Arab Emirates, Ethiopia, Gabon, Guinea, Guinea-Bissau, Iran, Iraq, Israel, Jordan, the Lebanon, Malaysia, Malawi, Mali, Morocco, Mauritania, Mongolia, Nigeria, Oman, Pakistan, the Philippines, Poland, Qatar, Syria, the German Democratic Republic, Romania, Singapore, Somalia, Sri Lanka, Czechoslovakia, Thailand, Tunisia, the U.S.S.R., Yemen, Yugoslavia, Zaire and Zambia, the band 2 690 - 2 700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985.
- 770**            In the band 2 700 - 2 900 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the aeronautical radionavigation service.
- 771**            *Additional allocation:* in Canada, the band 2850 - 2900 MHz is also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars.
- 772**            In the band 2900 - 3 100 MHz, the use of the shipborne interrogator-transponder system (SIT) shall be confined to the sub-band 2930 - 2 950 MHz.  
**Mob-87**
- 773**            The use of the band 2900 - 3 100 MHz by the aeronautical radionavigation service is limited to ground-based radars.
- 774 and 775**    SUP  
**Mob-87**
- 775A**           In the bands 2900 - 3 100 MHz and 9 300 - 9 500 MHz, the response from radar transponders shall not be capable of being confused with the response from radar beacons (racons) and shall not cause interference to ship or aeronautical radars in the radionavigation service, having regard, however, to No. **347** of these Regulations.  
**Mob-87**

**776** SUP

**Mob-87**

**777** *Additional allocation:* in Bulgaria, Canada, Cuba, Mongolia, Poland, the  
**WARC-92** German Democratic Republic, Romania, Czechoslovakia and the U.S.S.R.,  
 the band 3 100 - 3 300 MHz is also allocated to the radionavigation service on  
 a primary basis.

**778** In making assignments to stations of other services, administrations are  
 urged to take all practicable steps to protect the spectral line observations of  
 the radio astronomy service from harmful interference in the bands 3 260 -  
 3 267 MHz, 3 332 - 3 339 MHz, 3 345.8 - 3 352.5 MHz and 4 825 -  
 4 835 MHz. Emissions from space or airborne stations can be particularly  
 serious sources of interference to the radio astronomy service (see Nos. **343**  
 and **344** and Article **36**).

**779** *Additional allocation:* in Afghanistan, Saudi Arabia, Bahrain,  
**WARC-92** Bangladesh, Brunei Darussalam, China, the Congo, the United Arab  
 Emirates, India, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Kuwait, the  
 Lebanon, Libya, Malaysia, Oman, Pakistan, Qatar, Dem. People's Rep. of  
 Korea, Syria, Singapore, Sri Lanka, Thailand and Yemen, the band 3 300 -  
 3 400 MHz is also allocated to the fixed and mobile services on a primary  
 basis. The countries bordering the Mediterranean shall not claim protection  
 for their fixed and mobile services from the radiolocation service.

**780** *Additional allocation:* in Bulgaria, Cuba, Mongolia, Poland, the German  
**WARC-92** Democratic Republic, Romania, Czechoslovakia and the U.S.S.R., the band  
 3 300 - 3 400 MHz is also allocated to the radionavigation service on a  
 primary basis.



**MHz**  
**3 400 – 4 800**

Allocation to Services		
Region 1	Region 2	Region 3
<b>3 400 – 3 600</b> FIXED FIXED-SATELLITE (space-to-Earth) Mobile Radiolocation  781 785	<b>3 400 – 3 500</b> FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile Radiolocation 784  664 783	
	<b>3 500 – 3 700</b> FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 784  786	
<b>3 600 – 4 200</b> FIXED FIXED-SATELLITE (space-to-Earth) Mobile	<b>3 700 – 4 200</b> FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile  787	
	<b>4 200 – 4 400</b> AERONAUTICAL RADIONAVIGATION 789  788 790 791	
<b>4 400 – 4 500</b>	FIXED MOBILE	
<b>4 500 – 4 800</b>	FIXED FIXED-SATELLITE (space-to-Earth) 792A MOBILE	

- 781        *Additional allocation:* in the Federal Republic of Germany, Israel, Nigeria and the United Kingdom, the band 3 400 - 3 475 MHz is also allocated to the amateur service on a secondary basis.
- 782        SUP  
WARC-92
- 783        *Different category of service:* in Indonesia, Japan, Pakistan and Thailand, the allocation of the band 3 400 - 3 500 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. 425).
- 784        In Regions 2 and 3, in the band 3 400 - 3 600 MHz the radiolocation service is allocated on a primary basis. However, all administrations operating radiolocation systems in this band are urged to cease operations by 1985. Thereafter, administrations shall take all practicable steps to protect the fixed-satellite service and coordination requirements shall not be imposed on the fixed-satellite service.
- 785        In Denmark, Norway and the United Kingdom, the fixed, radiolocation and fixed-satellite services operate on a basis of equality of rights in the band 3 400 - 3 600 MHz. However, these Administrations operating radiolocation systems in this band are urged to cease operations by 1985. After this date, these Administrations shall take all practicable steps to protect the fixed-satellite service and coordination requirements shall not be imposed on the fixed-satellite service.
- 786        In Japan, in the band 3 620 - 3 700 MHz, the radiolocation service is excluded.
- 787        *Additional allocation:* in New Zealand, the band 3 700 - 3 770 MHz is also allocated to the radiolocation service on a secondary basis.
- 788        *Additional allocation:* in the Federal Republic of Germany, Denmark, Norway and Sweden, the band 4 200 - 4 210 MHz is also allocated to the fixed service on a secondary basis.
- 789        Use of the band 4 200 - 4 400 MHz by the aeronautical radionavigation service is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground. However, passive sensing in the earth exploration-satellite and space research services may be authorized in this band on a secondary basis (no protection is provided by the radio altimeters).
- 790        *Additional allocation:* in China, Iran, Libya, the Philippines and Sri Lanka, the band 4 200 - 4 400 MHz is also allocated to the fixed service on a secondary basis.

**791**           The standard frequency and time signal-satellite service may be authorized to use the frequency 4 202 MHz for space-to-Earth transmissions and the frequency 6 427 MHz for Earth-to-space transmissions. Such transmissions shall be confined within the limits of  $\pm 2$  MHz of these frequencies and shall be subject to agreement obtained under the procedure set forth in Article **14**.

**792**           SUP  
**Orb-88**

**792A**           The use of the bands 4 500 - 4 800 MHz, 6 725 - 7 025 MHz, 10.7 -  
**Orb-88**       10.95 GHz, 11.2 - 11.45 GHz and 12.75 - 13.25 GHz by the fixed-satellite service shall be in accordance with the provisions of Appendix **30B**.

**MHz**  
**4 800 – 5 725**

Allocation to Services		
Region 1	Region 2	Region 3
<b>4 800 – 4 990</b>	FIXED MOBILE 793 Radio Astronomy 720 778 794	
<b>4 990 – 5 000</b>	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space Research (passive) 795	
<b>5 000 – 5 250</b>	AERONAUTICAL RADIONAVIGATION 733 796 797 797A 797B	
<b>5 250 – 5 255</b>	RADIOLOCATION Space Research 713 798	
<b>5 255 – 5 350</b>	RADIOLOCATION 713 798	
<b>5 350 – 5 460</b>	AERONAUTICAL RADIONAVIGATION 799 Radiolocation	
<b>5 460 – 5 470</b>	RADIONAVIGATION 799 Radiolocation	
<b>5 470 – 5 650</b>	MARITIME RADIONAVIGATION Radiolocation 800 801 802	
<b>5 650 – 5 725</b>	RADIOLOCATION Amateur Space Research (deep space) 664 801 803 804 805	

**793** In the bands 4 825 - 4 835 MHz and 4 950- 4 990 MHz, the allocation to the mobile service is restricted to the mobile, except aeronautical mobile, service.

**794** *Different category of service:* in Argentina, Australia and Canada, the allocation of the bands 4 825 - 4 835 MHz and 4 950 - 4 990 MHz to the radio astronomy service is on a primary basis (see No. **425**). 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. **343** and **344** and Article **36**).

**795** In making assignments to stations of other services to which the band 4 990 - 5 000 MHz 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. **343** and **344** and Article **36**).

**796** The band 5 000 - 5 250 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. The requirements of this system shall take precedence over other uses of this band.

**797** The bands 5 000 - 5 250 MHz and 15.4 - 15.7 GHz are also allocated to the fixed-satellite service and the inter-satellite service, for connection between one or more earth stations at specified fixed points on the Earth and space stations, when these services are used in conjunction with the aeronautical radionavigation and/or aeronautical mobile (R) service. Such use shall be subject to agreement obtained under the procedure set forth in Article **14**.

**797A** *Additional allocation:* in the countries listed in Nos. **733B** and **753C**, and subject to agreement obtained under the procedure set forth in Article **14**, the band 5 150 - 5 216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Region 2, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Regions 1 and 3, except those countries listed in Nos. **733B** and **753C**, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a secondary basis. The use by the radiodetermination-

**Mob-87**

satellite service is limited to feeder links in conjunction with the radio-determination-satellite service operating in the bands 1 610 - 1 626.5 MHz and/or 2 483.5 - 2 500 MHz. The total power flux-density at the Earth's surface shall in no case exceed  $-159 \text{ dBW/m}^2$  in any 4 kHz band for all angles of arrival.

**797B** *Additional allocation:* in the Federal Republic of Germany, Austria, **WARC-92** Belgium, Denmark, Spain, Finland, France, Greece, Israel, Italy, Japan, Jordan, Lebanon, Liechtenstein, Luxembourg, Malta, Morocco, Norway, Pakistan, the Netherlands, Portugal, the United Kingdom, Sweden, Switzerland, Syria and Tunisia, the band 5 150 - 5 250 MHz is also allocated to the mobile service, on a primary basis, subject to the agreement obtained under the procedure set forth in Article 14.

**798** *Additional allocation:* in Austria, Bulgaria, Libya, Mongolia, Poland, the **WARC-92** German Democratic Republic, Romania, Czechoslovakia and the U.S.S.R., the band 5 250 - 5 350 MHz is also allocated to the radionavigation service on a primary basis.

**799** The use of the band 5 350 - 5 470 MHz by the aeronautical radionavigation service is limited to airborne radars and associated airborne beacons.

**800** *Additional allocation:* in Afghanistan, Austria, Bulgaria, Iran, Mongolia, **WARC-92** Poland, the German Democratic Republic, Romania, Czechoslovakia and the U.S.S.R., the band 5 470 - 5 650 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

**801** *Additional allocation:* in the United Kingdom, the band 5 470 - 5 850 MHz is also allocated to the land mobile service on a secondary basis. The power limits specified in Nos. **2502**, **2505**, **2506** and **2507** shall apply in the band 5 725 - 5 850 MHz.

**802** Between 5 600 MHz and 5 650 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the maritime radionavigation service.

**803** *Additional allocation:* in Afghanistan, Saudi Arabia, Bahrain, **WARC-92** Bangladesh, Brunei Darussalam, Cameroon, the Central African Republic, China, the Congo, the Republic of Korea, Egypt, the United Arab Emirates, Gabon, Guinea, India, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Kuwait, the Lebanon, Libya, Madagascar, Malaysia, Malawi, Niger, Nigeria, Oman, Pakistan, the Philippines, Qatar, Dem. People's Rep. of Korea, Syria, Singapore, Sri Lanka, Swaziland, Tanzania, Chad, Thailand and Yemen, the band 5 650 - 5 850 MHz is also allocated to the fixed and mobile services on a primary basis.

**804**            *Different category of service:* in Bulgaria, Cuba, Mongolia, Poland, the  
**WARC-92** German Democratic Republic, Czechoslovakia and the U.S.S.R., the allocation of the band 5 670 - 5 725 MHz to the space research service is on a primary basis (see No. **425**).

**805**            *Additional allocation:* in Bulgaria, Cuba, Hungary, Mongolia, Poland, the German Democratic Republic, Czechoslovakia and the U.S.S.R., the band 5 670 - 5 850 MHz is also allocated to the fixed service on a primary basis.

**MHz**  
**5 725 – 7 300**

Allocation to Services		
Region 1	Region 2	Region 3
<b>5 725 – 5 850</b> FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur  801 803 805 806 807 808	<b>5 725 – 5 850</b> RADIOLOCATION Amateur  803 805 806 808	
<b>5 850 – 5 925</b> FIXED FIXED-SATELLITE (Earth-to-space) MOBILE  806	<b>5 850 – 5 925</b> FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Amateur Radiolocation  806	<b>5 850 – 5 925</b> FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Radiolocation  806
<b>5 925 – 7 075</b>	FIXED FIXED-SATELLITE (Earth-to-space) 792A MOBILE  791 809	
<b>7 075 – 7 250</b>	FIXED MOBILE  809 810 811	
<b>7 250 – 7 300</b>	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE  812	



- 806** The band 5 725 - 5 875 MHz (centre frequency 5 800 MHz) is designated for industrial, scientific and medical (ISM) applications. Radiocommunication services operating within this band must accept harmful interference which may be caused by these applications. ISM equipment operating in this band is subject to the provisions of No. 1815.
- 807** *Additional allocation:* in the Federal Republic of Germany and in Cameroon, the band 5 755 - 5 850 MHz is also allocated to the fixed service on a primary basis.
- 808** The band 5 830 - 5 850 MHz is also allocated to the amateur-satellite service (space-to-Earth) on a secondary basis.
- 809** In the band 6 425 - 7 075 MHz, passive microwave sensor measurements are carried out over the oceans. In the band 7 075 - 7 250 MHz, passive microwave sensor measurements are carried out. Administrations should bear in mind the needs of the earth exploration-satellite (passive) and space research (passive) services in their future planning of this band.
- 810** Subject to agreement obtained under the procedure set forth in Article 14, in Region 2, the band 7 125 - 7 155 MHz may be used for Earth-to-space transmissions in the space operation service.
- 811** Subject to agreement obtained under the procedure set forth in Article 14, the band 7 145 - 7 235 MHz may be used for Earth-to-space transmissions in the space research service. The use of the band 7 145 - 7 190 MHz is restricted to deep space; no emissions to deep space shall be effected in the band 7 190 - 7 235 MHz.
- 812** The bands 7 250 - 7 375 MHz (space-to-Earth) and 7 900 - 8 025 MHz (Earth-to-space) may also be used by the mobile-satellite service. The use of these bands by this service shall be subject to agreement obtained under the procedure set forth in Article 14.

**MHz**  
**7 300 – 8 175**

Allocation to Services		
Region 1	Region 2	Region 3
<b>7 300 – 7 450</b>	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 812	
<b>7 450 – 7 550</b>	FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	
<b>7 550 – 7 750</b>	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	
<b>7 750 – 7 900</b>	FIXED MOBILE except aeronautical mobile	
<b>7 900 – 8 025</b>	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 812	
<b>8 025 – 8 175</b> FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Earth Exploration-Satellite (space-to-Earth) 813 815	<b>8 025 – 8 175</b> EARTH EXPLORATION- SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 814	<b>8 025 – 8 175</b> FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Earth Exploration-Satellite (space-to-Earth) 813 815

- 813** In the band 8 025 - 8 400 MHz, the power flux-density limits specified in No. **2570** shall apply in Regions 1 and 3 to the earth exploration-satellite service.
- 814** In Region 2, aircraft stations are not permitted to transmit in the band 8 025 - 8 400 MHz.
- 815** Subject to agreement obtained under the procedure set forth in Article 14, the band 8 025 - 8 400 MHz may be used for the earth exploration-satellite service (space-to-Earth) in Bangladesh, Benin, Cameroon, China, the Central African Republic, the Ivory Coast, Egypt, France, Guinea, Upper Volta, India, Iran, Israel, Italy, Japan, Kenya, Libya, Mali, Niger, Pakistan, Senegal, Somalia, Sudan, Sweden, Tanzania, Zaire and Zambia, on a primary basis.

**MHz**  
**8 175 – 8 750**

Allocation to Services		
Region 1	Region 2	Region 3
<b>8 175 – 8 215</b> FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE Earth Exploration-Satellite (space-to-Earth) 813 815	<b>8 175 – 8 215</b> EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE 814	<b>8 175 – 8 215</b> FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE Earth Exploration-Satellite (space-to-Earth) 813 815
<b>8 215 – 8 400</b> FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Earth Exploration-Satellite (space-to-Earth) 813 815	<b>8 215 – 8 400</b> EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 814	<b>8 215 – 8 400</b> FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Earth Exploration-Satellite (space-to-Earth) 813 815
<b>8 400 – 8 500</b>	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) 816 817 818	
<b>8 500 – 8 750</b>	RADIOLOCATION 713 819 820	

- 816** In the space research service, the use of the band 8 400 - 8 450 MHz is limited to deep space.
- 817** *Different category of service:* in Belgium, Israel, Luxembourg, Malaysia, Singapore and Sri Lanka, the allocation of the band 8 400 - 8 500 MHz to the space research service is on a secondary basis (see No. 424).
- 818** *Alternative allocation:* in the United Kingdom, the band 8 400 - 8 500 MHz is allocated to the radiolocation and space research services on a primary basis.
- 819** *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei
- WARC-92** Darussalam, Burundi, Cameroon, China, the Congo, Costa Rica, Egypt, the United Arab Emirates, Gabon, Guinea, Guyana, Indonesia, Iran, Iraq, Israel, Jamaica, Jordan, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Niger, Nigeria, Oman, Pakistan, Qatar, Dem. People's Rep. of Korea, Syria, Senegal, Singapore, Somalia, Sri Lanka, Swaziland, Tanzania, Chad, Thailand, Togo, Tunisia and Yemen, the band 8 500 - 8 750 MHz is also allocated to the fixed and mobile services on a primary basis.
- 820** *Additional allocation:* in Bulgaria, Hungary, Mongolia, Poland, the German Democratic Republic, Roumania, Czechoslovakia and the U.S.S.R., the band 8 500 - 8 750 MHz is also allocated to the land mobile and radionavigation services on a primary basis.

**MHz**  
**8 750 – 10 000**

Allocation to Services		
Region 1	Region 2	Region 3
<b>8 750 – 8 850</b>	RADIOLOCATION AERONAUTICAL RADIONAVIGATION 821 822	
<b>8 850 – 9 000</b>	RADIOLOCATION MARITIME RADIONAVIGATION 823 824	
<b>9 000 – 9 200</b>	AERONAUTICAL RADIONAVIGATION 717 Radiolocation 822	
<b>9 200 – 9 300</b>	RADIOLOCATION MARITIME RADIONAVIGATION 823 824 824A	
<b>9 300 – 9 500</b>	RADIONAVIGATION 825A Radiolocation 775A 824A 825	
<b>9 500 – 9 800</b>	RADIOLOCATION RADIONAVIGATION 713	
<b>9 800 – 10 000</b>	RADIOLOCATION Fixed 826 827 828	

- 821** The use of the band 8 750 - 8 850 MHz by the aeronautical radionavigation service is limited to airborne Doppler navigation aids on a centre frequency of 8 800 MHz.
- 822** *Additional allocation:* in Algeria, the Federal Republic of Germany, Bahrain, Belgium, China, the United Arab Emirates, France, Greece, Indonesia, Iran, Libya, the Netherlands, Qatar, Sudan and Thailand, the bands 8 825 - 8 850 MHz and 9 000 - 9 200 MHz are also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars only.
- 823** In the bands 8 850 - 9 000 MHz and 9 200 - 9 225 MHz, the maritime radionavigation service is limited to shore-based radars.
- 824** *Additional allocation:* in Austria, Bulgaria, Cuba, Hungary, Mongolia, Poland, the German Democratic Republic, Roumania, Czechoslovakia and the U.S.S.R., the bands 8 850 - 9 000 MHz and 9 200 - 9 300 MHz are also allocated to the radionavigation service on a primary basis.
- 824A** In the band 9 200 - 9 500 MHz, search and rescue transponders (SART)  
**Mob-87** may be used, having due regard to the appropriate CCIR Recommendation (see also Article N 38).
- 825** The use of the band 9 300 - 9 500 MHz by the aeronautical radionavigation service is limited to airborne weather radars and ground-based radars. In addition, ground-based radar beacons in the aeronautical radionavigation service are permitted in the band 9 300 - 9 320 MHz on condition that harmful interference is not caused to the maritime radionavigation service. In the band 9 300 - 9 500 MHz, ground-based radars used for meteorological purposes have priority over other radiolocation devices.
- 825A** In the band 9 300 - 9 320 MHz in the radionavigation service, the use of  
**Mob-87** shipborne radars, other than those existing on 1 January 1976, is not permitted until 1 January 2001.
- 826** *Different category of service:* in Afghanistan, Algeria, Saudi Arabia,  
**WARC-92** Austria, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, the Republic of Korea, Egypt, the United Arab Emirates, Ethiopia, Guyana, India, Indonesia, Iran, Iraq, Israel, Jamaica, Japan, Jordan, Kuwait, the Lebanon, Liberia, Malaysia, Nigeria, Oman, Pakistan, Qatar, Singapore, Somalia, Sudan, Sri Lanka, Sweden, Thailand, Trinidad and Tobago, and Yemen, the allocation of the band 9 800 - 10 000 MHz to the fixed service is on a primary basis (see No. 425).

- 827**        *Additional allocation:* in Bulgaria, Hungary, Mongolia, Poland, the German Democratic Republic, Roumania, Czechoslovakia and the U.S.S.R., the band 9 800 - 10 000 MHz is also allocated to the radionavigation service on a primary basis.
- 828**        The band 9 975 - 10 025 MHz is also allocated to the meteorological-satellite service on a secondary basis for use by weather radars.



**GHz**  
**10 – 10.7**

Allocation to Services		
Region 1	Region 2	Region 3
<b>10 – 10.45</b> FIXED MOBILE RADIOLOCATION Amateur 828	<b>10 – 10.45</b> RADIOLOCATION Amateur  828 829	<b>10 – 10.45</b> FIXED MOBILE RADIOLOCATION Amateur 828
<b>10.45 – 10.5</b>	RADIOLOCATION Amateur Amateur-Satellite 830	
<b>10.5 – 10.55</b> FIXED MOBILE Radiolocation	<b>10.5 – 10.55</b>  FIXED MOBILE RADIOLOCATION	
<b>10.55 – 10.6</b>	FIXED MOBILE except aeronautical mobile Radiolocation	
<b>10.6 – 10.68</b>	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation 831 832	
<b>10.68 – 10.7</b>	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 833 834	

- 829** *Additional allocation:* in Costa Rica, Ecuador, Guatemala and Honduras, the band 10 - 10.45 GHz is also allocated to the fixed and mobile services on a primary basis.
- 830** *Additional allocation:* in the Federal Republic of Germany, Angola, WARC-92 China, Ecuador, Spain, Japan, Kenya, Morocco, Nigeria, Oman, Dem. People's Rep. of Korea, Sweden, Tanzania and Thailand, the band 10.45 - 10.5 GHz is also allocated to the fixed and mobile services on a primary basis.
- 831** In the band 10.6 - 10.68 GHz, stations of the fixed and mobile, except aeronautical mobile, services shall be limited to a maximum equivalent isotropically radiated power of 40 dBW and the power delivered to the antenna shall not exceed -3 dBW. These limits may be exceeded subject to agreement obtained under the procedure set forth in Article 14. However, in Afghanistan, Saudi Arabia, Bahrain, Bangladesh, China, the United Arab Emirates, Finland, India, Indonesia, Iran, Iraq, Japan, Kuwait, the Lebanon, Nigeria, Pakistan, the Philippines, Qatar, Syria and the U.S.S.R., the restrictions on the fixed and mobile, except aeronautical mobile, services are not applicable.
- 832** In making assignments to stations of other services to which the band 10.6 - 10.68 GHz 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. 343 and 344 and Article 36).
- 833** All emissions in the band 10.68 - 10.7 GHz are prohibited, except for those provided for by No. 834.
- 834** *Additional allocation:* in Saudi Arabia, Bahrain, Bulgaria, Cameroon, WARC-92 China, Colombia, the Republic of Korea, Costa Rica, Cuba, Egypt, the United Arab Emirates, Ecuador, Iran, Iraq, Israel, Japan, Jordan, Kuwait, the Lebanon, Mongolia, Pakistan, Poland, Qatar, the German Democratic Republic, Dem. People's Rep. of Korea, Romania, Czechoslovakia, the U.S.S.R., Yemen and Yugoslavia, the band 10.68 - 10.7 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985.

**GHz**  
**10.7 – 12.75**

Allocation to Services		
Region 1	Region 2	Region 3
<b>10.7 – 11.7</b> FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 792A 835 MOBILE except aeronautical mobile	<b>10.7 – 11.7</b> FIXED FIXED-SATELLITE (space-to-Earth) 792A MOBILE except aeronautical mobile	
<b>11.7 – 12.5</b> FIXED BROADCASTING BROADCASTING-SATELLITE MOBILE except aeronautical mobile  838	<b>11.7 – 12.1</b> FIXED 837 FIXED-SATELLITE (space-to-Earth) Mobile except aeronautical mobile 836 839	<b>11.7 – 12.2</b> FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE  838
	<b>12.1 – 12.2</b> FIXED-SATELLITE (space-to-Earth) 836 839 842	
	<b>12.2 – 12.7</b> FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 839 844 846	<b>12.2 – 12.5</b> FIXED MOBILE except aeronautical mobile BROADCASTING 838 845
<b>12.5 – 12.75</b> FIXED-SATELLITE (space-to-Earth) (Earth-to-space)  848 849 850	<b>12.7 – 12.75</b> FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile	<b>12.5 – 12.75</b> FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile BROADCASTING-SATELLITE 847

- 835** In Region 1, the use of the band 10.7 - 11.7 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service.
- 836** In Region 2, in the band 11.7 - 12.2 GHz, transponders on space stations  
**Orb-85** in the fixed-satellite service may be used additionally for transmissions in the broadcasting-satellite service, provided that such transmissions do not have a maximum e.i.r.p. greater than 53 dBW per television channel and do not cause greater interference or require more protection from interference than the coordinated fixed-satellite service frequency assignments. With respect to the space services, this band shall be used principally for the fixed-satellite service.
- 837** *Different category of service:* in Canada, Mexico and the United States,  
**Orb-85** the allocation of the band 11.7 - 12.1 GHz to the fixed service is on a secondary basis (see No. 424).
- 838** In the band 11.7 - 12.5 GHz in Regions 1 and 3, the fixed, fixed-satellite, mobile, except aeronautical mobile, and broadcasting services, in accordance with their respective allocations, shall not cause harmful interference to broadcasting-satellite stations operating in accordance with the provisions of Appendix 30\*.
- 839** The use of the bands 11.7 - 12.2 GHz by the fixed-satellite service in  
**Orb-88** Region 2 and 12.2 - 12.7 GHz by the broadcasting-satellite service in Region 2 is limited to national and subregional systems. The use of the band 11.7 - 12.2 GHz by the fixed-satellite service in Region 2 is subject to previous agreement between the administrations concerned and those having services, operating or planned to operate in accordance with the Table, which may be affected (see Articles 11, 13 and 14). For the use of the band 12.2 - 12.7 GHz by the broadcasting-satellite service in Region 2, see Article 15.
- 840 and 841** SUP  
**Orb-85**
- 842** *Additional allocation:* the band 12.1 - 12.2 GHz in Brazil and Peru, is  
**Orb-85** also allocated to the fixed service on a primary basis.

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\* *Note by the Secretary-General:* Appendix 30 has been revised by the First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985, and becomes Appendix 30 (Orb-85)

**843** SUP  
**Orb-85**

**844** In Region 2, in the band 12.2 - 12.7 GHz, existing and future terrestrial  
**Orb-85** radiocommunication services shall not cause harmful interference to the space services operating in conformity with the Broadcasting-Satellite Plan for Region 2 contained in Appendix 30 (Orb-85).

**845** In Region 3, the band 12.2 - 12.5 GHz is also allocated to the fixed-satellite (space-to-Earth) service limited to national and sub-regional systems. The power flux-density limits in No. 2574 shall apply to this frequency band. The introduction of the service in relation to the broadcasting-satellite service in Region 1 shall follow the procedures specified in Article 7 of Appendix 30\*, with the applicable frequency band extended to cover 12.2 - 12.5 GHz.

**846** In Region 2, in the band 12.2 - 12.7 GHz, assignments to stations of the  
**Orb-85** broadcasting-satellite service in the Plan for Region 2 contained in Appendix 30 (Orb-85) may also be used for transmissions in the fixed-satellite service (space-to-Earth), provided that such transmissions do not cause more interference or require more protection from interference than the broadcasting-satellite service transmissions operating in conformity with the Region 2 Plan. With respect to the space services, this band shall be used principally for the broadcasting-satellite service.

**847** The broadcasting-satellite service in the band 12.5 - 12.75 GHz in  
**Orb-85** Region 3 is limited to community reception with a power flux-density not exceeding  $-111 \text{ dB(W/m}^2\text{)}$  as defined in Annex 5 of Appendix 30 (Orb-85). See also Resolution 34.

**848** *Additional allocation:* in Algeria, Angola, Saudi Arabia, Bahrain, Cameroon, the Central African Republic, the Congo, the Ivory Coast, Egypt, the United Arab Emirates, Ethiopia, Gabon, Ghana, Guinea, Iraq, Israel, Jordan, Kenya, Kuwait, the Lebanon, Libya, Madagascar, Mali, Morocco, Mongolia, Niger, Nigeria, Qatar, Syria, Senegal, Somalia, Sudan, Chad, Togo, Yemen (P.D.R. of) and Zaire, the band 12.5 - 12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

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\* Note by the Secretary-General: See Note relating to No. 838.

849

*Additional allocation:* in the Federal Republic of Germany, Belgium, Denmark, Spain, Finland, France, Greece, Liechtenstein, Luxembourg, Monaco, Norway, Uganda, the Netherlands, Portugal, Roumania, Sweden, Switzerland, Tanzania, Tunisia and Yugoslavia, the band 12.5 - 12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis.

850

WARC-92

*Additional allocation:* in Austria, Bulgaria, Hungary, the German Democratic Republic, Czechoslovakia and the U.S.S.R., the band 12.5 - 12.75 GHz is also allocated to the fixed service and the mobile, except aeronautical mobile, service on a primary basis. However, stations in these services shall not cause harmful interference to fixed-satellite service earth stations of countries in Region 1 other than those mentioned in this footnote. Coordination of these earth stations is not required with stations of the fixed and mobile services of the countries mentioned in this footnote. The power flux-density limit at the Earth's surface given in No. 2574 for the fixed-satellite service shall apply on the territory of the countries mentioned in this footnote.

**GHz**  
**12.75 – 14.3**

Allocation to Services		
Region 1	Region 2	Region 3
<b>12.75 – 13.25</b>	FIXED FIXED-SATELLITE (Earth-to-space) 792A MOBILE Space Research (deep space) (space-to-Earth)	
<b>13.25 – 13.4</b>	AERONAUTICAL RADIONAVIGATION 851 852 853	
<b>13.4 – 13.75</b>	RADIOLOCATION Standard Frequency and Time Signal-Satellite (Earth-to-space) Space Research 713 853 854 855	
<b>13.75 – 14</b>	FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Standard Frequency and Time Signal-Satellite (Earth-to-space) Space Research 713 853 854 855 855A 855B	
<b>14 – 14.25</b>	FIXED-SATELLITE (Earth-to-space) 858 RADIONAVIGATION 856 Space Research 857 859	
<b>14.25 – 14.3</b>	FIXED-SATELLITE (Earth-to-space) 858 RADIONAVIGATION 856 Space Research 857 859 860 861	

- 851** The use of the band 13.25 - 13.4 GHz by the aeronautical radionavigation service is limited to Doppler navigation aids.
- 852** Subject to agreement obtained under the procedure set forth in Article 14, the band 13.25 - 13.4 GHz may also be used in the space research service (Earth-to-space) on a secondary basis.
- 853** *Additional allocation:* in Bangladesh, India and Pakistan, the band 13.25 - 14 GHz is also allocated to the fixed service on a primary basis.
- 854** *Additional allocation:* in Afghanistan, Algeria, Angola, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, the Republic of Korea, Egypt, the United Arab Emirates, Finland, Gabon, Guinea, Indonesia, Iran, Iraq, Israel, Jordan, Kuwait, the Lebanon, Madagascar, Malaysia, Malawi, Mali, Malta, Morocco, Mauritania, Niger, Nigeria, Pakistan, Qatar, Syria, Senegal, Singapore, Sudan, Sri Lanka, Sweden, Chad, Thailand and Tunisia, the band 13.4 - 14 GHz is also allocated to the fixed and mobile services on a primary basis.
- 855** *Additional allocation:* in Austria, Bulgaria, Hungary, Japan, Mongolia, WARC-92 the German Democratic Republic, Romania, the United Kingdom, Czechoslovakia and the U.S.S.R., the band 13.4 - 14 GHz is also allocated to the radionavigation service on a primary basis.
- 855A** In the band 13.75 - 14 GHz, the e.i.r.p. of any emission from an earth WARC-92 station in the fixed-satellite service shall be at least 68 dBW, and should not exceed 85 dBW, with a minimum antenna diameter of 4.5 metres. In addition the e.i.r.p., averaged over one second, radiated by a station in the radio-location and radionavigation services towards the geostationary-satellite orbit shall not exceed 59 dBW. These values shall apply subject to review by the CCIR and until they are changed by a future competent world administrative radio conference (see Resolution 112 (WARC-92)).
- 855B** In the band 13.75 - 14 GHz geostationary space stations in the space WARC-92 research service, for which information for advance publication has been received by the IFRB prior to 31 January 1992, shall operate on an equal basis with stations in the fixed-satellite service; after that date new geostationary space stations in the space research service will operate on a secondary basis. Until 1 January 2000, stations in the fixed-satellite service shall not cause harmful interference to non-geostationary space stations in the space research and Earth exploration-satellite services; after that date these non-geostationary space stations will operate on a secondary basis in relation to the fixed-satellite service.



**856** The use of the band 14 - 14.3 GHz by the radionavigation service shall be such as to provide sufficient protection to space stations of the fixed-satellite service (see Recommendation 708).

**857** *Additional allocation:* in Afghanistan, Algeria, Angola, Saudi Arabia, **WARC-92** Australia, Bahrain, Bangladesh, Botswana, Brunei Darussalam, Cameroon, China, the Congo, the Republic of Korea, Egypt, the United Arab Emirates, Gabon, Guatemala, Guinea, India, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Kenya, Kuwait, Lesotho, the Lebanon, Malaysia, Malawi, Mali, Morocco, Mauritania, Niger, Oman, Pakistan, the Philippines, Qatar, Dem. People's Rep. of Korea, Syria, Senegal, Singapore, Somalia, Sudan, Sri Lanka, Swaziland, Tanzania, Chad, Thailand and Yemen, the band 14 - 14.3 GHz is also allocated to the fixed service on a primary basis.

**858** The band 14 - 14.5 GHz may be used, within the fixed-satellite service **Orb-88** (Earth-to-space), for feeder links for the broadcasting-satellite service, subject to coordination with other networks in the fixed-satellite service. Such use of feeder links is reserved for countries outside Europe.

**859** The band 14 - 14.5 GHz is also allocated to the land mobile-satellite service (Earth-to-space) on a secondary basis.

**860** *Additional allocation:* in the Federal Republic of Germany, Austria, **WARC-92** Belgium, Denmark, Spain, Finland, France, Greece, Ireland, Iceland, Italy, Libya, Liechtenstein, Luxembourg, Norway, the Netherlands, Portugal, the United Kingdom, Sweden, Switzerland, Turkey and Yugoslavia, the band 14.25 - 14.3 GHz is also allocated to the fixed service on a primary basis.

**861** *Additional allocation:* in Japan, Pakistan, the United Kingdom and Thailand, the band 14.25 - 14.3 GHz is also allocated to the mobile, except aeronautical mobile, service on a primary basis.

**GHz**  
**14.3 – 15.35**

Allocation to Services		
Region 1	Region 2	Region 3
<b>14.3 – 14.4</b> <b>FIXED</b> <b>FIXED-SATELLITE</b> (Earth-to-space) 858 <b>MOBILE except</b> aeronautical mobile <b>Radionavigation-Satellite</b> 859	<b>14.3 – 14.4</b> <b>FIXED-SATELLITE</b> (Earth-to-space) 858 <b>Radionavigation-Satellite</b> 859	<b>14.3 – 14.4</b> <b>FIXED</b> <b>FIXED-SATELLITE</b> (Earth-to-space) 858 <b>MOBILE except</b> aeronautical mobile <b>Radionavigation-Satellite</b> 859
<b>14.4 – 14.47</b>	<b>FIXED</b> <b>FIXED-SATELLITE (Earth-to-space) 858</b> <b>MOBILE except aeronautical mobile</b> <b>Space Research (space-to-Earth)</b> 859	
<b>14.47 – 14.5</b>	<b>FIXED</b> <b>FIXED-SATELLITE (Earth-to-space) 858</b> <b>MOBILE except aeronautical mobile</b> <b>Radio Astronomy</b> 859 862	
<b>14.5 – 14.8</b>	<b>FIXED</b> <b>FIXED-SATELLITE (Earth-to-space) 863</b> <b>MOBILE</b> <b>Space Research</b>	
<b>14.8 – 15.35</b>	<b>FIXED</b> <b>MOBILE</b> <b>Space Research</b> 720	

**862** In making assignments to stations of other services to which the band 14.47 - 14.5 GHz is allocated, administrations are urged to take all practicable steps to protect spectral line observations of 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. **343** and **344** and Article 36).

**863** The use of the band 14.5 - 14.8 GHz by the fixed-satellite service (Earth-  
**Orb-88** to-space) is limited to feeder links for the broadcasting-satellite service. This use is reserved for countries outside Europe.

**GHz**  
**15.35 – 17.7**

Allocation to Services		
Region 1	Region 2	Region 3
15.35 – 15.4	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 864 865	
15.4 – 15.7	AERONAUTICAL RADIONAVIGATION 733 797	
15.7 – 16.6	RADIOLOCATION 866 867	
16.6 – 17.1	RADIOLOCATION Space Research (deep space) (Earth-to-space) 866 867	
17.1 – 17.2	RADIOLOCATION 866 867	
17.2 – 17.3	RADIOLOCATION Earth Exploration-Satellite (active) Space Research (active) 866 867	
17.3 – 17.7 FIXED-SATELLITE (Earth-to-space) 869 Radiolocation  868	17.3 – 17.7 FIXED-SATELLITE (Earth-to-space) 869 BROADCASTING- SATELLITE Radiolocation  868 868A 869A	17.3 – 17.7 FIXED-SATELLITE (Earth-to-space) 869 Radiolocation  868

**864** All emissions in the band 15.35 - 15.4 GHz are prohibited, except those provided for by No. **865**.

**865** *Additional allocation:* in Afghanistan, Saudi Arabia, Bahrain, Cameroon, Egypt, the United Arab Emirates, Guinea, Iran, Iraq, Israel, Kuwait, the Lebanon, Libya, Pakistan, Qatar, Syria, Somalia and Yugoslavia, the band 15.35 - 15.4 GHz is also allocated to the fixed and mobile services on a secondary basis.

**866** *Additional allocation:* in Afghanistan, Algeria, Angola, Saudi Arabia, **WARC-92** Austria, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, the Congo, Costa Rica, Egypt, El Salvador, the United Arab Emirates, Finland, Guatemala, India, Indonesia, Iran, Jordan, Kuwait, Libya, Malaysia, Malawi, Morocco, Mozambique, Nepal, Nicaragua, Oman, Pakistan, Qatar, Singapore, Somalia, Sudan, Sri Lanka, Sweden, Swaziland, Tanzania, Chad, Thailand, Yemen and Yugoslavia, the band 15.7 - 17.3 GHz is also allocated to the fixed and mobile services on a primary basis.

**867** *Additional allocation:* in Israel, the band 15.7 - 17.3 GHz is also allocated to the fixed and mobile services on a primary basis. These services shall not claim protection from or cause harmful interference to services operating in accordance with the Table in countries other than those included in No. **866**.

**868** *Additional allocation:* in Afghanistan, Algeria, the Federal Republic of **WARC-92** Germany, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Cameroon, Costa Rica, El Salvador, the United Arab Emirates, Finland, Guatemala, Honduras, India, Indonesia, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, Libya, Nepal, Nicaragua, Oman, Pakistan, Qatar, Sudan, Sri Lanka, Sweden, Thailand and Yugoslavia, the band 17.3 - 17.7 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos. **2505** and **2508** shall apply.

**868A** In the band 17.3 - 17.8 GHz, sharing between the fixed-satellite service **WARC-92** (Earth-to-space) and the broadcasting-satellite service shall also be in accordance with the provisions of section 1 of Annex 4 of Appendix **30A**.

**869** The use of the band 17.3 - 18.1 GHz by the fixed-satellite service (Earth- **Orb-85** to-space) is limited to feeder links for the broadcasting-satellite service. For the use of the band 17.3 - 17.8 GHz in Region 2 by the feeder links for the broadcasting-satellite service in the band 12.2 - 12.7 GHz, see Article **15A**.

**869A** In Region 2, the allocation to the broadcasting-satellite service in the  
**WARC-92** band 17.3 - 17.8 GHz shall come into effect on 1 April 2007. After that date, use of the fixed-satellite (space-to-Earth) service in the band 17.7 - 17.8 GHz shall not claim protection from and shall not cause harmful interference to operating systems in the broadcasting-satellite service.

**GHz**  
**17.7 – 18.8**

Allocation to Services		
Region 1	Region 2	Region 3
<b>17.7 – 18.1</b> FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 869 MOBILE	<b>17.7 – 17.8</b> FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 869 BROADCASTING-SATELLITE Mobile 869B 868A 869A	<b>17.7 – 18.1</b> FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 869 MOBILE
	<b>17.8 – 18.1</b> FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 869 MOBILE	
<b>18.1 – 18.4</b> FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 870A MOBILE 870 870B		
<b>18.4 – 18.6</b> FIXED FIXED-SATELLITE (space-to-Earth) MOBILE		
<b>18.6 – 18.8</b> FIXED FIXED-SATELLITE (space-to-Earth) 872 MOBILE except aeronautical mobile Earth Exploration-Satellite (passive) Space Research (passive)  871	<b>18.6 – 18.8</b> EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 872 MOBILE except aeronautical mobile SPACE RESEARCH (passive)  871	<b>18.6 – 18.8</b> FIXED FIXED-SATELLITE (space-to-Earth) 872 MOBILE except aeronautical mobile Earth Exploration-Satellite (passive) Space Research (passive)  871

- 869B** In Region 2, the allocation of the band 17.7 - 17.8 GHz to the mobile WARC-92 service is on a primary basis until 31 March 2007.
- 870** The band 18.1 - 18.3 GHz is also allocated to the meteorological-satellite service (space-to-Earth) on a primary basis. Its use is limited to geostationary satellites and shall be in accordance with the provisions of No. 2578.
- 870A** The use of the band 18.1 - 18.4 GHz by the fixed-satellite service (Earth-WARC-92 to-space) is limited to feeder links for the broadcasting-satellite service.
- 870B** *Alternative allocation:* in the Federal Republic of Germany, Denmark, WARC-92 the United Arab Emirates, Greece, Poland, the Czech and Slovak Federal Republic and the United Kingdom, the band 18.1 - 18.4 GHz is allocated to the fixed, fixed-satellite (space-to-Earth) and mobile services on a primary basis. The provisions of No. 870 also apply.
- 871** In making assignments to stations in the fixed and mobile services, administrations are invited to take account of passive sensors in the earth-exploration satellite and space research services operating in the band 18.6 - 18.8 GHz. In this band, administrations should endeavour to limit as far as possible both the power delivered by the transmitter to the antenna and the e.i.r.p. in order to reduce the risk of interference to passive sensors to the minimum.
- 872** In assigning frequencies to stations in the fixed-satellite service in the direction space-to-Earth, administrations are requested to limit as far as practicable the power flux-density at the Earth's surface in the band 18.6 - 18.8 GHz, in order to reduce the risk of interference to passive sensors in the earth exploration-satellite and space research services.



**GHz**  
**18.8 – 22.21**

Allocation to Services		
Region 1	Region 2	Region 3
<b>18.8 – 19.7</b>	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	
<b>19.7 – 20.1</b> FIXED-SATELLITE (space-to-Earth) Mobile-Satellite (space-to-Earth)  873	<b>19.7 – 20.1</b> FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth)  873 873A 873B 873C 873D 873E	<b>19.7 – 20.1</b> FIXED-SATELLITE (space-to-Earth) Mobile-Satellite (space-to-Earth)  873
<b>20.1 – 20.2</b>	FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth)  873 873A 873B 873C 873D	
<b>20.2 – 21.2</b>	FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard Frequency and Time Signal (space-to-Earth)  873	
<b>21.2 – 21.4</b>	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	
<b>21.4 – 22</b> FIXED MOBILE BROADCASTING-SATELLITE  873F	<b>21.4 – 22</b> FIXED MOBILE	<b>21.4 – 22</b> FIXED MOBILE BROADCASTING-SATELLITE  873F 873G
<b>22 – 22.21</b>	FIXED MOBILE except aeronautical mobile  874	

**873** *Additional allocation:* in Afghanistan, Algeria, Angola, Saudi Arabia, Bahrain, Bangladesh, Brazil, Brunei Darussalam, Cameroon, China, the Congo, the Republic of Korea, Costa Rica, Egypt, the United Arab Emirates, Gabon, Guatemala, Guinea, India, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Kenya, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Niger, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syria, Singapore, Somalia, Sudan, Sri Lanka, Tanzania, Chad, Thailand, Togo, Tunisia and Zaire, the band 19.7 - 21.2 GHz is also allocated to the fixed and mobile services on a primary basis. This additional use shall not impose any limitation on the power flux-density of space stations in the fixed-satellite service in the band 19.7 - 21.2 GHz and of space stations in the mobile-satellite service in the band 19.7 - 20.2 GHz where such allocation to the mobile-satellite service is on a primary basis in the latter band.

**873A** In order to facilitate interregional coordination between networks in the mobile-satellite and fixed-satellite services, carriers in the mobile-satellite service that are most susceptible to interference shall, to the extent practicable, be located in the higher parts of the bands 19.7 - 20.2 GHz and 29.5 - 30 GHz.

**873B** In the bands 19.7 - 20.2 GHz and 29.5 - 30 GHz in Region 2, and in the bands 20.1 - 20.2 GHz and 29.9 - 30 GHz in Regions 1 and 3, networks which are both in the fixed-satellite service and in the mobile-satellite service may include links between earth stations at specified or unspecified points or while in motion, through one or more satellites for point-to-point and point-to-multipoint communications.

**873C** In the bands 19.7 - 20.2 GHz and 29.5 - 30 GHz, the provisions of No. 953 do not apply with respect to the mobile-satellite service.

**873D** The allocation to the mobile-satellite service is intended for use by networks which use narrow spot-beam antennas and other advanced technology at the space stations. Administrations operating systems in the mobile-satellite service in the band 19.7 - 20.1 GHz in Region 2 and in the band 20.1 - 20.2 GHz shall take all practicable steps to ensure the continued availability of these bands for administrations operating fixed and mobile systems in accordance with the provisions of No. 873.

**873E** The use of the bands 19.7 - 20.1 GHz and 29.5 - 29.9 GHz by the mobile-satellite service in Region 2 is limited to satellite networks which are both in the fixed-satellite service and in the mobile-satellite service as described in No. 873B.

**873F** In Regions 1 and 3, the allocation to the broadcasting-satellite service in  
**WARC-92** the band 21.4 - 22 GHz shall come into effect on 1 April 2007. The use of  
this band by the broadcasting-satellite service after that date and on an  
interim basis prior to that date is subject to the provisions of Resolution 525  
(**WARC-92**).

**873G** *Additional allocation:* in Japan, the band 21.4 - 22 GHz is also allocated  
**WARC-92** to the broadcasting service on a primary basis.

**874** In making assignments to stations of other services, administrations are  
urged to take all practicable steps to protect the spectral line observations of  
the radio astronomy service in the band 22.01 - 22.21 GHz from harmful  
interference. Emissions from space or airborne stations can be particularly  
serious sources of interference to the radio astronomy service (see also Nos. 343  
and 344 and Article 36).

**GHz**  
**22.21 – 24.05**

Allocation to Services		
Region 1	Region 2	Region 3
<b>22.21 – 22.5</b>	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) 875 876	
<b>22.5 – 22.55</b>	FIXED MOBILE	
<b>22.55 – 23</b>	FIXED INTER-SATELLITE MOBILE 879	
<b>23 – 23.55</b>	FIXED INTER-SATELLITE MOBILE 879	
<b>23.55 – 23.6</b>	FIXED MOBILE	
<b>23.6 – 24</b>	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 880	
<b>24 – 24.05</b>	AMATEUR AMATEUR-SATELLITE 881	

**875** In making assignments to stations of other services, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference in the band 22.21 - 22.5 GHz. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see also Nos. **343** and **344** and Article **36**).

**876** The use of the band 22.21 - 22.5 GHz by the earth exploration-satellite (passive) and space research (passive) services shall not impose constraints upon the fixed and mobile, except aeronautical mobile, services.

**877 and 878** SUP  
WARC-92

**879** In making assignments to stations of other services, administrations are urged to take all practicable steps to protect the spectral line observations of the radio astronomy service in the bands 22.81 - 22.86 GHz and 23.07 - 23.12 GHz from harmful interference. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see also Nos. **343** and **344** and Article **36**).

**880** All emissions in the band 23.6 - 24 GHz are prohibited.

**881** The band 24 - 24.25 GHz (centre frequency 24.125 GHz) is designated for industrial, scientific and medical (ISM) applications. Radiocommunication services operating within this band must accept harmful interference which may be caused by these applications. ISM equipment operating in this band is subject to the provisions of No. **1815**.

**GHz**  
**24.05 – 25.5**

Allocation to Services		
Region 1	Region 2	Region 3
<b>24.05 – 24.25</b>	<b>RADIOLOCATION</b> Amateur Earth Exploration-Satellite (active) 881	
<b>24.25 – 24.45</b> FIXED	<b>24.25 – 24.45</b> RADIONAVIGATION	<b>24.25 – 24.45</b> RADIONAVIGATION FIXED MOBILE
<b>24.45 – 24.65</b> FIXED INTER-SATELLITE	<b>24.45 – 24.65</b> INTER-SATELLITE RADIONAVIGATION  882E	<b>24.45 – 24.65</b> FIXED INTER-SATELLITE MOBILE RADIONAVIGATION  882E
<b>24.65 – 24.75</b> FIXED INTER-SATELLITE	<b>24.65 – 24.75</b> INTER-SATELLITE RADIOLOCATION-SATELLITE (Earth-to-space)	<b>24.65 – 24.75</b> FIXED INTER-SATELLITE MOBILE  882E 882F
<b>24.75 – 25.25</b> FIXED	<b>24.75 – 25.25</b> FIXED-SATELLITE (Earth-to-space) 882G	<b>24.75 – 25.25</b> FIXED FIXED-SATELLITE (Earth-to-space) 882G MOBILE  882F
<b>25.25 – 25.5</b>	<b>FIXED</b> <b>INTER-SATELLITE 881A</b> <b>MOBILE</b> <b>Standard Frequency and Time Signal-Satellite (Earth-to-space)</b>	

**GHz**  
**25.5 – 29.9**

Allocation to Services		
Region 1	Region 2	Region 3
<b>25.5 – 27</b>	FIXED INTER-SATELLITE 881A MOBILE Earth Exploration-Satellite (space-to-Earth) Standard Frequency and Time Signal-Satellite (Earth-to-space)	
<b>27 – 27.5</b> FIXED INTER-SATELLITE 881A MOBILE	<b>27 – 27.5</b> FIXED FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE 881A 881B MOBILE	
<b>27.5 – 28.5</b>	FIXED FIXED-SATELLITE (Earth-to-space) 882D MOBILE 882A 882B	
<b>28.5 – 29.5</b>	FIXED FIXED-SATELLITE (Earth-to-space) 882D MOBILE Earth Exploration-Satellite (Earth-to-space) 882C 882B	
<b>29.5 – 29.9</b> FIXED-SATELLITE (Earth-to-space) 882D Earth Exploration-Satellite (Earth-to-space) 882C Mobile-Satellite (Earth-to-space)  882B 883	<b>29.5 – 29.9</b> FIXED-SATELLITE (Earth-to-space) 882D MOBILE-SATELLITE (Earth-to-space) Earth Exploration-Satellite (Earth-to-space) 882C  873A 873B 873C 873E 882B 883	<b>29.5 – 29.9</b> FIXED-SATELLITE (Earth-to-space) 882D Earth Exploration-Satellite (Earth-to-space) 882C Mobile-Satellite (Earth-to-space)  882B 883

**GHz**  
**29.9 – 31.8**

Allocation to Services		
Region 1	Region 2	Region 3
<b>29.9 – 30</b>	FIXED-SATELLITE (Earth-to-space) 882D MOBILE-SATELLITE (Earth-to-space) Earth Exploration-Satellite (Earth-to-space) 882C 873A 873B 873C 882 882A 882B 883	
<b>30 – 31</b>	FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Standard Frequency and Time Signal-Satellite (space-to-Earth) 883	
<b>31 – 31.3</b>	FIXED MOBILE Standard Frequency and Time Signal-Satellite (space-to-Earth) Space Research 884 885 886	
<b>31.3 – 31.5</b>	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 887	
<b>31.5 – 31.8</b> EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 888 889	<b>31.5 – 31.8</b> EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 888	<b>31.5 – 31.8</b> EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 888



**881A** Use of the 25.25 - 27.5 GHz band by the inter-satellite service is limited  
**WARC-92** to space research and Earth exploration-satellite applications, and also transmissions of data originating from industrial and medical activities in space.

**881B** Space services using non-geostationary satellites operating in the inter-  
**WARC-92** satellite service in the band 27 - 27.5 GHz are exempt from the provisions of No. 2613.

**882** The band 29.95 - 30 GHz may be used for space-to-space links in the earth exploration-satellite service for telemetry, tracking, and control purposes, on a secondary basis.

**882A** *Additional allocation:* the bands 27.500 - 27.501 GHz and 29.999 -  
**WARC-92** 30.000 GHz are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis for the beacon transmissions intended for up-link power control. Such space-to-Earth transmissions shall not exceed an equivalent isotropically radiated power (e.i.r.p.) of +10 dBW in the direction of adjacent satellites on the geostationary-satellite orbit. In the band 27.500 - 27.501 GHz, such space-to-Earth transmissions shall not produce a power flux-density in excess of the values specified in No. 2578 on the Earth's surface.

**882B** *Additional allocation:* the band 27.501 - 29.999 GHz is also allocated to  
**WARC-92** the fixed-satellite service (space-to-Earth) on a secondary basis for beacon transmissions intended for up-link power control.

**882C** In the band 28.5 - 30 GHz, the earth exploration-satellite service is  
**WARC-92** limited to the transfer of data between stations and not to the primary collection of information by means of active or passive sensors.

**882D** The band 27.5 - 30 GHz may be used by the fixed-satellite service (Earth-  
**WARC-92** to-space) for the provision of feeder links for the broadcasting-satellite service.

**882E** The inter-satellite service shall not claim protection from harmful inter-  
**WARC-92** ference from airport surface detection equipment stations of the radio-navigation service.

**882F** *Additional allocation:* in Japan, the band 24.65 - 25.25 GHz is also allo-  
**WARC-92** cated to the radionavigation service on a primary basis until 2008.

**882G** In the band 24.75 - 25.25 GHz, feeder links to stations of the broadcast-  
**WARC-92** ing-satellite service shall have priority over other uses in the fixed-satellite service (Earth-to-space). Such other uses shall protect and shall not claim protection from existing and future operating feeder-link networks to such broadcasting satellite stations.

**883** *Additional allocation:* in Afghanistan, Algeria, Saudi Arabia, Bahrain, WARC-92 Bangladesh, Brunei Darussalam, Cameroon, China, the Congo, the Republic of Korea, Egypt, the United Arab Emirates, Ethiopia, Guinea, India, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Kenya, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Niger, Pakistan, Qatar, Syria, Singapore, Somalia, Sudan, Sri Lanka, Chad and Thailand, the band 29.5 - 31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. 2505 and 2508 shall apply.

**884** In the band 31 - 31.3 GHz the power flux-density limits specified in Orb-88 No. 2582 shall apply to the space research service.

**885** *Different category of service:* in Bulgaria, Cuba, Mongolia, Poland, the WARC-92 German Democratic Republic, Czechoslovakia and the U.S.S.R., the allocation of the band 31 - 31.3 GHz to the space research service is on a primary basis (see No. 425).

**886** In making assignments to stations of other services, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference in the band 31.2 - 31.3 GHz. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 343 and 344 and Article 36).

**887** All emissions in the band 31.3 - 31.5 GHz are prohibited.

**888** In Regions 1 and 3, in making assignments to stations of other services to which the band 31.5 - 31.8 GHz 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. 343 and 344 and Article 36).

In Region 2, all emissions in the band 31.5 - 31.8 GHz are prohibited.

**889** *Different category of service:* in Bulgaria, Egypt, Mongolia, Poland, the WARC-92 German Democratic Republic, Romania, Czechoslovakia and the U.S.S.R., the allocation of the band 31.5 - 31.8 GHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. 425).

**GHz**  
**31.8 – 37**

Allocation to Services		
Region 1	Region 2	Region 3
31.8 – 32	RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 892 893	
32 – 32.3	INTER-SATELLITE RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 892 893	
32.3 – 33	INTER-SATELLITE RADIONAVIGATION 892 893	
33 – 33.4	RADIONAVIGATION 892	
33.4 – 34.2	RADIOLOCATION 892 894	
34.2 – 34.7	RADIOLOCATION SPACE RESEARCH (deep space) (Earth-to-space) 894	
34.7 – 35.2	RADIOLOCATION Space Research 896 894	
35.2 – 36	METEOROLOGICAL AIDS RADIOLOCATION 894 897	
36 – 37	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 898	

**890 and 891** SUP  
WARC-92

**892** Subject to agreement obtained under the procedure set forth in Article 14, the band 31.8 - 33.8 GHz may also be used in Japan for space-to-Earth transmissions in the fixed-satellite service up to 31 December 1990.

**893** In designing systems for the inter-satellite and radionavigation services in  
WARC-92 the band 32 - 33 GHz, and for the space research service (deep space) in the band 31.8 - 32.3 GHz, administrations shall take all necessary measures to prevent harmful interference between these services, bearing in mind the safety aspects of the radionavigation service (see Recommendation 707 (WARC-79)).

**894** *Additional allocation:* in Afghanistan, Saudi Arabia, Bahrain,  
WARC-92 Bangladesh, Egypt, the United Arab Emirates, Spain, Finland, Gabon, Guinea, Indonesia, Iran, Iraq, Israel, Jordan, Kenya, Kuwait, the Lebanon, Libya, Malaysia, Malawi, Mali, Malta, Morocco, Mauritania, Nepal, Niger, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syria, Senegal, Singapore, Somalia, Sudan, Sri Lanka, Sweden, Tanzania, Thailand, Togo, Tunisia, Yemen and Zaire, the band 33.4 - 36 GHz is also allocated to the fixed and mobile services on a primary basis.

**895** SUP  
WARC-92

**896** *Different category of service:* in Bulgaria, Cuba, Mongolia, the German  
WARC-92 Democratic Republic, Czechoslovakia and the U.S.S.R., the allocation of the band 34.7 - 35.2 GHz to the space research service is on a primary basis (see No. 425).

**897** Radars located on spacecraft may be operated on a primary basis in the band 35.5 - 35.6 GHz.

**898** In making assignments to stations of other services, administrations are urged to take all practicable steps to protect the spectral line observations of the radio astronomy service in the band 36.43 - 36.5 GHz from harmful interference. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 343 and 344 and Article 36).

**GHz**  
**37 – 42.5**

Allocation to Services		
Region 1	Region 2	Region 3
37 – 37.5	FIXED MOBILE SPACE RESEARCH (space-to-Earth)	
37.5 – 38	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (space-to-Earth) Earth Exploration-Satellite (space-to-Earth)	
38 – 39.5	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Earth Exploration-Satellite (space-to-Earth)	
39.5 – 40	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite (space-to-Earth)	
40 – 40.5	EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth Exploration-Satellite (space-to-Earth)	
40.5 – 42.5	BROADCASTING-SATELLITE /BROADCASTING/ Fixed Mobile	

**GHz**  
**42.5 – 54.25**

Allocation to Services		
Region 1	Region 2	Region 3
<b>42.5 – 43.5</b>	FIXED FIXED-SATELLITE (Earth-to-space) 901 MOBILE except aeronautical mobile RADIO ASTRONOMY 900	
<b>43.5 – 47</b>	MOBILE 902 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 903	
<b>47 – 47.2</b>	AMATEUR AMATEUR-SATELLITE	
<b>47.2 – 50.2</b>	FIXED FIXED-SATELLITE (Earth-to-space) 901 MOBILE 905 904	
<b>50.2 – 50.4</b>	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	
<b>50.4 – 51.4</b>	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Mobile-Satellite (Earth-to-space)	
<b>51.4 – 54.25</b>	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 906 907	

**899** SUP  
**WARC-92**

- 900** In making assignments to stations of other services to which the band 42.5 - 43.5 GHz is allocated, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference, especially in the bands 42.77 - 42.87 GHz, 43.07 - 43.17 GHz, and 43.37 - 43.47 GHz, which are used for spectral line observations of silicon monoxide. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. **343** and **344** and Article 36).
- 901** The allocation of the spectrum for the fixed-satellite service in the bands 42.5 - 43.5 GHz and 47.2 - 50.2 GHz for Earth-to-space transmission is greater than that in the band 37.5 - 39.5 GHz for space-to-Earth transmission in order to accommodate feeder links to broadcasting satellites. Administrations are urged to take all practicable steps to reserve the band 47.2 - 49.2 GHz for feeder links for the broadcasting-satellite service operating in the band 40.5 - 42.5 GHz.
- 902** In the bands 43.5 - 47 GHz, 66 - 71 GHz, 95 - 100 GHz, 134 - 142 GHz, 190 - 200 GHz and 252 - 265 GHz, stations in the land mobile service may be operated subject to not causing harmful interference to the space radiocommunication services to which these bands are allocated (see No. **435**).
- 903** 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.
- 904** 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. **343** and **344** and Article 36).

- 905            In the band 48.94 - 49.04 GHz, all emissions from airborne stations are prohibited.
- 906            In the bands 51.4 - 54.25 GHz, 58.2 - 59 GHz, 64 - 65 GHz and 72.77 - 72.91 GHz, radio astronomy observations may be carried out under national arrangements. Administrations are urged to take all practicable steps to protect radio astronomy observations in these bands from harmful interference.
- 907            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.



**GHz**  
**54.25 – 74**

Allocation to Services		
Region 1	Region 2	Region 3
<b>54.25 – 58.2</b>	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE MOBILE 909 SPACE RESEARCH (passive) 908	
<b>58.2 – 59</b>	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 906 907	
<b>59 – 64</b>	FIXED INTER-SATELLITE MOBILE 909 RADIOLOCATION 910 911	
<b>64 – 65</b>	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 906 907	
<b>65 – 66</b>	EARTH EXPLORATION-SATELLITE SPACE RESEARCH Fixed Mobile	
<b>66 – 71</b>	MOBILE 902 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 903	
<b>71 – 74</b>	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) 906	

- 908**      *Additional allocation:* in the Federal Republic of Germany, Japan and the United Kingdom, the band 54.25 - 58.2 GHz is also allocated to the radiolocation service on a primary basis.
- 909**      In the bands 54.25 - 58.2 GHz, 59 - 64 GHz, 116 - 134 GHz, 170 - 182 GHz and 185 - 190 GHz, stations in the aeronautical mobile service may be operated subject to not causing harmful interference to the inter-satellite service (see No. **435**).
- 910**      In the bands 59 - 64 GHz and 126 - 134 GHz, airborne radars in the radiolocation service may be operated subject to not causing harmful interference to the inter-satellite service (see No. **435**).
- 911**      The band 61 - 61.5 GHz (centre frequency 61.25 GHz) is designated for industrial, scientific and medical (ISM) applications. 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 relevant CCIR Recommendations.

**GHz**  
**74 – 92**

Allocation to Services		
Region 1	Region 2	Region 3
<b>74 – 75.5</b>	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Space Research (space-to-Earth)	
<b>75.5 – 76</b>	AMATEUR AMATEUR-SATELLITE Space Research (space-to-Earth)	
<b>76 – 81</b>	RADIOLOCATION Amateur Amateur-Satellite Space Research (space-to-Earth) 912	
<b>81 – 84</b>	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) Space Research (space-to-Earth)	
<b>84 – 86</b>	FIXED MOBILE BROADCASTING BROADCASTING-SATELLITE 913	
<b>86 – 92</b>	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 907	

- 912** In the band 78 - 79 GHz radars located on space stations may be operated on a primary basis in the earth exploration-satellite service and in the space research service.
- 913** In the band 84 - 86 GHz, stations in the fixed, mobile and broadcasting services shall not cause harmful interference to broadcasting-satellite stations operating in accordance with the decisions of the appropriate frequency assignment planning conference for the broadcasting-satellite service.

**GHz**  
**92 – 126**

Allocation to Services		
Region 1	Region 2	Region 3
<b>92 – 95</b>	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIOLOCATION 914	
<b>95 – 100</b>	MOBILE 902 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE Radiolocation 903 904	
<b>100 – 102</b>	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 722	
<b>102 – 105</b>	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE 722	
<b>105 – 116</b>	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 722 907	
<b>116 – 126</b>	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE MOBILE 909 SPACE RESEARCH (passive) 722 915 916	

- 914** 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 the services to which this band is allocated, administrations are urged to take all practicable steps 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. **343** and **344** and Article **36**).
- 915** The band 119.98 - 120.02 GHz is also allocated to the amateur service on a secondary basis.
- 916** The band 122 - 123 GHz (centre frequency 122.5 GHz) is designated for industrial, scientific and medical (ISM) applications. 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 relevant CCIR Recommendations.

**GHz**  
**126 – 156**

Allocation to Services		
Region 1	Region 2	Region 3
<b>126 – 134</b>	FIXED INTER-SATELLITE MOBILE 909 RADIOLOCATION 910	
<b>134 – 142</b>	MOBILE 902 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE Radiolocation 903 917 918	
<b>142 – 144</b>	AMATEUR AMATEUR-SATELLITE	
<b>144 – 149</b>	RADIOLOCATION Amateur Amateur-Satellite 918	
<b>149 – 150</b>	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	
<b>150 – 151</b>	EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (passive) 919	
<b>151 – 156</b>	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	

- 917** 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.
- 918** 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 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. **343** and **344** and Article **36**).
- 919** 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 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. **343** and **344** and Article **36**).



**GHz**  
**156 – 185**

Allocation to Services		
Region 1	Region 2	Region 3
<b>156 – 158</b>	EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	
<b>158 – 164</b>	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	
<b>164 – 168</b>	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	
<b>168 – 170</b>	FIXED MOBILE	
<b>170 – 174.5</b>	FIXED INTER-SATELLITE MOBILE 909 919	
<b>174.5 – 176.5</b>	EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE MOBILE 909 SPACE RESEARCH (passive) 919	
<b>176.5 – 182</b>	FIXED INTER-SATELLITE MOBILE 909 919	
<b>182 – 185</b>	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 920 921	

- 920**        *Additional allocation:* in the United Kingdom, the band 182 - 185 GHz is also allocated to the fixed and mobile services on a primary basis.
- 921**        In the band 182 - 185 GHz all emissions are prohibited except for those under the provisions of No. **920**.

**GHz**  
**185 – 235**

Allocation to Services		
Region 1	Region 2	Region 3
<b>185 – 190</b>	FIXED INTER-SATELLITE MOBILE 909 919	
<b>190 – 200</b>	MOBILE 902 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 722 903	
<b>200 – 202</b>	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 722	
<b>202 – 217</b>	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 722	
<b>217 – 231</b>	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 722 907	
<b>231 – 235</b>	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation	

**GHz**  
**235 – 400**

Allocation to Services		
Region 1	Region 2	Region 3
<b>235 – 238</b>	EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (passive)	
<b>238 – 241</b>	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation	
<b>241 – 248</b>	RADIOLOCATION Amateur Amateur-Satellite 922	
<b>248 – 250</b>	AMATEUR AMATEUR-SATELLITE	
<b>250 – 252</b>	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 923	
<b>252 – 265</b>	MOBILE 902 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 903 923 924 925	
<b>265 – 275</b>	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 926	
<b>275 – 400</b>	(Not allocated)	927

- 922** The band 244 - 246 GHz (centre frequency 245 GHz) is designated for industrial, scientific and medical (ISM) applications. 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 relevant CCIR Recommendations.
- 923** 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. **343** and **344** and Article **36**).
- 924** 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. **343** and **344** and Article **36**).
- 925** In the Federal Republic of Germany, Argentina, Spain, Finland, France, India, Italy, 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. **343** and **344** and Article **36**).

**926** 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. **343** and **344** and Article **36**).

**927** The frequency band 275 - 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.

**928**  
to  
**952**

NOT allocated

## ARTICLE 11

WARC-92

**Coordination of Frequency Assignments to  
Stations in a Space Radiocommunication Service Except  
Stations in the Broadcasting-Satellite Service and to  
Appropriate Terrestrial Stations<sup>1, 2, 3, 5</sup>**

**Section I. Procedures for the Advance Publication  
of Information on Planned Satellite Networks<sup>4</sup>**

**A.11.1**  
**Orb-88**

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<sup>1</sup> For the coordination of frequency assignments to stations in the broadcasting-satellite service and other services in the frequency bands 11.7 - 12.2 GHz (in Region 3), 11.7 - 12.5 GHz (in Region 1) and 12.2 - 12.7 GHz (in Region 2) as well as the coordination of frequency assignments to feeder-link stations utilizing the fixed-satellite service (Earth-to-space) in the frequency band 17.3 - 17.8 GHz (in Region 2) and in the frequency bands 14.5 - 14.8 GHz and 17.3 - 18.1 GHz in Regions 1 and 3 and the other services in these bands, see also Article 15 and Article 15A respectively.

**A.11.2**  
**Orb-88**

<sup>2</sup> These procedures may be applicable for earth stations of the earth exploration-satellite service, space research service, space operation service and radiodetermination-satellite service intended to be used while in motion or during halts at unspecified points.

**A.11.3**  
**Orb-88**

<sup>3</sup> For the application of the provisions of this Article with respect to stations in a space radiocommunication service using frequency bands covered by the fixed-satellite service Allotment Plan, see also Appendix 30B and Resolution 107 (Orb-88).

**A.11.4**  
**Orb-88**

<sup>4</sup> These procedures may be applicable to stations on board satellite launching vehicles.

**A.11.5**  
**WARC-92**

<sup>5</sup> See Resolution 46 (WARC-92).

**1041**      *Publication of Information*

**1042**      § 1. (1) An administration (or one acting on behalf of a group  
**Orb-88**      of named administrations) which intends to bring into use a  
satellite network within a satellite system<sup>1</sup> shall, prior to the  
coordination procedure described in No. 1060 where applicable,  
send to the International Frequency Registration Board, not earlier  
than six years<sup>2</sup> and preferably not later than two years before the  
date of bringing into service of each satellite network, the informa-  
tion listed in Appendix 4.

**1043**      (2) Amendments to the information sent in accordance with  
**Orb-88**      the provisions of No. 1042 shall also be sent to the Board as soon  
as they become available. Modifications which are of such a nature  
as to significantly change the character of the network may require  
recommencing the advance publication procedure.

**1044**      (3) If the information is found to be incomplete, the Board  
**Orb-88**      shall immediately seek from the administration concerned any  
clarification and information not provided.

On receipt of the complete information sent under  
Nos. 1042 and 1043, the Board shall publish it in a special section  
of its weekly circular within three months and shall also, when the  
weekly circular contains such information, so advise all adminis-  
trations by circular telegram. The circular telegram shall indicate  
the frequency bands to be used and, in the case of a geostationary  
satellite, the orbital location of the space station. When the Board  
is not in a position to comply with the time limit referred to above,  
it shall periodically so inform the administrations, giving the  
reasons therefor.

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**1042.1**      <sup>1</sup> For the use of frequency bands which are not covered by the  
**Orb-88**      fixed-satellite service Allotment Plan. See also Resolution 108 (Orb-88).

**1042.2**      <sup>2</sup> See also No. 1550.  
**Orb-88**



## ARTICLE 12

**WARC-92**      **Notification and Recording in the Master International  
Frequency Register of Frequency Assignments<sup>1</sup> to  
Terrestrial Radiocommunication Stations<sup>2, 3, 4, 5</sup>**

**A.12.1**      <sup>1</sup> The expression *frequency assignment*, wherever it appears in this Article, shall be understood to refer either to a new frequency assignment or to a change in an assignment already recorded in the Master International Frequency Register (hereinafter called the *Master Register*).

**A.12.2**      <sup>2</sup> For the notification and recording in the Master International Frequency Register of frequency assignments to radio astronomy and space radiocommunication stations, see Article 13.

**A.12.3**      <sup>3</sup> For the notification and recording of frequency assignments to  
**Orb-85** terrestrial stations in the frequency bands 11.7 - 12.2 GHz (in Region 3), 12.2 - 12.7 GHz (in Region 2) and 11.7 - 12.5 GHz (in Region 1), so far as their relationship to the broadcasting-satellite service in these bands is concerned, see also Article 15.

**A.12.4**      <sup>4</sup> For the notification and recording of frequency assignments to  
**Orb-88** terrestrial stations in the frequency bands 14.5 - 14.8 GHz (in Regions 1 and 3), 17.7 - 17.8 GHz (in Region 2), and 17.7 - 18.1 GHz (in Regions 1 and 3), so far as their relationship to the fixed-satellite service (Earth-to-space) in this band is concerned, see also Article 15A.

**A.12.5**      <sup>5</sup> See Resolution 46 (WARC-92).

**WARC-92**

## Section I. Notification of Frequency Assignments

- 1214**      § 1.      (1) Any frequency assignment<sup>1</sup> to a fixed, land, broadcasting<sup>2</sup>, radionavigation land, radiolocation land or a standard frequency and time signal station, or to a ground-based station in the meteorological aids service, shall be notified to the International Frequency Registration Board:
- 1214.1**                    <sup>1</sup> In the case where a frequency is used by numerous stations under the jurisdiction of the same administration, see Appendix 1 (Section F, II, Column 5a, paragraphs 3 and 4).
- 1214.2**                    <sup>2</sup> With respect to assignments to broadcasting stations in the bands allocated exclusively to the broadcasting service between 5 950 kHz and 26 100 kHz, see Article 17.
- 1215**                    a) if the use of the frequency concerned is capable of causing harmful interference to any service of another administration<sup>3</sup>; *or*
- 1215.1**                    <sup>3</sup> The attention of administrations is specifically drawn to the application of the provisions of Nos. **1215** and **1217** in those cases where they make a frequency assignment to a terrestrial station, located within the coordination area of an earth station (see Nos. **1148** to **1154**), in a band which terrestrial radiocommunication services share with equal rights with space radiocommunication services in the frequency spectrum above 1 GHz.
- 1216**                    b) if the frequency is to be used for international radiocommunication; *or*
- 1217**                    c) if it is desired to obtain international recognition of the use of the frequency<sup>4</sup>.
- 1217.1**                    <sup>4</sup> The attention of administrations is specifically drawn to the application of the provisions of Nos. **1215** and **1217** in those cases where they make a frequency assignment to a terrestrial station, located within the coordination area of an earth station (see Nos. **1148** to **1154**), in a band which terrestrial radiocommunication services share with equal rights with space radiocommunication services in the frequency spectrum above 1 GHz.

**1218** (2) Similar notice<sup>1</sup> shall be given when an administration desires to request the assistance of the Board in selecting a frequency assignment to a station of the fixed service in any of the bands allocated exclusively, or on a shared basis, to that service between 3 000 kHz and 27 500 kHz, or when an administration wishes to use for the same type of station a predetermined frequency assignment; in the latter case, the administration shall indicate the reasons on which the request is based together with the possible modifications which could be made to the characteristics of its assignment, and the Board will take account of this information when searching for a satisfactory solution. For this purpose an individual notice shall be drawn up as specified in Section D of Appendix 1. It is recommended that the notifying administration should provide the additional information called for in that Appendix, together with such further information as it may consider appropriate. The procedure to be followed is given in Nos. 1275 to 1304.

**1218.1** <sup>1</sup> See Resolution 103.

**1219** (3) Similar notice shall be given for any frequency to be used for the reception of mobile stations by a particular land station in each case where one or more of the conditions specified in Nos. 1214 to 1217 are applicable.

**1220** (4) Specific frequencies listed in the Preface to the International Frequency List which are prescribed by these Regulations for common use by stations of a given service (for example, international distress frequencies 500 kHz and 2 182 kHz, frequencies of ship radiotelegraph stations operating in their exclusive high frequency bands, etc.), shall not be notified to the Board.

**1221** § 2. (1) For any notification under Nos. 1214 to 1217 or 1219 an individual notice for each frequency assignment shall be drawn up as prescribed in Sections A or B of Appendix 1, which specify the basic characteristics to be furnished, according to the case. It is

recommended that the notifying administration should also supply the additional information called for in that Appendix, together with such further information as it may consider appropriate.

- 1222** (2) Notices concerning assignments to stations of the fixed service in the bands allocated to that service between 3 000 kHz and 27 500 kHz that are submitted under Nos. **1214** to **1217** or **1218** shall also indicate the class of operation of the assignment, with the use of the following symbols:

Symbol A – assignment for regular operational use which is not provided by another satisfactory means of telecommunication; *or*

Symbol B – assignment for use as a standby to some other means of telecommunication; *or*

Symbol C – assignment for occasional use on a reserve basis and not requiring internationally recognized protection from harmful interference.

- 1223** (3) When stations of the same service, such as the land mobile service, use a band of frequencies above 28 000 kHz in a specific area or areas, an individual notice should be drawn up, as prescribed in Section C of Appendix 1, which specifies the basic characteristics to be furnished, for each frequency on which there are assignments within the band; however, the particulars should relate only to a typical station. This does not apply:

- 1224**           a) to broadcasting stations;
- 1225**           b) to other terrestrial stations to which the provisions of Sub-Section IIE of this Article apply;
- 1226**           c) to other stations of the fixed or mobile service which operate in the frequency bands listed in Table II of Appendix 28 with equivalent isotropically radiated power exceeding the corresponding values listed in the table;

- 1227**                    *d)* to the terrestrial stations in the frequency bands listed in Nos. **2509**, **2510** and **2511**.
- 1228**            § 3.        (1) Whenever practicable, each notice under Nos. **1214** to **1217**, **1219** or **1223** to **1227** should reach the Board before the date on which the assignment is brought into use. It must reach the Board not earlier than three months before the date on which it is to be brought into use, but in any case not later than thirty days after the date it is actually brought into use.
- 1229**                    (2) A notice under No. **1218** must reach the Board not earlier than one year before the date on which the requested frequency is to be brought into use.
- 1230**                    (3) A notice concerning a frequency assignment to one of the terrestrial stations mentioned in Sub-Section IIE of this Article must reach the Board not earlier than three years and not later than three months before the date on which the assignment is to be brought into use.
- 1231**                    (4) Except for cases covered by Nos. **1218** and **1229** any frequency assignment the notice of which reaches the Board more than thirty days after the notified date of bringing into use, or in the case of a terrestrial station mentioned in Sub-Section IIE of this Article, any frequency assignment the notice of which reaches the Board less than three months before it is brought into use, shall, where it is to be recorded, bear a remark in the Master Register to indicate that it is not in conformity with No. **1228** or **1230**. However, such a remark will not be made in the Master Register against an assignment to a terrestrial station which has not been notified under Nos. **1214** to **1217** but which is required to be notified after its entry into use as a result of coordination for or notification of an earth station assignment.

- 1232**     § 4.     Whatever the means of communication, including telegraph, by which a notice is sent to the Board, it shall be considered complete if it contains at least those appropriate basic characteristics specified in Appendix 1.
- 1233**     § 5.     When a service or regional agreement has been concluded, the Board shall be informed of the details of this agreement.

**Section II. Procedure for the Examination of Notices and the Recording of Frequency Assignments in the Master Register**

- 1234**     § 6.     Any notice submitted under Nos. 1214 to 1217, 1219 or 1223 to 1227 which does not contain at least those basic characteristics specified in Appendix 1 shall be returned by the Board, by airmail, to the notifying administration with the reasons therefor, unless the information not provided is immediately forthcoming in response to an enquiry of the Board. The Board shall advise the administration by telegram when a notice is returned under this provision.
- 1235**     § 7.     On receipt of a complete notice, the Board shall include the particulars thereof, with the date of receipt, in a weekly circular to be published within a period of forty days after receipt of the notice and sent by airmail to all administrations. When the Board is not in a position to comply with this time-limit, it shall, as soon as possible, so inform the administrations concerned giving the reasons therefor.
- 1236**     § 8.     The circular shall contain the full particulars of all such notices received since the publication of the previous circular and shall constitute the acknowledgement to each notifying administration of the receipt of the complete notice.

- 1237**     § 9.     For the purpose of Nos. **1235** and **1236**, notices submitted under No. **1218** in the form of a request for assistance of the Board shall be grouped together and specially identified.
- 1238**     § 10.     Complete notices shall be considered by the Board in the order of their receipt; however, notices submitted under No. **1218** shall be treated immediately on receipt. The Board may not postpone the formulation of a finding unless it lacks sufficient data to render a decision in connection therewith; moreover, the Board shall not act upon any notice which has a technical bearing on an earlier notice still under consideration by the Board, until it has reached a finding with respect to such an earlier notice.

**Sub-Section IIA. Procedure to Be Followed in Cases Not Covered  
by Sub-Sections IIB to IIE of this Article**

- 1239**     § 11.     (1) Except for notices referred to in No. **1218**, which are dealt with in Nos. **1275** to **1304**, the Board shall examine each notice with respect to:
- 1240**             a) its conformity with the Convention, the Table of Frequency Allocations and the other provisions of the Radio Regulations with the exception of those provisions relating to the probability of harmful interference which are the subject of Nos. **1241** and **1242**;
- 1241**             b) the probability of harmful interference to the service rendered by a station for which a frequency assignment already recorded in the Master Register:
- 1) bears a date in Column 2a (see No. **1416**); *or*

- 2) is in conformity with the provisions of No. **1240** and bears a date in Column 2b (see No. **1417**), but has not, in fact, caused harmful interference to any frequency assignment with a date in Column 2a or to any assignment in conformity with No. **1240** with an earlier date in Column 2b;

**1242**

- c) the probability of harmful interference to the service rendered by a station for which a frequency assignment already recorded in the Master Register:
  - 1) is in conformity with the provisions of No. **1240** and was recorded in the Master Register with a date in Column 2d as a result of a favourable finding with respect to No. **1242**; *or*
  - 2) is in conformity with the provisions of No. **1240** and was recorded in the Master Register with a date in Column 2d after an unfavourable finding with respect to No. **1242**, but has not, in fact, caused harmful interference to any frequency assignment previously recorded in the Master Register and which is in conformity with No. **1240**.

**1243**

(2) In conducting the examination under No. **1241** or **1242**, the Board shall apply protection criteria for class of operation A higher than for class of operation B<sup>1</sup>. The Board shall disregard the probability of interference to frequency assignments of class of operation C.

**1243.1**

<sup>1</sup> The different protection criteria to be applied by the Board for classes of operation A and B shall be published in the Technical Standards of the Board (see No. **1001**).

**1244**

(3) When the notice relates to a frequency above 28 000 kHz, the Board shall only make the examination specified in No. **1242** at the request of an administration directly concerned or



affected when coordination has not been possible between the administrations involved.

- 1245 (4) Where appropriate, the Board shall also examine the notice with respect to its conformity with a regional or service agreement. The procedure to be followed in connection with frequency assignments made pursuant to such an agreement shall be as specified in Nos. 1240 and 1241 or 1242 except that the Board shall not consider the question of the probability of harmful interference among the parties to such agreement. Similarly, the Board shall not consider the probability of harmful interference to the assignments of any administration with which coordination has been effected.
- 1246 § 12. Depending upon the findings of the Board subsequent to the examination prescribed in Nos. 1240 and 1241 or 1242, and the result of the action undertaken by the Board pursuant to Nos. 1275 to 1278 and 1279, further action shall be as follows:
- 1247 § 13. (1) *Finding Favourable with Respect to No. 1240 in Cases Where the Provisions of No. 1241 or 1242 Are Not Applicable (see No. 1244).*
- 1248 (2) The assignment shall be recorded in the Master Register. The date to be entered in the appropriate part of Column 2 according to the relevant provisions of Section III of this Article shall be the date of receipt of the notice by the Board.
- 1249 § 14. (1) *Finding Favourable with Respect to Nos. 1240 and 1241 or 1242.*
- 1250 (2) The assignment shall be recorded in the Master Register. The date to be entered in the appropriate part of Column 2 according to the relevant provisions of Section III of this Article shall be the date of receipt of the notice by the Board.
- 1251 (3) However, should the examination show that the probability of harmful interference for certain hours, seasons, or periods

of solar activity is slightly greater than is considered desirable, a remark shall be included in the Master Register to show that there exists a slight probability of harmful interference and hence precautions must be taken in the use of the assignment to avoid harmful interference to assignments already recorded in the Master Register.

**1252** § 15. (1) *Finding Favourable with Respect to No. 1240 but Unfavourable with Respect to No. 1241 or 1242.*

**1253** (2) The notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board is able to offer with a view to a satisfactory solution of the problem in respect of those administrations it has identified.

**1254** (3) Should the notifying administration resubmit the notice with modifications which result, after re-examination, in a favourable finding by the Board with respect to No. **1241** or **1242**, the assignment shall be recorded in the Master Register. The date to be entered in the appropriate part of Column 2 according to the relevant provisions of Section III of this Article shall be the date of receipt by the Board of the original notice. The date of receipt by the Board of the resubmitted notice shall be indicated in the Remarks Column.

**1255** (4) The notifying administration may resubmit the notice either unchanged, or with modifications which decrease the probability of harmful interference. In cases where there are no modifications or the modifications do not permit the application of No. **1254** and the Board's finding remains unchanged, should the notifying administration insist on reconsideration of its notice and state that it has brought its assignment into use, the Board shall:

**1256** a) publish the information contained in the notice received under No. **1255** in the weekly circular indicating all the administrations which are likely to be affected;

- 1257**                    *b)* simultaneously send a telegram to each of the administrations referred to in No. **1256** advising them of the notice and requesting them to inform the Board:
- 1258**                    1) if the recorded assignment is still in use and, if so, whether it is being used with the notified basic characteristics;
- 1259**                    2) of any harmful interference that occurs within a period of two months from the date of publication of the weekly circular referred to in No. **1256**;
- 1260**                    *c)* take appropriate action in conformity with Nos. **1964** to **1966**, if the assignment which is the basis of the unfavourable finding had been submitted under No. **1218**;
- 1261**                    *d)* record the assignment in the Master Register if, on expiry of the period referred to in No. **1259**, the Board has received no information that harmful interference has occurred; the date to be entered in the appropriate part of Column 2 according to the relevant provision of Section III of this Article shall be the date of receipt by the Board of the original notice;
- 1262**                    *e)* immediately return the notice to the notifying administration informing it of the reported interference and shall make such suggestions as it is able to offer for the elimination of the interference, if the Board receives information that harmful interference has occurred during the two months mentioned in No. **1259**.
- 1263**                    (5) If the Board receives information that harmful interference has occurred after the recording of an assignment under the provisions of No. **1261**, the Board shall investigate the matter and, where appropriate, shall enter a special remark against such an assignment to show that it will not be taken into account when acting on any later notice.

- 1264** (6) If, as a result of the information received under Nos. 1257 to 1259, the Board is able to reach a favourable finding with respect to No. 1241 or 1242 with regard to any assignment recorded under the provisions of Nos. 1255 and 1261, the appropriate changes shall be made in respect of the entry of that assignment in the Master Register. If the finding remains unfavourable, the Board shall enter suitable remarks in the Master Register for the entry or entries concerned which describe the situation as found by the Board.
- 1265** (7) Should the notifying administration resubmit the notice with modifications which increase the probability of harmful interference, and should the Board's finding remain unchanged, the resubmitted notice shall be treated under No. 1253.
- 1266** § 16. (1) *Finding Unfavourable with Respect to No. 1240 in Cases Where the Provisions of No. 1241 or 1242 Are Not Applicable (see No. 1244).*
- 1267** (2) Where the notice includes a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of these Regulations, the assignment shall be recorded in the Master Register subject to the provisions of No. 1419 or 1420. The date to be entered in the appropriate part of Column 2 according to the relevant provisions of Section III of this Article shall be the date of receipt by the Board of the notice.
- 1268** (3) Where the notice does not include a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of these Regulations, it shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board is able to offer with a view to the satisfactory solution of the problem.

- 1269**     § 17.    (1) *Finding Unfavourable with Respect to No. 1240 in Cases Where the Provisions of No. 1241 or 1242 Are Applicable.*
- 1270**                (2) Where the notice includes a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of these Regulations, it shall be examined immediately with respect to No. 1241 or 1242, and the provisions of No. 1271 or 1272 shall be applied, as appropriate.
- 1271**                (3) If the finding is favourable with respect to No. 1241 or 1242, the assignment shall be recorded in the Master Register subject to the provisions of No. 1419. The date to be entered in the appropriate part of Column 2 according to the relevant provisions of Section III of this Article shall be the date of receipt by the Board of the notice.
- 1272**                (4) If the finding is unfavourable with respect to No. 1241 or 1242, the notice shall be returned immediately by airmail to the notifying administration. Should the administration insist on reconsideration of the notice, the frequency assignment shall be recorded, for information only, with an appropriate remark referring to No. 1419.
- 1273**                (5) Where the notice does not include a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of these Regulations, it shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board is able to offer with a view to a satisfactory solution of the problem.
- 1274**     § 18.    *Procedure to Be Followed in Respect of Notices under No. 1218.*
- 1275**                (1) In the case of a notice under No. 1218 relating to the selection of a frequency assignment for regular operational use (class

of operation A), the Board shall, as quickly as possible, select an appropriate frequency which shall:

- 1276                   a) be capable of providing the service required;
- 1277                   b) be in conformity with Nos. 1240 and 1241 or 1242 as appropriate to ensure a favourable finding;
- 1278                   c) be free from harmful interference from any assignment recorded in the Master Register which is itself in conformity with No. 1240.
  
- 1279                   (2) In the case of a notice submitted under No. 1218 relating to a predetermined frequency, the notifying administration may request the Board, in addition to the examination under Nos. 1240 and 1241 or 1242, to examine the notice to assess the probability of harmful interference to the assignment from assignments recorded in the Master Register. The Board shall advise the notifying administration of the results of the examination and where necessary shall make suggestions to avoid any possible harmful interference to the assignment.
  
- 1280                   (3) In the case of difficulty in applying the provisions of Nos. 1275 to 1278 and 1279, the procedure given below shall be followed:
  
- 1281                   a) the Board shall first seek access to one of the least loaded parts of an appropriate band, without considering the possibility of adjustment to any existing recorded assignment;
- 1282                   b) if necessary the Board shall consult the administration having sent a notice under No. 1218 as to the possibility of modifying the characteristics of the required assignment;
- 1283                   c) should action under Nos. 1281 and 1282 fail, and should the requesting administration find the selected frequency

acceptable, the Board shall consider whether the required assignment could be found by suppressing or downgrading an existing recorded assignment. The enquiries to be made in such an event are those described in Section VII of this Article;

- 1284**            *d)* should action under No. **1283** fail, the Board shall then seek alternative means of finding the required assignment in such a way as to involve the minimum necessary modification of the characteristics of any existing recorded assignment;
- 1285**            *e)* for the purposes of the action envisaged under No. **1284** the Board shall concentrate its enquiries upon the older recorded assignments for which the Board believes there to be satisfactory alternative means of telecommunications;
- 1286**            *f)* the Board, having identified in such a case the minimum modification to the characteristics of an existing recorded assignment that would be needed to accommodate a new assignment requested under No. **1218**, shall invoke the relevant provisions of the Convention and shall seek the assistance of the appropriate administration to agree to make, at the appropriate stage, that modification to its recorded assignment;
- 1287**            *g)* should action under No. **1286** fail, the Board shall bring to the attention of the administration concerned the fact that in such a case there is then an obligation to reduce the assigned bandwidth, if operationally feasible, or to move the assigned frequency by an amount not exceeding the assigned bandwidth of the recorded frequency assignment, on the condition that no harmful interference is caused to adjacent frequency assignments;

- 1288                   h) the administration concerned shall then either:
- 1289                   1) give its agreement to effect the necessary modification to its existing recorded assignment together with the date upon which this will be effected; *or*
- 1290                   2) give any reasons why such a modification cannot be made;
- 1291                   i) in the event of such a case remaining unresolved within three months of the request for an assignment being made under No. **1218**, the Board shall publish a report on the matter for the information of all Members of the Union;
- 1292                   j) the Board shall, when appropriate during this procedure, consult the administration requesting an assignment under No. **1218** as to the acceptability of the selected frequency;
- 1293                   k) if, in application of this paragraph, an administration agrees to a change in the basic characteristics of its frequency assignment, that change shall be recorded in the Master Register without change in the original date or dates.
- 1294                   (4) Administrations are urged to afford all possible assistance through their monitoring stations to help the Board in the successful discharge of its duties under this sub-section.
- 1295                   § 19.   (1) *Result of the Action of the Board under Nos. 1275 to 1278 Relating to a Request for Assistance under No. 1218.*
- 1296                   (2) Having selected a frequency under Nos. **1275** to **1278** the Board shall forthwith submit the selected frequency by telegram for the approval of the notifying administration, and shall make a provisional entry in the Master Register in accordance with No. **1311**.



The date of receipt of the request to the Board under No. **1218** shall be entered in the appropriate part of Column 2.

**1297** (3) The notifying administration, on receipt of the telegram mentioned in No. **1296**, shall promptly examine the matter and in the event of non-acceptance of the selected frequency shall notify the Board thereof and shall give its reasons for such rejection.

**1298** (4) In the circumstances mentioned in No. **1297**, the Board shall cancel that entry and inform the administration concerned accordingly. In such a case, if the notifying administration so requests, the Board shall make a further attempt to select an acceptable frequency but the request shall be regarded as a new notice under No. **1218**.

**1299** (5) The notifying administration, on accepting a frequency selected by the Board, shall, as soon as possible, inform the Board thereof.

**1300** (6) If the Board receives no reply within two months to its telegram, sent under No. **1296**, seeking approval for the selected frequency, the provisional entry shall be cancelled and the Board shall inform the other administrations accordingly.

**1301** § 20. (1) *Result of the Action of the Board under No. **1280** Relating to a Request for Assistance under No. **1218**.*

**1302** (2) Having selected a frequency under No. **1280**, and if the necessary modifications to the previously recorded assignment are accepted in accordance with No. **1289**, the Board shall treat the selected assignment in accordance with No. **1295**.

**1303** (3) Having selected a frequency under No. **1280**, if the necessary modification to this previously recorded assignment cannot be made as the result of acting under No. **1290** and if the selected frequency is still acceptable to the requesting administration, the Board shall make an entry in the Master Register in the name of the

requesting administration. The date of receipt of the request sent to the Board under No. 1218 shall be entered in the appropriate part of Column 2.

**1304** (4) Any harmful interference which results from the simultaneous use of both assignments shall be the subject of consultations between the administrations concerned.

**1305** § 21. (1) *Change in the Basic Characteristics of Assignments Already Recorded in the Master Register.*

**1306** (2) A notice of a change in the basic characteristics of an assignment already recorded, as specified in Appendix 1 (except those entered in Columns 2c, 3, 4a and 11 of the Master Register), shall be examined by the Board according to Nos. 1240 and 1241, 1242 or 1244, as appropriate, and the provisions of Nos. 1247 to 1273 inclusive applied. Where the change should be recorded, the assignment shall be amended according to the notice.

**1307** (3) However, in the case of a change in the basic characteristics of an assignment (except a change of the assigned frequency which exceeds half of the frequency band originally assigned, as defined in No. 141) which is in conformity with No. 1240, should the Board reach a favourable finding with respect to No. 1241 or 1242, or find that the change does not increase the probability of harmful interference to assignments already recorded, the amended assignment shall retain the original date in the appropriate part of Column 2. In addition, the date of receipt by the Board of the notice relating to the change shall be entered in the Remarks Column.

**1308** (4) The projected date of bringing into use of a frequency assignment may be extended on request of the notifying administration by three months. In the case where the administration states that, due to exceptional circumstances, it needs a further extension of

this period, such extension may be provided but it shall in no case exceed six months from the original projected date of bringing into use.

**1309** § 22. *In applying the provisions of the whole of Sub-Sections IIA to IIC, any resubmitted notice which is received by the Board more than six months after the date of its return by the Board shall be considered as a new notice.*

**1310** § 23. (1) *Recording of Frequency Assignments Notified Before Being Brought into Use.*

**1311** (2) If a frequency assignment notified in advance of bringing into use has received favourable findings by the Board with respect to Nos. **1240** and **1241** or **1242**, it shall be entered provisionally in the Master Register with a special symbol in the Remarks Column indicating the provisional nature of that entry.

**1312** (3) Within thirty days (see No. **1228**) after the date of bringing into use, either as originally notified or as modified in application of No. **1308**, the notifying administration shall confirm that the frequency assignment has been brought into use. When the Board is informed that the assignment has been brought into use, the special symbol shall be deleted from the Remarks Column.

**1313** (4) If the Board does not receive this confirmation within the period referred to in No. **1312**, the entry concerned shall be cancelled. The Board shall consult the administration concerned before taking such action.

**1314** (5) The provisions of Nos. **1311** to **1313** do not apply to  
**Mob-87** frequency assignments which are in conformity with the Allotment Plans appearing in Appendices **25**, **26** and **27 Aer2** to these Regulations; such frequency assignments shall be entered in the Master Register on receipt of the notice by the Board.

**Mob-87**                      **Sub-Section IIB. Procedure to Be Followed for Coast Radiotelephone Stations Operating in the Bands Allocated Exclusively to the Maritime Mobile Service Between 4 000 kHz and 27 500 kHz**

**1315**                      § 24.    (1) *Examination of Notices Concerning Frequency Assignments to Coast Radiotelephone Stations in the Bands Allocated Exclusively to the Maritime Mobile Service Between 4 000 kHz and 27 500 kHz for Coast Radiotelephone Stations (see No. 1239).*

**Mob-87**

**1316**                      (2) The Board shall examine each notice covered by No. **1315**:

**1317**                      a) with respect to the provisions of No. **1240** and in particular those of Appendix **16** and Nos. **4371** and **4373**;

**Mob-83**

**1318**                      b) in order to determine whether the notified assignment is in conformity with an allotment in the Allotment Plan contained in Appendix **25** to these Regulations.

**1319**                      (3) Any frequency assignment for which the finding is favourable with respect to Nos. **1317** and **1318** shall be recorded in the Master Register (see also No. **1314**). The date to be entered in Column 2a shall be that determined according to the relevant provisions of Section III of this Article.

**1320**                      (4) Any frequency assignment for which the finding is unfavourable with respect to No. **1317** shall be examined with respect to Nos. **1267** and **1268**. The date to be entered in Column 2b shall be determined according to the relevant provisions of Section III of this Article.

**1320A**                      (4A) Any notice which has received a favourable finding with respect to No. **1317** but an unfavourable finding with respect to No. **1318** shall be returned to the notifying administration unless the administration has initiated the procedure of Article **16** in accordance with No. **1719**.

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**1321** (5) Any notice which makes reference to No. **1719** shall be  
**Mob-83** recorded provisionally in the Master Register, if the finding with respect to No. **1317** is favourable. In this case the Board shall review the recording after the notifying administration has applied the procedure of Article **16**.

**1322 to 1325** SUP

**Mob-83**

**1326** § 25. (1) *Examination of Notices Concerning Frequencies Used*  
**Mob-87** *for Reception by Coast Radiotelephone Stations in the Bands Allocated Exclusively to the Maritime Mobile Service Between 4 000 kHz and 27 500 kHz for Ship Radiotelephone Stations (see Nos. 1219 and 1239).*

**1327** (2) The Board shall examine each notice covered by  
 No. **1326**:

**1328** a) with respect to the provisions of No. **1240** and in parti-  
**Mob-83** cular those of Appendix **16** and Nos. **4371** and **4374**;

**1329** b) in order to determine whether the notified assignment  
 corresponds to a frequency associated, according to Appendix **16**, with a frequency allotted to the notifying administration in the Allotment Plan contained in Appendix **25** to these Regulations.

**1330** (3) Any frequency assignment for reception by a coast  
 radiotelephone station for which the finding is favourable with respect to Nos. **1328** and **1329** shall be recorded in the Master Register. The date to be entered in Column 2a shall be that determined according to the relevant provisions of Section III of this Article.

**1331** (4) Any frequency assignment for reception by a coast  
 radiotelephone station for which the finding is unfavourable with respect to No. **1328** shall be examined with respect to Nos. **1267**

and **1268**. The date to be entered in Column 2b shall be that determined according to the relevant provisions of Section III of this Article.

**1332** (5) Any notice which has received a favourable finding  
**Mob-87** with respect to No. **1328** but an unfavourable finding with respect to No. **1329** shall be returned to the notifying administration unless the administration has initiated the procedure of Article **16** in accordance with No. **1719**.

**1332A** (6) Any notice which makes reference to No. **1719** shall be  
**Mob-87** recorded provisionally in the Master Register, if the finding with respect to No. **1328** is favourable. In this case the Board shall review the recording after the notifying administration has applied the procedure of Article **16**.

**Sub-Section IIC. Procedure to Be Followed for Aeronautical Stations  
 Operating in the Bands Allocated Exclusively to the Aeronautical Mobile  
 Services Between 2 850 kHz and 22 000 kHz**

**1333** § 26. (1) *Examination of Notices Concerning Frequency Assignments to Aeronautical Stations in the Aeronautical Mobile (R) Service in the Bands Allocated Exclusively to that Service Between 2 850 kHz and 22 000 kHz (see No. **1239**).*

**1334** (2) The Board shall examine each notice covered by No. **1333** to determine whether:

**1335** a) the notice is in conformity with the provisions of No. **1240**;

**1336** b) the frequency corresponds to one of the frequencies  
**Mob-87** specified in Column 1 of the Allotment Plan for the aeronautical mobile (R) service contained in Appendix **27 Aer2** (Part II, Section II, Article 2), or the assignment is the result of a permitted change of class of emission and the necessary bandwidth of the new emission is within the channelling arrangement provided for in Appendix **27 Aer2**;

- 1337** c) the limitations of use set forth in Column 3 of the Plan have been appropriately observed;
- 1338** d) the notice is in conformity with the technical principles  
**Mob-87** of the Plan set forth in Appendix 27 Aer2;
- 1339** e) the area of use is within the boundaries of the Areas as set forth in Column 2 of the Plan.
- 1340** (3) A notice which is not in conformity with the provisions of No. 1335 shall be examined with respect to Nos. 1267 and 1268. The date to be entered in Column 2b shall be determined in accordance with the relevant provisions of Section III of this Article.
- 1341** (4) In the case of a notice in conformity with the provisions  
**Mob-87** of Nos. 1335, 1336 and 1338, but not with those of Nos. 1337 or 1339, the Board shall examine whether the protection specified in Appendix 27 Aer2 (Part I, Section IIA, paragraph 5) is afforded to the allotments in the Plan and to assignments already recorded in the Master Register with a favourable finding with respect to this present provision. In doing so, the Board shall assume that the frequency will be used in accordance with the "Sharing conditions between areas" specified in Appendix 27 Aer2 (Part I, Section IIB, paragraph 4).
- 1342** (5) Except for cases where No. 1268 applies, all frequency  
**Mob-83** assignments referred to in No. 1333 shall be recorded in the Master Register according to the findings reached by the Board. The date to be entered in Column 2a or 2b shall be that determined according to the relevant provisions of Section III of this Article.
- 1343** § 27. (1) *Examination of Notices Concerning Frequency Assignments to Aeronautical Stations in the Aeronautical Mobile (OR) Service in the Bands Allocated Exclusively to that Service Between 3 025 kHz and 18 030 kHz (see No. 1239).*

**1344** (2) The Board shall examine each notice covered by  
No. **1343** to determine whether:

**1344A** a) the notice is in conformity with the provisions of  
**WARC-92** No. **1240** and those contained in Part II of Appendix **26**;

**1345** b) the assignment is in conformity with an allotment  
**WARC-92** contained in Part III of Appendix **26**;

**1346 to 1348** SUP  
**WARC-92**

**1348A** (3) A notice which is not in conformity with the provisions  
**WARC-92** of No. **1344A** shall be examined with respect to Nos. **1267** and **1268**.  
The date to be entered in Column 2b shall be determined in accordance with the relevant provisions of Section III of this Article.

**1348B** (4) Any frequency assignment for which the finding is  
**WARC-92** favourable with respect to Nos. **1344A** and **1345** shall be recorded in  
the Master Register. The date to be entered in Column 2a shall be  
determined in accordance with the relevant provisions of Section III  
of this Article.

**1348C** (5) A notice which is in conformity with the provisions of  
**WARC-92** No. **1344A**, but not with those of No. **1345**, shall be examined with  
respect to the allotments in Part III of Appendix **26**. In so doing, the  
Board shall apply the technical criteria specified in Part IV of  
Appendix **26**. The date to be entered in Column 2a or 2b shall be  
determined in accordance with the relevant provisions of Section III  
of this Article.

**1349** SUP  
**WARC-92**



**Sub-Section IID. Procedure to Be Followed for Broadcasting Stations  
Operating in the Bands Allocated Exclusively to the Broadcasting  
Service Between 5 950 kHz and 26 100 kHz**

**1350**    § 28.    Frequency assignments to broadcasting stations in the bands  
**HFBC-87** allocated exclusively to the broadcasting service between 5 950 kHz  
and 26 100 kHz shall be dealt with in accordance with the provisions  
of Article 17.

**Sub-Section IIE. Procedure to Be Followed in Cases Where  
Terrestrial Stations Are in the Same Frequency Band as an Existing  
Earth Station or One for Which Coordination Has Been Effected or  
Initiated and Are Within its Coordination Area**

- 1351**    § 29.    The Board shall examine each notice:
- 1352**            a) with respect to its conformity with the Convention, the  
Table of Frequency Allocations and the other provisions  
of the Radio Regulations with the exception of those  
provisions relating to the coordination procedure and the  
probability of harmful interference which are the subject  
of Nos. **1353** and **1354**;
- 1353**            b) with respect to its conformity with the provisions of Nos.  
**1148** to **1154** relating to coordination of the use of the  
frequency assignment with the other administrations  
concerned;
- 1354**            c) where appropriate, with respect to the probability of  
harmful interference to the service rendered by an earth  
receiving station for which a frequency assignment  
already recorded in the Master Register is in conformity  
with the provisions of No. **1503** and if the corresponding  
frequency assignment to the space transmitting station  
has not, in fact, caused harmful interference to any  
frequency assignment in conformity with No. **1240** or

**1352**, as appropriate, previously recorded in the Master Register.

**1355** § 30. Depending on the findings of the Board subsequent to the examination prescribed in Nos. **1352**, **1353** and **1354**, further action shall be as follows:

**1356** § 31. (1) *Finding Unfavourable with Respect to No. 1352.*

**1357** (2) Where the notice includes a specific reference to the fact that the station will be operated in accordance with the provisions of No. **342**, and the finding is favourable with respect to No. **1353** or **1354**, as appropriate, the assignment shall be recorded in the Master Register subject to the provisions of No. **1420**. The date of receipt by the Board of the notice shall be entered in Column 2d.

**1358** (3) If the finding is unfavourable with respect to No. **1353** or **1354**, as appropriate, the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding. Should the notifying administration insist on reconsideration of the notice, the assignment shall be recorded in the Master Register with the understanding that the provisions of No. **1420** shall be applied. The date of receipt by the Board of the original notice shall be entered in Column 2d.

**1359** (4) Where the notice does not include a specific reference to the fact that the station will be operated in accordance with the provisions of No. **342**, it shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board is able to offer with a view to a satisfactory solution of the problem.

**1360** (5) If the notifying administration resubmits the notice with a specific reference to the fact that the station will be operated in accordance with the provisions of No. **342**, it shall be treated as a new notice.

- 1361**     § 32.     (1) *Finding Favourable with Respect to No. 1352.*
- 1362**             (2) Where the Board finds that the coordination procedure mentioned in No. **1353** has been successfully completed with all administrations whose earth stations may be affected, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.
- 1363**             (3) Where the Board finds that the coordination procedure mentioned in No. **1353** has not been applied, and:
- 1364**             a) if the notifying administration requests the Board to effect the required coordination, the Board shall take the appropriate action; if the Board's efforts toward securing agreement are successful, it shall so inform the administrations concerned and shall treat the notice in accordance with No. **1362**;
- 1365**             b) if the Board's efforts toward securing agreement in application of Nos. **1364** or **1169** to **1174** are unsuccessful, or if, when notifying the assignment, the administration states that it has been unsuccessful and does not request the Board to effect the required coordination, the Board shall examine the notice with respect to the provisions of No. **1354**. At the same time, the Board shall so inform the administrations concerned;
- 1366**             c) if the notifying administration does not request the Board to effect the required coordination, the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this action and with such suggestions as the Board is able to offer with a view to a satisfactory solution of the problem.
- 1367**             (4) Where the notifying administration resubmits the notice and the Board finds that the coordination procedure mentioned in No. **1353** has been successfully completed with all administrations whose earth stations may be affected, the assignment shall be

recorded in the Master Register. The date of receipt by the Board of the original notice shall be entered in Column 2d. The date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column.

- 1368** (5) Where the notifying administration resubmits the notice with a request that the Board effect the required coordination, it shall be treated in accordance with the provisions of Nos. **1363**, **1364** or **1365**. However, in any subsequent recording of the assignment in the Master Register, the date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column.
- 1369** § 33. (1) *Finding Favourable with Respect to Nos. 1352 and 1354.*
- 1370** (2) The assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.
- 1371** § 34. (1) *Finding Favourable with Respect to No. 1352 but Unfavourable with Respect to No. 1354.*
- 1372** (2) The notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board is able to offer with a view to a satisfactory solution of the problem.
- 1373** (3) Should the notifying administration resubmit the notice with modifications which result, after re-examination, in a favourable finding by the Board with respect to No. **1354**, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the original notice shall be entered in Column 2d. The date of receipt by the Board of the resubmitted notice shall be indicated in the Remarks Column.
- 1374** (4) Should the notifying administration resubmit the notice, either unchanged, or with modifications which decrease the probability of harmful interference, but not sufficiently to permit the provisions of No. **1373** to be applied, and should that administration

insist on reconsideration of the notice, but should the Board's finding remain unchanged, the assignment shall be recorded in the Master Register. However, this entry shall be made only if the notifying administration informs the Board that the assignment has been in use for at least four months, counting from the date when both are in service, without any complaint of harmful interference having been received. The date of receipt by the Board of the original notice shall be entered in Column 2d. The date of receipt by the Board of the advice that no complaint of harmful interference has been received shall be indicated in the Remarks Column.

**1375** (5) An administration may request the Board to make a provisional entry for that assignment in the Master Register when it is unable to inform the Board about the interference mentioned in No. **1374** because the assignment liable to suffer interference has not yet been brought into service. The Board shall then enter that assignment with a special symbol in the Remarks Column to indicate its provisional character.

**1376** § 35. (1) *Changes in the Basic Characteristics of Assignments Already Recorded in the Master Register.*

**1377** (2) A notice of a change in the basic characteristics of an assignment notified under No. **1221** and already recorded, as specified in Appendix 1, Section A or B (except those entered in Columns 2c, 3 and 4a of the Master Register), or a notice under No. **1221** concerning an assignment already recorded under Nos. **1223** to **1227** (Appendix 1, Section C), shall be examined by the Board according to Nos. **1352** and **1353** and, where appropriate, No. **1354**, and the provisions of Nos. **1356** to **1374** inclusive applied. Where the change should be recorded, the original assignment shall be amended according to the notice.

**1378** (3) However, in the case of a change in the basic characteristics of an assignment which is in conformity with No. **1352**, should the Board reach a favourable finding with respect to No. **1353**,

and, where its provisions are applicable, with respect to No. 1354, or find that the change does not increase the probability of harmful interference to assignments already recorded, the amended assignment shall retain the original date in Column 2d. In addition, the date of receipt by the Board of the notice relating to the change shall be entered in the Remarks Column.

- 1379** (4) The projected date of bringing into use of a frequency assignment may be extended on request of the notifying administration by three months. In the case where the administration states that, due to exceptional circumstances, it needs a further extension of this period, such extension may be provided but it shall in no case exceed six months from the original projected date of bringing into use.
- 1380** § 36. In applying the provisions of this sub-section, any resubmitted notice which is received by the Board more than two years after the date of its return by the Board shall be considered as a new notice.
- 1381** § 37. (1) *Recording of Frequency Assignments Notified Before Being Brought into Use.*
- 1382** (2) If a frequency assignment notified in advance of bringing into use has received a favourable finding by the Board with respect to Nos. 1352 and 1353 and, where appropriate, with respect to No. 1354, it shall be entered provisionally in the Master Register with a special symbol in the Remarks Column indicating the provisional nature of that entry.
- 1383** (3) Within thirty days after the date of bringing into use, either as originally notified (see No. 1230) or as modified in application of No. 1379, the notifying administration shall confirm that the frequency assignment has been brought into use. When the Board is informed that the assignment has been brought into use, the special symbol shall be deleted from the Remarks Column.

**1384** (4) If the Board does not receive this confirmation within the period referred to in No. **1383**, the entry concerned shall be cancelled. The Board shall consult the administration concerned before taking such action.

**1385** (5) If, on the expiry of the period specified in No. **1374**, the Board is informed that there has been no complaint of harmful interference, it shall delete the symbol entered in application of No. **1375**.

### **Section III. Recording of Dates and Findings in the Master Register**

**1386** § 38. In any case where a frequency assignment is recorded in the Master Register, the finding reached by the Board shall be indicated by a symbol in the appropriate column. In addition, the reasons for reaching an unfavourable finding shall be inserted in the Remarks Column.

**1387** § 39. The procedure for recording dates in the appropriate part of Column 2 of the Master Register which shall be applied according to the frequency bands and services concerned is described in the following Nos. **1388** to **1413** for frequency assignments referred to in Sub-Sections IIA to IIC.

**1388** § 40. (1) *Frequency Bands:*

**Mob-87**

9 - 2 850 kHz  
 3 155 - 3 400 kHz  
 3 500 - 3 900 kHz *in Region 1*  
 3 500 - 4 000 kHz *in Region 2*  
 3 500 - 3 950 kHz *in Region 3*  
 4 221 - 4 351 kHz  
 6 332.5 - 6 501 kHz  
 8 438 - 8 707 kHz  
 12 658.5 - 13 077 kHz  
 16 904.5 - 17 242 kHz  
 19 705 - 19 755 kHz  
 22 445.5 - 22 696 kHz  
 26 122.5 - 26 145 kHz

- 1389** (2) For any assignment to which the provisions of Nos. **1250**, **1251** or **1254** apply, the relevant date shall be entered in Column 2a of the Master Register; however, for class of operation B assignments to stations of the fixed service, the relevant date shall be entered in Column 2b.
- 1390** (3) For any assignment to which the provisions of Nos. **1255**, **1265**, **1267**, **1271** or **1272** apply, the relevant date shall be entered in Column 2b of the Master Register.
- 1391** § 41. (1) *Frequency Bands Allocated Exclusively to the Maritime*  
**Mob-87** *Mobile Service Between 4 000 kHz and 27 500 kHz for Coast Radio-telephone Stations.*
- 1392** (2) If the finding is favourable with respect to Nos. **1317**  
**Mob-87** and **1318**, the date of 1 July 1989 shall be entered in Column 2a.
- 1393** (3) For all other cases referred to in No. **1315**, the date of  
**Mob-87** receipt of the notice by the Board shall be entered in Column 2b.
- 1394** (4) For assignments to stations other than radiotelephone coast stations, the relevant date shall be entered in Column 2b (see Nos. **1271** and **1272**).
- 1395** § 42. (1) *Frequency Bands Allocated Exclusively to the Maritime*  
**Mob-87** *Mobile Service Between 4 000 kHz and 27 500 kHz for Ship Radio-telephone Stations.*
- 1396** (2) If the finding is favourable with respect to Nos. **1328**  
**Mob-87** and **1329**, the date of 1 July 1989 shall be entered in Column 2a.
- 1397** (3) In all other cases covered by No. **1326**, the date of receipt of the notice by the Board shall be entered in Column 2b.



- 1398** (4) For assignments other than assignments of frequencies for reception by radiotelephone coast stations, the relevant date shall be entered in Column 2b (see Nos. **1271** and **1272**).
- 1399** § 43. (1) *Frequency Bands Allocated Exclusively to the Maritime*  
**Mob-87** *Mobile Service Between 4 000 kHz and 27 500 kHz for Radio-  
 telegraph Ship Stations (see No. 1220).*
- 1400** (2) For assignments to stations other than radiotelegraph ship stations, the relevant date shall be entered in Column 2b (see Nos. **1271** and **1272**).
- 1401** § 44. (1) *Frequency Bands Allocated Exclusively to the Aero-  
 nautical Mobile (R) Service Between 2 850 kHz and 22 000 kHz.*
- 1402** (2) If the finding is favourable with respect to Nos. **1336** to **1339**, the date of 5 March 1978 shall be entered in Column 2a.
- 1403** (3) If the finding is favourable with respect to No. **1341**, the date of 5 March 1978 shall be entered in Column 2b.
- 1404** (4) In all other cases covered by No. **1333**, the date of 6 March 1978 shall be entered in Column 2b by the Board.
- 1405** (5) For assignments to stations other than aeronautical stations in the aeronautical mobile (R) service, the relevant date shall be entered in Column 2b (see Nos. **1271** and **1272**).
- 1406** § 45. (1) *Frequency Bands Allocated Exclusively to the Aero-  
 nautical Mobile (OR) Service Between 3 025 kHz and 18 030 kHz.*
- 1407** (2) If the finding is favourable with respect to Nos. **1344A**  
**WARC-92** and **1345**, the date of 15 December 1992 shall be entered in Column 2a.
- 1408** (3) If the finding is favourable with respect to No. **1348C**,  
**WARC-92** the date of 15 December 1992 shall be entered in Column 2a.

**1409** SUP  
**WARC-92**

**1410** (4) In all other cases covered by No. **1343**, the date of  
**WARC-92** 16 December 1992 shall be entered in Column 2b.

**1411** (5) For assignments to stations other than aeronautical  
**WARC-92** stations in the aeronautical mobile (OR) service, the relevant date  
shall be entered in Column 2b (see Nos. **1271** and **1272**).

**1412** § 46. (1) *Frequency Bands Between 3 950 kHz (4 000 kHz in  
Region 2) and 28 000 kHz Other than Those Allocated Exclusively to  
the Aeronautical Mobile Service, Maritime Mobile Service, Broad-  
casting Service or Amateur Service, and Frequency Bands above  
28 000 kHz.*

**1413** (2) For any frequency assignment which is to be recorded  
under the provisions of Section II of this Article, the relevant date  
shall be entered in Column 2d of the Master Register.

**1414** § 47. *Date to Be Entered in Column 2c.*

**1415** The date to be entered in Column 2c shall be the date of  
bringing into use notified by the administration concerned (see  
Nos. **1228** to **1231**).

**Section IV. Categories of Frequency Assignments**

**1416** § 48. (1) Any frequency assignment which bears a date in  
Column 2a of the Master Register shall have the right to international  
protection from harmful interference; so shall class of operation A  
assignments to stations of the fixed service in the appropriate  
bands between 3 000 kHz and 27 500 kHz recorded with a date in  
Column 2d as a result of a favourable finding with respect to  
Nos. **1240** and **1242**, in particular those resulting from the application  
of No. **1218**.

- 1417** (2) Any frequency assignment which bears a date in Column 2b is recorded in the Master Register in order that administrations may take into account the fact that the frequency assignment concerned is in use. This recording shall not give the right to international protection to the frequency assignment concerned, except as provided for in No. **1241**, sub-paragraph 2).
- 1418** (3) For frequency assignments having dates in two parts of Column 2, the date in Column 2c is given for information only.
- 1419** (4) If harmful interference to the reception of any station whose assignment is in accordance with No. **1240** or **1352** is actually caused by the use of a frequency assignment which is not in conformity with No. **1240** or **1352**, the station using the latter frequency assignment shall, on receipt of advice thereof, immediately eliminate this harmful interference.
- 1420** (5) If harmful interference to the reception of any station whose assignment is in accordance with No. **1503** is actually caused by the use of a frequency assignment which is not in conformity with No. **1240** or **1352**, the station using the latter frequency assignment shall, on receipt of advice thereof, immediately eliminate this harmful interference.

#### Section V. Review of Findings

- 1421** § 49. (1) The review of a finding by the Board may be undertaken:
- a)* at the request of the notifying administration;
  - b)* at the request of any other administration interested in the question, but only on the grounds of actual harmful interference;

c) on the initiative of the Board itself when it considers this is justified.

**1422** (2) The Board, in the light of all the data at its disposal, shall review the matter, taking into account No. **1240** or **1352** and Nos. **1241**, **1242**, **1353** or **1354**, as appropriate, and shall render an appropriate finding, informing the notifying administration prior either to the publication of its finding or to any recording action.

**1423** § 50. If a review of an unfavourable finding has been requested by the notifying administration on the grounds of special assistance to meet an urgent and essential need, in a case where harmful interference has been experienced, the Board shall consult immediately the administrations concerned and shall make such suggestions as will facilitate the operation of the assignment of the administration which asked for special assistance; such amendments as result from this consultation shall be made to the Master Register.

**1424** § 51. (1) After actual use for a reasonable period of an assignment which has been entered in the Master Register on the insistence of the notifying administration, following an unfavourable finding with respect to Nos. **1241**, **1242** or **1354**, as appropriate, this administration may request the Board to review the finding. Thereupon the Board shall review the matter, first having consulted the administrations concerned.

**1425** (2) If the finding of the Board is then favourable, it shall enter in the Master Register the changes that are required so that the entry shall appear in the future as if the original finding had been favourable.

**1426** (3) If the finding with regard to the probability of harmful interference remains unfavourable, no change shall be made in the original entry.

**1427** § 52. (1) In the event of a deletion or modification of any recorded frequency assignment which had been the cause of an unfavourable finding and had led a later assignment to be recorded

under No. **1255**, the Board shall review, and, where appropriate, modify that unfavourable finding with respect to No. **1241** or **1242**.

- 1428** (2) To provide a basis for the review of an entry in the Master Register made in accordance with No. **1255**, the Board shall, when examining the relevant notice, determine the date on which the review is to be made. If by that date no complaint of harmful interference has been received by the administration concerned, the Board shall automatically reverse the original unfavourable finding with respect to No. **1241** or **1242**.

#### Section VI. Maintenance of the Master Register

- 1429** § 53. *Modification, Cancellation and Review of Entries in the Master Register.*
- 1430** § 54. In case of permanent discontinuance of the use of any recorded frequency assignment, the notifying administration shall inform the Board within three months of such discontinuance, whereupon the entry shall be removed from the Master Register.
- 1431** § 55. Whenever it appears to the Board from the information available that a recorded assignment has not been brought into regular operation in accordance with the notified basic characteristics, or is not being used in accordance with those basic characteristics, the Board shall consult the notifying administration and, subject to its agreement, shall either cancel or suitably modify the entry.
- 1432** § 56. If, in connection with an enquiry by the Board under No. **1264** or **1431**, the notifying administration has failed to supply the Board within three months with the necessary or pertinent information, the Board shall disregard the assignment concerned when acting on any later notice, until such time as it has been informed that

the assignment is being used as notified, or until it has received the information required. The Board shall make suitable entries in the Remarks Column of the Master Register to indicate the situation, and in particular the period when the assignment was not taken into account by the Board.

**1433** § 57. (1) *Periodic Examination of the Master Register.*

**1434** (2) The Board shall institute a long-term programme of periodic reviews of each section of the Master Register with the aim of improving and maintaining its accuracy.

**1435** (3) For the purpose of the reviews mentioned in No. **1434**, the Board shall send to each administration, for revision and return, a national extract of the Master Register relating to the particular section under review. The Board shall at the same time draw the attention of administrations to any assignment to a station in the fixed service in frequency bands between 3 000 kHz and 27 500 kHz for which other means of telecommunication are believed to be available.

**1436** (4) Administrations shall, having regard to the need to improve and maintain the accuracy of the Master Register, cooperate in these periodic reviews by notifying the deletion of any unused assignment and, where appropriate, the modification of other entries.

**1437** (5) The Board shall include in its annual report to administrations a section relating to the work done under the provisions of the present paragraph 57, the results achieved, and the programme for the following year.

## **Section VII. Studies and Recommendations**

**1438** § 58. (1) If it is requested by any administration, particularly by an administration of a country in need of special assistance, the Board, using such means at its disposal as are appropriate in the

circumstances, shall conduct a study of the following problems of frequency utilization:

- 1439**            *a)* in cases arising under No. **1252** as to a possible alternative frequency assignment to avoid probable harmful interference;
- 1440**            *b)* in cases where a need arises for additional frequency assignments within a specified portion of the radio spectrum;
- 1441**            *c)* in cases where, due to harmful interference, two or more frequencies of the same order of magnitude are being used alternately to maintain communication on a circuit requiring only one frequency of that order;
- 1442**            *d)* in cases of alleged contravention or non-observance of these Regulations, or of harmful interference.
- 1443**            (2) The Board shall thereupon prepare and forward to the administrations concerned a report containing its finding and recommendations for the solution of the problem.
- 1444**            (3) On receiving the Board's recommendations for the solution of the problem, an administration shall promptly acknowledge the receipt by telegram and shall subsequently indicate the action it intends to take. In cases when the Board's suggestions or recommendations are unacceptable to the administrations concerned, further efforts should be made by the Board to find an acceptable solution to the problem.
- 1445**            § 59. If the Board finds, in particular following a request from an administration of a country in need of special assistance, that a change in the basic characteristics, including a change of frequency within a specific frequency range, of one or more assignments in conformity with the provisions of No. **1240** will:
- 1446**            *a)* accommodate a new assignment; *or*

- 1447**                    *b) facilitate the solution of a problem of harmful interference; or*
- 1448**                    *c) otherwise facilitate the more effective use of a particular portion of the radio spectrum; and*
- 1449**                    if such change is acceptable to the administration or administrations concerned, the change in basic characteristics shall be recorded in the Master Register without change in the original date or dates.
- 1450**                    § 60.     In a case where, as a result of a study, the Board submits to one or more administrations suggestions or recommendations for the solution of a problem, and where no answer has been received from one or more of these administrations within a period of thirty days, the Board shall consider that the suggestions or recommendations concerned are unacceptable to the administrations which did not answer. If it was the requesting administration which failed to answer within this period, the Board shall close the study.

#### **Section VIII. Miscellaneous Provisions**

- 1451**                    § 61.     The provisions of Sections V, VI (except No. **1430**) and VII  
**Mob-87** of this Article shall not be applied to frequency assignments which are in conformity with the Allotment Plans contained in Appendices **25, 26** and **27 Aer2** to these Regulations.
- 1452**                    § 62.     (1) If it is requested by any administration, particularly by an administration of a country in need of special assistance, the Board using such means at its disposal as are appropriate in the circumstances, shall render the following assistance:
- a) verification of the diagram showing the coordination area referred to in No. **1113**;*
  - b) computation of the interference, as referred to in Nos. **1164** to **1166**;*



- c) any other assistance of a technical nature for completion of the procedures in this Article.

- 1453** (2) In making a request to the Board under No. **1452**, the administration shall furnish the Board with the necessary information.
- 1454** § 63. The Technical Standards of the Board shall be based on the relevant provisions of these Regulations and the Appendices thereto, the decisions of administrative conferences of the Union, as appropriate, the Recommendations of the CCIR, the state of the radio art and the development of new transmission techniques, account being taken of exceptional propagation conditions which may prevail in certain regions (for example, particularly pronounced ducting).
- 1455** § 64. (1) The Board shall inform all administrations of its findings and reasons therefor, together with all changes made to the Master Register, through its weekly circular. Such information shall be published within forty-five days of the date of publication of the complete notice in the weekly circular referred to in No. **1235**. When the Board is not in a position to comply with the time-limit referred to above it shall, as soon as possible, so inform the administration concerned giving the reasons therefor.
- 1456** (2) The weekly circular of the IFRB shall be published in the working languages of the Union as defined in the Convention. In carrying out the various procedures stipulated in the Radio Regulations, the Board shall use the weekly circular as a means of communicating with administrations to the maximum extent practicable.
- 1457** § 65. The Board shall inform administrations, at appropriate intervals, of the cases of special assistance which were studied under Nos. **1423** and **1438** to **1450** inclusive of these Regulations.

**1458**     § 66.     In case a Member avails itself of the provisions of Article 50  
of the Convention, the Board shall, on request, make its records  
available for such proceedings as are prescribed in the Convention for  
the settlement of international disputes.

**1459**  
to     NOT allocated.  
**1487**

## ARTICLE 13

WARC-92

**Notification and Recording in the Master International  
Frequency Register of Frequency Assignments<sup>1</sup> to Radio  
Astronomy and Space Radiocommunication Stations Except  
Stations in the Broadcasting-Satellite Service<sup>2, 3, 4, 5</sup>**

**Section I. Notification of Frequency Assignments**

- 1488 § 1. (1) Any frequency assignment to be used for transmission  
or reception by an earth or space station shall be notified to the  
Board:
- 1489 a) if the use of the frequency concerned is capable of  
causing harmful interference to any service of another  
administration; *or*

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A.13.1 <sup>1</sup> The expression *frequency assignment*, wherever it appears in  
this Article, shall be understood to refer either to a new frequency assign-  
ment or to a change in an assignment already recorded in the Master  
International Frequency Register (hereinafter called *Master Register*).

A.13.2 <sup>2</sup> For the notification and recording of frequency assignments to  
Orb-88 stations in the broadcasting-satellite service and other services in the  
frequency bands 11.7 - 12.2 GHz (in Region 3), 11.7 - 12.5 GHz (in  
Region 1) and 12.2 - 12.7 GHz (in Region 2), as well as the notification  
and recording of frequency assignments to feeder-link stations in the fixed-  
satellite service (Earth-to-space) in the frequency bands 14.5 - 14.8 GHz in  
Region 1 (see No. 863) and in Region 3, 17.3 - 18.1 GHz in Regions 1  
and 3, and 17.3 - 17.8 GHz in Region 2 and other services in these bands,  
see also Article 15 and Article 15A respectively.

A.13.3 <sup>3</sup> These procedures may be applicable for earth stations of the  
Orb-88 earth exploration-satellite service, space research service, space operation  
service and radiodetermination-satellite service intended to be used while in  
motion or during halts at unspecified points.

A.13.4 <sup>4</sup> For the application of the provisions of this Article with respect  
Orb-88 to stations in a space radiocommunication service using frequency bands  
covered by the fixed-satellite service Allotment Plan, see also Appen-  
dix 30B.

A.13.5 <sup>5</sup> See Resolution 46 (WARC-92).  
WARC-92

**1490**                      *b)* if the frequency is to be used for international radiocommunications; *or*

**1491**                      *c)* if it is desired to obtain international recognition of the use of the frequency.

**1492**                      (2) Any frequency or frequency band to be used for reception by a particular radio astronomy station may be notified if it is desired that such data should be included in the Master Register.

**1493**                      (3) When the Board receives from one administration a notice containing a modification or deletion of a space station assignment already recorded in the Master Register on behalf of a group of administrations, it shall be assumed, in the absence of information to the contrary, that the notice of modification or deletion is submitted on behalf of all the administrations which were associated with the original notification.

**1493A**                      (4) A notice submitted in accordance with Nos. **1488**  
**Orb-88** to **1491** and relating to a frequency assignment to a space station for transmission or reception may indicate the characteristics of one or more associated typical earth stations with the area in which they are intended to be operated.

**1494**                      (5) A notice submitted in accordance with Nos. **1488**  
**Orb-88** to **1491** and relating to a frequency assignment to earth stations in a satellite system shall include the technical characteristics either of each earth station, with its location, or of a typical earth station, with an indication of the area within which such typical earth stations are to be operated.

**1494A**                      Except for mobile earth stations, individual notification  
**Orb-88** of an earth station is required when:

**1494B**                      *a)* the coordination area calculated in accordance with  
**Orb-88** the method given in Appendix 28 overlaps the territory of another administration in which the frequency band is allocated with equal rights to the terrestrial services;

## ARTICLE 16

**Procedure for Bringing Up to Date the Frequency Allotment <sup>1</sup>  
Plan for Coast Radiotelephone Stations Operating in the  
Exclusive Maritime Mobile Bands Between  
4 000 kHz and 23 000 kHz \***

(Appendix 25)

**1682**     § 1.     (1) Before notifying to the International Frequency Registration Board or bringing into use at any coast radiotelephone station a frequency assignment not covered by an allotment in the Frequency Allotment Plan contained in Appendix 25, an administration which

**1683**                     a) intends to establish a coast radiotelephone station and has no allotment in the Plan, *or*

**1684**                     b) intends to expand its coast radiotelephone service and requires an additional allotment,

shall send the information listed in Appendix 5 to the Board not earlier than two years in the case of No. 1683, or not earlier than six months in the case of No. 1684, before the projected date of bringing into service of the planned coast radiotelephone service but in any case not later than three months before that date.

**1685**                     (2) The Board shall publish the information sent under Nos. 1682 to 1684 in a special section of the IFRB weekly circular together with such apparent incompatibilities between the proposed allotment which is the subject of the publication and any other existing or proposed allotments which the Board can identify. The Board shall also indicate any information of a technical nature and make such suggestions as it may be able to offer with a view to avoiding these incompatibilities.

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**A.16.1**                     <sup>1</sup> See No. 18.

\* *Note by the Secretary General:* The Mob-87 WARC, through Resolution 325 (Mob-87), extended the applicability of this Article up to 27 500 kHz

- 1686** (3) 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:
- 1687** a) indication of a suitable channel or channels for the service projected by the administration before that administration submits the information for publication;
- 1688** b) carry out the procedure for which provision is made in No. 1690;
- 1689** c) any other assistance of a technical nature for completion of the procedure in the present Article.
- 1690** § 2. (1) At the same time as sending the information listed in Appendix 5 to the Board for publication, an administration shall seek the agreement of the administrations having an allotment in the same channel as the proposed allotment. A copy of the relevant correspondence shall be sent to the Board.
- 1691** (2) Any administration which, upon examining the information published by the Board, considers that its existing services or services planned within the time-limits mentioned in Nos. 1682 to 1684 would be affected shall have the right to be brought into the procedure undertaken pursuant to No. 1690.
- 1692** § 3. (1) An administration which receives a request under No. 1690 shall acknowledge receipt thereof immediately by telegram. If no acknowledgement is received within thirty days after the date of the IFRB weekly circular containing the information published under No. 1685, the administration seeking agreement shall dispatch a telegram requesting acknowledgement, to which the receiving administration shall reply within a further period of fifteen days.

## CHAPTER VIII

### Provisions Relating to Groups of Services and to Specific Services and Stations\*

#### ARTICLE 27

#### Terrestrial Radiocommunication Services Sharing Frequency Bands with Space Radiocommunication Services Above 1 GHz

##### Section I. Choice of Sites and Frequencies

- 2501**    § 1.    Sites and frequencies for terrestrial stations, operating in frequency bands shared with equal rights between terrestrial radio-communication and space radiocommunication services, shall be selected having regard to the relevant CCIR Recommendations with respect to geographical separation from earth stations.

**Orb-88**

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\* For provisions governing the mobile services and the special services related to safety, see:

Special services related to safety:	Chapter <b>IX</b>
Aeronautical mobile service and aeronautical mobile-satellite service:	Chapter <b>X</b>
Maritime mobile service:	Chapter <b>XI</b>
Maritime mobile-satellite service:	Chapter <b>XI</b>
Land mobile service and land mobile-satellite service:	Chapter <b>XII</b>

**2502** § 2. (1) As far as practicable, sites for transmitting<sup>1</sup> 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 GHz 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<sup>2</sup>.

**2502.1** <sup>1</sup> For their own protection receiving stations in the fixed or mobile service 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.

**2502.2** <sup>2</sup> Information on this subject is given in the most recent version of CCIR Report 393.

**2503** (2) As far as practicable, sites for transmitting<sup>3</sup> stations, in the fixed or mobile service, employing maximum values of equivalent isotropically radiated power (e.i.r.p.) exceeding +45 dBW in the frequency bands between 10 GHz 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<sup>4</sup>.

**2503.1** <sup>3</sup> See No. 2502.1.

**2503.2** <sup>4</sup> See No. 2502.2.

**2504** (3) In the frequency bands above 15 GHz there shall be no restriction<sup>5</sup> as to the direction of maximum radiation for stations in the fixed or mobile service, except as noted in No. 2504A.

**2504.1** <sup>5</sup> The provisions of No. 2504 shall apply until such time as the CCIR has made a Recommendation as to the need for restrictions in frequency bands specified in No. 2511, at which time all systems introduced after 1 January 1982 should as far as practicable meet any such restriction.



**2504A** As far as practicable, sites for transmitting stations, in the  
**WARC-92** fixed or mobile service, employing maximum values of equivalent isotropic radiated power (e.i.r.p.) density exceeding 24 dBW in any 1 MHz band in the frequency band 25.25 - 27.5 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<sup>1</sup>.

**2504A.1** <sup>1</sup> The provisions of No. **2504A** shall apply until such time as the  
**WARC-92** CCIR has made a recommendation on the e.i.r.p. density limits which should apply in the band.

## Section II. Power Limits

**2505** § 3. (1) The maximum equivalent isotropically radiated power (e.i.r.p.) of a station in the fixed or mobile service shall not exceed +55 dBW.

**2506** (2) Where compliance with No. **2502** is 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<sup>2</sup>.

**2506.1** <sup>2</sup> Information on this subject is given in the most recent version of CCIR Report 393.

**2507** (3) The power delivered by a transmitter to the antenna of a station in the fixed or mobile service in frequency bands between 1 GHz and 10 GHz shall not exceed +13 dBW.

**2508** (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.

**2509** (5) The limits given in Nos. **2502**, **2505**, **2506** and **2507**  
**WARC-92** apply in the following frequency bands allocated to the fixed-satellite service, the meteorological-satellite service, the space research service, the space operation service, the earth exploration-satellite service or the mobile-satellite service for reception by space stations, where these bands are shared with equal rights with the fixed or mobile service:

1 610 - 1 645.5 MHz	(for countries mentioned in No. <b>730</b> )
1 646.5 - 1 660 MHz	(for countries mentioned in No. <b>730</b> )
1 675 - 1 690 MHz	(for Region 2)
1 690 - 1 700 MHz	(for countries of Region 2 mentioned in No. <b>740</b> )
1 700 - 1 710 MHz	(for Region 2)
1 970 - 1 980 MHz	(for Region 2)
1 980 - 2 010 MHz	
2 025 - 2 110 MHz	
2 200 - 2 290 MHz	
2 655 - 2 670 MHz <sup>1</sup>	(for Regions 2 and 3)
2 670 - 2 690 MHz	
5 725 - 5 755 MHz <sup>1</sup>	(for countries of Region 1 mentioned in Nos. <b>803</b> and <b>805</b> )

**2509.1** <sup>1</sup> 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. **346**. Therefore any limits concerning inter-Regional interference which may appear in CCIR Recommendations should, as far as practicable, be observed by administrations.

5755 - 5850 MHz<sup>1</sup> (for countries of Region 1 mentioned in Nos. **803**, **805** and **807**)

5850 - 7075 MHz

7900 - 8400 MHz

**2509.1** <sup>1</sup> 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. **346**. Therefore any limits concerning inter-Regional interference which may appear in CCIR Recommendations should, as far as practicable, be observed by administrations.

**2509A** Trans-horizon systems in the 1700 - 1710 MHz, 1970 -  
**WARC-92** 2010 MHz, 2025 - 2110 MHz and 2200 - 2290 MHz bands may exceed the limits given in Nos. **2505** and **2507**, but the provisions of Nos. **2502** and **2506** should be observed. Considering the difficult sharing conditions with other services and keeping in mind the provisions of Recommendation **100** (CAMR-92), administrations are urged to keep the number of trans-horizon systems in these bands to a minimum.

**2510** (6) The limits given in Nos. **2503**, **2505** and **2508** apply in  
**Orb-88** 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:

10.7 - 11.7 GHz<sup>2</sup> (for Region 1)

12.5 - 12.75 GHz<sup>2</sup> (for countries mentioned in Nos. **848** and **850**)

12.7 - 12.75 GHz<sup>2</sup> (for Region 2)

12.75 - 13.25 GHz

**2510.1** <sup>2</sup> 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. **346**. Therefore any limits concerning inter-Regional interference which may appear in CCIR Recommendations should, as far as practicable, be observed by administrations.

- 14.0 - 14.25 GHz (for countries mentioned in No. **857**)
- 14.25 - 14.3 GHz (for countries mentioned in Nos. **857**, **860** and **861**)
- 14.3 - 14.4 GHz<sup>1</sup> (for Regions 1 and 3)
- 14.4 - 14.5 GHz
- 14.5 - 14.8 GHz

**2510.1** <sup>1</sup> 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. **346**. Therefore any limits concerning inter-Regional interference which may appear in CCIR Recommendations should, as far as practicable, be observed by administrations.

**2510.2** SUP  
**Orb-88**

**2511** (7) The limits given in Nos. **2505** and **2508** apply in the  
**WARC-92** following frequency bands allocated to the fixed-satellite service or the inter-satellite service for reception by space stations, where these bands are shared with equal rights with the fixed or mobile service:

- 17.7 - 18.4 GHz
- 24.45 - 24.75 GHz
- 24.75 - 25.25 GHz (for Region 3)
- 25.25 - 29.5 GHz

**2511.1** SUP  
**Orb-88**

**2511.2** SUP  
**WARC-92**

**2512**  
to NOT allocated.  
**2538**

## ARTICLE 28

**Space Radiocommunication Services Sharing Frequency Bands  
with Terrestrial Radiocommunication Services Above 1 GHz**

**Section I. Choice of Sites and Frequencies**

- 2539**     § 1.     Sites and frequencies for earth 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 terrestrial stations.

**Section II. Power Limits**

- 2540**     § 2.     (1) Earth stations.
- 2541**                 (2) The equivalent isotropically radiated power (e.i.r.p.) transmitted in any direction towards the horizon by an earth station operating in frequency bands between 1 GHz and 15 GHz shall not exceed the following limits except as provided in No. **2544** or **2546**:

+40 dBW in any 4 kHz band for  $\theta \leq 0^\circ$

+40 + 3  $\theta$  dBW in any 4 kHz band for  $0^\circ < \theta \leq 5^\circ$

where  $\theta$  is the angle of elevation of the horizon viewed from the centre of radiation of the antenna of the earth station and measured in degrees as positive above the horizontal plane and negative below it.

- 2542**                 (3) The equivalent isotropically radiated power (e.i.r.p.) transmitted in any direction towards the horizon by an earth station

operating in frequency bands above 15 GHz shall not exceed the following limits except as provided in No. 2545 or 2546:

+64 dBW in any 1 MHz band for  $\theta \leq 0^\circ$

+64 + 3  $\theta$  dBW in any 1 MHz band for  $0^\circ < \theta \leq 5^\circ$

where  $\theta$  is as defined in No. 2541.

- 2543** (4) For angles of elevation of the horizon greater than  $5^\circ$  there shall be no restriction as to the equivalent isotropically radiated power (e.i.r.p.) transmitted by an earth station towards the horizon.
- 2544** (5) As an exception to the limits given in No. 2541, the equivalent isotropically radiated power (e.i.r.p.) towards the horizon for an earth station in the space research service (deep space) shall not exceed +55 dBW in any 4 kHz band.
- 2545** (6) As an exception to the limits given in No. 2542, the equivalent isotropically radiated power (e.i.r.p.) towards the horizon for an earth station in the space research service (deep space) shall not exceed +79 dBW in any 1 MHz band.
- 2546** (7) The limits given in Nos. 2541, 2542, 2544 and 2545, as applicable, may be exceeded by not more than 10 dB. However, when the resulting coordination area extends into the territory of another country, such increase shall be subject to agreement by the administration of that country.
- 2547** (8) The limits given in No. 2541 apply in the following frequency bands allocated to the fixed-satellite service, the earth exploration-satellite service, and in particular the meteorological-satellite service, the mobile-satellite service and the space research

service for transmission by earth stations where these bands are shared with equal rights with the fixed or mobile service:

5 670	- 5 725	MHz	(for the countries mentioned in No. <b>804</b> with respect to the countries mentioned in Nos. <b>803</b> and <b>805</b> )
5 725	- 5 755	MHz <sup>1</sup>	(for Region 1 with respect to the countries mentioned in Nos. <b>803</b> and <b>805</b> )
5 755	- 5 850	MHz <sup>1</sup>	(for Region - 1 with respect to the countries mentioned in Nos. <b>803</b> , <b>805</b> and <b>807</b> )
5 850	- 7 075	MHz	
7 900	- 8 400	MHz	
10.7	- 11.7	GHz <sup>1</sup>	(for Region 1)
12.5	- 12.75	GHz <sup>1</sup>	(for Region 1 with respect to the countries mentioned in No. <b>848</b> )
12.7	- 12.75	GHz <sup>1</sup>	(for Region 2)
12.75	- 13.25	GHz	
14.0	- 14.25	GHz	(with respect to the countries mentioned in No. <b>857</b> )
14.2	- 14.3	GHz	(with respect to the countries mentioned in Nos. <b>857</b> , <b>860</b> and <b>861</b> )
14.3	- 14.4	GHz <sup>1</sup>	(for Regions 1 and 3)
14.4	- 14.8	GHz	

**2547.1** <sup>1</sup> 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. **346**. Therefore any limits concerning inter-Regional interference which may appear in CCIR Recommendations should, as far as practicable, be observed by administrations.

**2548** (9) The limits given in No. **2542** apply in the following frequency bands allocated to the fixed-satellite service, the earth exploration-satellite service, the mobile-satellite service and the space research service for transmission by earth stations where shared with equal rights with the fixed or mobile service:

17.7 - 18.1 GHz

27.0 - 27.5 GHz<sup>1</sup> (for Regions 2 and 3)

27.5 - 29.5 GHz

31.0 - 31.3 GHz (for the countries mentioned in No. **885**)

34.2 - 35.2 GHz (for the countries mentioned in Nos. **895** and **896** with respect to the countries mentioned in No. **894**)

**2548.1** <sup>1</sup> 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. **346**. Therefore any limits concerning inter-Regional interference which may appear in CCIR Recommendations should, as far as practicable, be observed by administrations.

**2548A** (10) The equivalent isotropically radiated power (e.i.r.p.)  
**Mob-87** transmitted in any direction by an earth station in the radiodetermination-satellite service in the band 1610 - 1626.5 MHz shall not exceed -3 dBW in any 4 kHz band.

### Section III. Minimum Angle of Elevation

**2549** § 3. (1) Earth stations.

**2550** (2) Earth station antennae shall not be employed for transmission at elevation angles of less than 3° measured from the horizontal plane to the direction of maximum radiation, except when agreed to by administrations concerned and those whose services may



be affected. In case of reception by an earth station, the above value shall be used for coordination purposes if the operating angle of elevation is less than that value.

- 2551** (3) As an exception to No. **2550**, earth station antennae in the space research service (near Earth) shall not be employed for transmission at elevation angles of less than  $5^\circ$ , and earth station antennae in the space research service (deep space) shall not be employed for transmission at elevation angles of less than  $10^\circ$ , both angles being those measured from the horizontal plane to the direction of maximum radiation. In the case of reception by an earth station, the above values shall be used for coordination purposes if the operating angle of elevation is less than those values.

#### Section IV. Limits of Power Flux-Density from Space Stations

- 2552** § 4. (1) Power flux-density limits between 1 670 MHz and 1 700 MHz.
- 2553** a) The power flux-density at the Earth's surface produced by emissions from a space station, including emissions from a reflecting satellite, for all conditions and for all methods of modulation, shall not exceed  $-133 \text{ dB(W/m}^2\text{)}$  in any 1.5 MHz band. This limit relates to the power flux-density which would be obtained under assumed free-space propagation conditions.
- 2554** b) The limit given in No. **2553** applies in the frequency band listed in No. **2555** which is allocated to the earth exploration-satellite service and in particular the meteorological-satellite service for transmission by space stations where this band is shared with equal rights with the meteorological aids service.
- 2555** 1 670 - 1 700 MHz

**2556** (2) Power flux-density limits between 1525 MHz and 2 500 MHz.

**2557** a) The power flux-density at the Earth's surface produced by emissions from a space station, including emissions from a reflecting satellite, for all conditions and for all methods of modulation, shall not exceed the following values:

–154 dB(W/m<sup>2</sup>) in any 4 kHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

–154 + 0.5( $\delta$  –5) dB(W/m<sup>2</sup>) in any 4 kHz band for angles of arrival  $\delta$  (in degrees) between 5 and 25 degrees above the horizontal plane;

–144 dB(W/m<sup>2</sup>) in any 4 kHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

These limits relate to the power flux-density which would be obtained under assumed free-space propagation conditions.

**2558** b) The limits give in No. **2557** apply in the frequency  
**WARC-92** bands listed in No. **2559** which are allocated to the following space radiocommunication services:

- meteorological-satellite service (space-to-Earth);
- space research service (space-to-Earth) (space-to-space);
- space operation service (space-to-Earth) (space-to-space);
- earth exploration-satellite service (space-to-Earth) (space-to-space);

for transmission by space stations where these bands are shared with equal rights with the fixed or mobile service.

- 2559** 1 525 - 1 530 MHz<sup>1</sup> (for Regions 1 and 3)  
**WARC-92** 1 670 - 1 690 MHz  
 1 690 - 1 700 MHz (on the territory of the countries mentioned  
 in Nos. **740** and **741**)  
 1 700 - 1 710 MHz  
 2 025 - 2 110 MHz  
 2 200 - 2 300 MHz
- 2559.1** <sup>1</sup> 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. **346**. Therefore any limits concerning inter-Regional interference which may appear in CCIR Recommendations should, as far as practicable, be observed by administrations.
- 2560** c) The power flux-density values given in No. **2557** are derived on the basis of protecting the fixed service using line-of-sight techniques. Where a fixed service using tropospheric scatter operates in the bands listed in No. **2559** and where there is insufficient frequency separation, there must be sufficient angular separation between the direction to the space station and the direction of maximum radiation of the antenna of the receiving station of the fixed service using tropospheric scatter to ensure that the interference power at the receiver input of the station of the fixed service does not exceed -168 dBW in any 4 kHz band.
- 2561** (3) Power flux-density limits between 2 500 MHz and 2 690 MHz.
- 2562** a) The power flux-density at the Earth's surface produced  
**WARC-92** by emissions from a space station in the broadcasting-satellite service, the fixed-satellite service, or the radiodetermination-satellite service

for all conditions and for all methods of modulation shall not exceed the following values:

–152 dB(W/m<sup>2</sup>) in any 4 kHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

–152 + 0.75( $\delta$  – 5) dB(W/m<sup>2</sup>) in any 4 kHz band for angles of arrival  $\delta$  (in degrees) between 5 and 25 degrees above the horizontal plane;

–137 dB(W/m<sup>2</sup>) in any 4 kHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

These limits relate to the power flux-density which would be obtained under assumed free-space propagation conditions.

**2563**

WARC-92

*b)* The limits given in No. **2562** apply in the frequency band 2 500 - 2 690 MHz which is shared by the fixed-satellite service with the fixed or mobile service, in the frequency band 2 520 - 2 670 MHz which is shared by the broadcasting-satellite service with the fixed or mobile service; and in the frequency band 2 500 - 2 516.5 MHz (in the countries mentioned in No. **754A**) allocated to the radiodetermination-satellite service.

**2564**

WARC-92

*c)* The power flux-density values given in No. **2562** are derived on the basis of protecting the fixed service using line-of-sight techniques. Where a fixed service using tropospheric scatter operates in the bands mentioned in No. **2563**, and where there is insufficient frequency separation, there must be sufficient angular separation between the direction to the space station and the direction of maximum radiation of the antenna of the receiving station of the fixed service using tropospheric scatter to ensure that the interference power at the receiver input of the station of the fixed service does not exceed –168 dBW in any 4 kHz band.

**2565**

(4) Power flux-density limits between 3 400 MHz and 7 750 MHz.

**2566**            *a)* The power flux-density at the Earth's surface produced by emissions from a space station, including emissions from a reflecting satellite, for all conditions and for all methods of modulation, shall not exceed the following values:

–152 dB(W/m<sup>2</sup>) in any 4 kHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

–152 + 0.5( $\delta$  – 5) dB(W/m<sup>2</sup>) in any 4 kHz band for angles of arrival  $\delta$  (in degrees) between 5 and 25 degrees above the horizontal plane;

–142 dB(W/m<sup>2</sup>) in any 4 kHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

These limits relate to the power flux-density which would be obtained under assumed free-space propagation conditions.

**2567**            *b)* The limits given in No. **2566** apply in the frequency bands listed in No. **2568** which are allocated to the following space radiocommunication services:

- fixed-satellite service (space-to-Earth)
- meteorological-satellite service (space-to-Earth)
- mobile-satellite service
- space research service

for transmission by space stations where these bands are shared with equal rights with the fixed or mobile service.

**2568**            3 400 - 4 200 MHz

4 500 - 4 800 MHz

5 670 - 5 725 MHz      (on the territory of countries mentioned in Nos. **803** and **805**)

7 250 - 7 750 MHz

**2569** (5) Power flux-density limits between 8 025 MHz and 11.7 GHz.

**2570** *a)* The power flux-density at the Earth's surface produced by emissions from a space station, including emissions from a reflecting satellite, for all conditions and for all methods of modulation, shall not exceed the following values:

–150 dB(W/m<sup>2</sup>) in any 4 kHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

–150 + 0.5( $\delta$  – 5) dB(W/m<sup>2</sup>) in any 4 kHz band for angles of arrival  $\delta$  (in degrees) between 5 and 25 degrees above the horizontal plane;

–140 dB(W/m<sup>2</sup>) in any 4 kHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

These limits relate to the power flux-density which would be obtained under assumed free-space propagation conditions.

**2571** *b)* The limits given in No. **2570** apply in the frequency bands listed in No. **2572** which are allocated to the following space radiocommunication services:

- earth exploration-satellite service (space-to-Earth)
- space research service (space-to-Earth)
- fixed-satellite service (space-to-Earth)

for transmission by space stations where these bands are shared with equal rights with the fixed or mobile service.

**2572** 8 025 - 8 500 MHz  
10.7 - 11.7 GHz

**2573** (6) Power flux-density limits between 12.2 GHz and 12.75 GHz.

**2574** a) The power flux-density at the Earth's surface produced by emissions from a space station, including emissions from a reflecting satellite, for all conditions and for all methods of modulation, shall not exceed the following values:

–148 dB(W/m<sup>2</sup>) in any 4 kHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

–148 + 0.5( $\delta$  – 5) dB(W/m<sup>2</sup>) in any 4 kHz band for angles of arrival  $\delta$  (in degrees) between 5 and 25 degrees above the horizontal plane;

–138 dB(W/m<sup>2</sup>) in any 4 kHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

These limits relate to the power flux-density which would be obtained under assumed free-space propagation conditions.

**2575** b) The limits given in No. **2574** apply in the frequency bands indicated in No. **2576** which are allocated to the fixed-satellite service for transmission by space stations where these bands are shared with equal rights with the fixed or mobile service.

**2576** 12.2 - 12.5 GHz<sup>1</sup> (for Region 3)

12.5 - 12.75 GHz<sup>2</sup> (for Region 3 and for Region 1 on the territory of countries mentioned in Nos. **848** and **850**).

**2576.1** <sup>1</sup> 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. **346**. Therefore any limits concerning inter-Regional interference which may appear in CCIR Recommendations should, as far as practicable, be observed by administrations.

**2576.2** <sup>2</sup> See No. **2576.1** and Resolution **34**.  
**Orb-88**

**2577** (7) Power flux-density limits between 17.7 GHz and  
**WARC-92** 27.5 GHz.

**2578** a) The power flux-density at the Earth's surface produced  
 by emissions from a space station, including emissions from a reflecting  
 satellite, for all conditions and for all methods of modulation,  
 shall not exceed the following values:

–115 dB(W/m<sup>2</sup>) in any 1 MHz band for angles of arrival  
 between 0 and 5 degrees above the horizontal plane;

–115 + 0.5(δ – 5) dB(W/m<sup>2</sup>) in any 1 MHz band for angles  
 of arrival δ (in degrees) between 5 and 25 degrees above the  
 horizontal plane;

–105 dB(W/m<sup>2</sup>) in any 1 MHz band for angles of arrival  
 between 25 and 90 degrees above the horizontal plane.

These limits relate to the power flux-density which would be obtained  
 under assumed free-space propagation conditions.

**2579** b) The limits given in No. **2578** apply in the frequency  
**WARC-92** bands listed in No. **2580** which are allocated to the following space  
 radiocommunication services:

- fixed-satellite service (space-to-Earth);
- earth exploration-satellite including meteorological-  
 satellite service (space-to-Earth);
- inter-satellite service,

for transmission by space stations where this band is shared with  
 equal rights with the fixed or mobile service.



**2580** 17.7 - 19.7 GHz<sup>1</sup>

**WARC-92**

22.55 - 23.55 GHz

24.45 - 24.75 GHz

25.25 - 27.5 GHz

**2580.1** <sup>1</sup> 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. **346**. Therefore any limits concerning inter-Regional interference which may appear in CCIR Recommendations should, as far as practicable, be observed by administrations.

**2581** (8) Power flux-density limits between 31.0 GHz and 40.5 GHz.

**2582** a) The power flux-density at the Earth's surface produced by emissions from a space station, including emissions from a reflecting satellite, for all conditions and for all methods of modulation, shall not exceed the values given in No. **2578**<sup>2</sup>.

**2582.1** <sup>2</sup> The provisions of No. **2582** shall apply until such time as the CCIR has made a Recommendation as to the values of power flux-density limits which should apply in the frequency band specified in No. **2584**, at which time all systems shall meet those power flux-density limits recommended by the CCIR and endorsed by a competent world administrative radio conference.

**2583** b) The limits given in No. **2582** apply in the frequency bands given in No. **2584** which are allocated to the fixed-satellite service, the mobile-satellite service and the space research service for transmission by space stations where these bands are shared with equal rights with the fixed or mobile services.

**2584** 31.0 - 31.3 GHz

**WARC-92**

34.7 - 35.2 GHz (for space-to-Earth transmissions under No. **896** on the territory of countries mentioned in No. **894**)

37.0 - 40.5 GHz

**2585** (9) The limits given in Nos. **2553, 2557, 2562, 2566, 2570, 2574, 2578, 2582** and **2582.1** may be exceeded on the territory of any country the administration of which has so agreed.

**2586**  
to NOT allocated.  
**2611**

## ARTICLE 29

**Special Rules Relating to Space Radiocommunication Services****Section I. Cessation of Emissions**

- 2612** § 1. Space stations shall be fitted with devices to ensure immediate cessation of their radio emissions by telecommand, whenever such cessation is required under the provisions of these Regulations.

**Section II. Control of Interference to Geostationary-Satellite Systems**

- 2613** § 2. Non-geostationary space stations shall cease or reduce to a negligible level their emissions, and their associated earth stations shall not transmit to them, whenever there is insufficient angular separation between non-geostationary satellites and geostationary satellites resulting in unacceptable interference<sup>1</sup> to geostationary-satellite space systems in the fixed-satellite service operating in accordance with these Regulations.

- 2613.1** <sup>1</sup> The level of accepted interference shall be fixed by agreement between the administrations concerned, using the relevant CCIR Recommendations as a guide.

- 2613A** Whenever the emissions from geostationary satellites in the inter-satellite service are directed towards space stations at distances from Earth greater than that of the geostationary-satellite orbit, the boresight of the antenna mainbeam of the geostationary satellite shall not be pointed within 15° of any point on the geostationary-satellite orbit.

- 2614** § 3. In the frequency band 29.95 - 30 GHz space stations in the earth exploration-satellite service on board geostationary satellites

and operating with space stations in the same service on board non-geostationary satellites shall have the following restriction:

Whenever the emissions from the geostationary satellites are directed towards the geostationary-satellite orbit and cause unacceptable interference<sup>1</sup> to any geostationary-satellite space system in the fixed-satellite service, these emissions shall be reduced to a level at or less than accepted interference<sup>1</sup>.

- 2614.1** <sup>1</sup> The level of accepted interference shall be fixed by agreement between the administrations concerned, using the relevant CCIR Recommendations as a guide.

### Section III. Station Keeping of Space Stations<sup>2</sup>

- A.29** <sup>2</sup> In the case of space stations on board geosynchronous satellites  
**S.III.1** with circular orbits having an angle of inclination greater than 5 degrees, the  
**Orb-88** positional tolerance shall relate to the nodal point.

- 2615** § 4. (1) Space stations on board geostationary satellites which use any frequency band allocated to the fixed-satellite service or the broadcasting-satellite service<sup>3</sup>:

- 2615.1** <sup>3</sup> Space stations in the broadcasting-satellite service on geostationary satellites operating in the band 11.7 - 12.7 GHz are exempted from these provisions but shall maintain their positions in accordance with Appendix 30\*.

- 2616** a) shall have the capability of maintaining their positions within  $\pm 0.1$  degree of the longitude of their nominal positions;

- 2617** b) shall maintain their positions within  $\pm 0.1$  degree of longitude of their nominal positions; *but*

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\* *Note by the Secretary-General:* Appendix 30 has been revised by the First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985, and becomes Appendix 30 (Orb-85).

- 2618**                    c) experimental stations on board geostationary satellites need not comply with No. **2616** nor No. **2617**, but shall maintain their positions within  $\pm 0.5$  degree of longitude of their nominal positions;
- 2619**                    d) however, space stations need not comply with No. **2617** nor No. **2618** as appropriate as long as the satellite network to which the space station belongs does not cause unacceptable interference<sup>1</sup> to any other satellite network whose space station complies with the limits given in Nos. **2617** and **2618**.
- 2619.1**                    <sup>1</sup> The level of accepted interference shall be fixed by agreement between the administrations concerned, using the relevant CCIR Recommendations as a guide.
- 2620**                    (2) Space stations on board geostationary satellites which do not use any frequency band allocated to the fixed-satellite service or the broadcasting-satellite service:
- 2621**                    a) shall have the capability of maintaining their positions within  $\pm 0.5$  degree of the longitude of their nominal positions;
- 2622**                    b) shall maintain their positions within  $\pm 0.5$  degree of longitude of their nominal positions; *but*
- 2623**                    c) need not comply with No. **2622** as long as the satellite network to which the space station belongs does not cause unacceptable interference<sup>2</sup> to any other satellite network whose space station complies with the limits given in No. **2622**.
- 2623.1**                    <sup>2</sup> The level of accepted interference shall be fixed by agreement between the administrations concerned, using the relevant CCIR Recommendations as a guide.

- 2624** (3) Space stations<sup>1</sup> on board geostationary satellites which are put into service prior to 1 January 1987, with the advance publication information for the network having been published before 1 January 1982, are exempted from the provisions of Nos. **2615** to **2623** inclusive; however they
- 2624.1** <sup>1</sup> Space stations in the broadcasting-satellite service on geostationary satellites operating in the band 11.7 - 12.7 GHz are exempted from these provisions but shall maintain their positions in accordance with Appendix 30\*.
- 2625** a) shall have the capability of maintaining their positions within  $\pm 1$  degree of the longitude of their nominal positions, but efforts should be made to achieve a capability of maintaining their positions at least within  $\pm 0.5$  degree of the longitude of their nominal positions;
- 2626** b) shall maintain their positions within  $\pm 1$  degree of longitude of their nominal positions; *but*
- 2627** c) need not comply with No. **2626** as long as the satellite network to which the space station belongs does not cause unacceptable interference<sup>2</sup> to any other satellite network whose space station complies with the limits given in No. **2626**.
- 2627.1** <sup>2</sup> The level of accepted interference shall be fixed by agreement between the administrations concerned, using the relevant CCIR Recommendations as a guide.

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\* *Note by the Secretary-General:* Appendix 30 has been revised by the First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985, and becomes Appendix 30 (**Orb-85**).

#### Section IV. Pointing Accuracy of Antennae on Geostationary Satellites

**2628** § 5. (1) The pointing direction of maximum radiation of any earthward beam of antennae on geostationary satellites<sup>1</sup> shall be capable of being maintained within:

a) 10 % of the half power beamwidth relative to the nominal pointing direction, *or*

b) 0.3 degree relative to the nominal pointing direction,

whichever is greater. This position applies only when such a beam is intended for less than global coverage.

**2628.1** <sup>1</sup> Transmitting antennae of space stations in the broadcasting-satellite service operating in the band 11.7 - 12.7 GHz are not subject to these provisions but shall maintain their pointing accuracy in accordance with paragraph 3.14.1 of Annex 8 to Appendix 30\*.

**2629** (2) In the event that the beam is not rotationally symmetrical about the axis of maximum radiation, the tolerance in any plane containing this axis shall be related to the half power beamwidth in that plane.

**2630** (3) This accuracy shall be maintained only if it is required to avoid unacceptable interference<sup>2</sup> to other systems.

**2630.1** <sup>2</sup> The level of accepted interference shall be fixed by agreement between the administrations concerned, using the relevant CCIR Recommendations as a guide.

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\* *Note by the Secretary-General:* Appendix 30 has been revised by the First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985, and becomes Appendix 30 (Orb-85).

### Section V. Power Flux-Density at the Geostationary-Satellite Orbit

- 2631** § 6. In the frequency band 8 025 MHz - 8 400 MHz, which the earth exploration-satellite service using non-geostationary satellites shares with the fixed-satellite service (Earth-to-space) or the meteorological-satellite service (Earth-to-space), the maximum power flux-density produced at the geostationary-satellite orbit by any earth exploration-satellite service space station shall not exceed -174 dB(W/m<sup>2</sup>) in any 4 kHz band.

### Section VI. Radio Astronomy in the Shielded Zone of the Moon

- 2632** § 7. (1) In the shielded zone of the Moon<sup>1</sup> emissions causing harmful interference to radio astronomy observations<sup>2</sup> and to other users of passive services shall be prohibited in the entire frequency spectrum except in the following bands:

**2632.1** <sup>1</sup> The shielded zone of the Moon comprises the area of the Moon's surface and an adjacent volume of space which are shielded from emissions originating within a distance of 100 000 km from the centre of the Earth.

**2632.2** <sup>2</sup> The level of harmful interference is determined by agreement between the administrations concerned, with the guidance of the relevant CCIR Recommendations.

**2633** a) the frequency bands allocated to the space research service using active sensors;

**2634** b) the frequency bands allocated to the space operation service, the earth exploration-satellite service using active sensors, and the radiolocation service using stations on spaceborne platforms, which are required for the support of space research, as well as for radiocommunications and space research transmissions within the lunar shielded zone.



- 2635** (2) In frequency bands in which emissions are not prohibited by Nos. **2632** to **2634**, radio astronomy observations and passive space research in the shielded zone of the Moon may be protected from harmful interference by agreement between administrations concerned.

#### **Section VII. Earth Station Off-Axis Power Limitations**

- 2636** § 8. The level of equivalent isotropically radiated power (e.i.r.p.) emitted by an earth station at angles in the direction of the geostationary-satellite orbit off the main-beam axis has a significant impact on interference caused to other geostationary-satellite networks. Enhanced utilization of the geostationary-satellite orbit and easier coordination would be attained by minimizing such off-axis radiation and administrations are encouraged to achieve the lowest values practicable bearing in mind the latest CCIR Recommendations. Minimizing such levels is particularly important in intensively used up-link bands.
- 2637**  
to  
**2663** NOT allocated.

**3983**            *b)* ship stations of the second and third categories, except in the case provided for in No. **3986**: a chief operator holding a radiocommunication operator's general certificate or a first- or second-class radiotelegraph operator's certificate;

- 3984** c) ship stations of the fourth category, except in the cases provided for in Nos. **3985** and **3986**: one operator holding a radiocommunication operator's general certificate or a first- or second-class radiotelegraph operator's certificate;
- 3985** d) 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;
- 3986** e) ship stations equipped with a radiotelephone installation only: one operator holding either a radiotelephone operator's certificate or a radiotelegraph operator's certificate.

**Mob-87**

**Section III. Class and Minimum Number of  
Personnel for Ship Stations and Ship Earth Stations  
Using the Frequencies and Techniques Prescribed in  
Chapter N IX and for Public Correspondence**

**3987** § 4. Administrations shall ensure that the personnel of ship  
**Mob-87** stations and ship earth stations are adequately qualified to enable efficient operation of the station, and shall take steps to ensure the operational availability and maintenance of equipment for distress and safety communications in accordance with the relevant international agreements.

**3988** § 5. An adequately qualified person shall be available to act as a  
**Mob-87** dedicated communications operator in cases of distress.

**3989** § 6. The personnel of ship stations and ship earth stations for  
**WARC-92** which a radio installation is compulsory under international agreements and which use the frequencies and techniques prescribed in

Chapter N IX shall, with respect to the provisions of Article 55, include at least:

**3990**  
**WARC-92**

- a)* for stations on board ships which sail beyond the range of VHF coast stations, taking into account the provisions of the Convention for the Safety of Life at Sea: a holder of a first- or second-class radio electronic certificate or a general operator's certificate;

**3991**  
**WARC-92**

SUP

**3992**  
**WARC-92**

- b)* for stations on board ships which sail within the range of VHF coast stations, taking into account the provisions of the Convention for the Safety of Life at Sea: a holder of a first- or second-class radio electronic certificate or a general operator's certificate or a restricted operator's certificate.

**3993**  
**WARC-92**

§ 7. The personnel of ship stations and ship earth stations for which a radio installation is not compulsory under international agreements and which use the frequencies and techniques prescribed in Chapter N IX shall be adequately qualified and certificated in accordance with the administration's requirements.

**3994**  
to  
**4011**

NOT allocated.

5032 (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:

- 5033 - the call sign or other identification of the station called;
- 5034 - the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- 5035 - the call sign or other identification of the calling station.

5036 (5) The call sign or other identification need not be sent more than once.

5037 *B. Establishment of Radiotelephone Calls  
and Transmission of Radiotelegrams*

5038 B1. Establishment of Radiotelephone Calls

5039 § 31. (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.

5040 (2) However, if the connection cannot be quickly established, the coast station shall inform the ship station accordingly. The latter station shall then either:

- 5041 a) maintain watch on the appropriate frequency until an effective circuit can be established; or
- 5042 b) contact the coast station later at a mutually agreed time.

5043 (3) When a radiotelephone call has been completed, the procedure indicated in No. 5054 shall be applied unless further calls are on hand at either station.

**5044** B2. Transmission of Radiotelegrams

**5045** § 32. (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.

**5046** (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.

**5047** (3) A series of numbers which has begun in radiotelegraphy should be continued in radiotelephony and vice versa.

**5048** (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.

**5049** (5) In transmitting groups of figures, each figure shall be spoken separately and the transmission of each group or series of groups shall be preceded by the words "in figures".

**5050** (6) Numbers written in letters shall be spoken as they are written, their transmission being preceded by the words "in letters".

**5051** B3. Acknowledgement of Receipt

**5052** § 33. (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;

## CHAPTER XIII

### ARTICLE 69

#### Entry into Force of the Radio Regulations

- 5187** § 1. These Regulations, which are annexed to the International  
**WARC-92** Telecommunication Convention, shall enter into force on 1 January 1982, except as specified in Nos. **5188**, **5189**, **5193**, **5194**, **5195**, **5196** and **5197**.
- 5188** § 2. Article **25** and Appendix **43** – but not Appendices **42** and **44** related to this Article – and Article **66** of these Regulations shall enter into force on 1 January 1981.
- 5189** § 3. The Frequency Allotment Plan for the Aeronautical Mobile (R) Service and the directly related provisions contained in Appendix **27 Aer2** of these Regulations shall enter into force at 0001 h UTC on 1 February 1983.
- 5190** § 4. On the date of entry into force of Article **25** and Article **66** of these Regulations, as specified in No. **5188** (1 January 1981), the provisions of the following Articles of the Radio Regulations, Geneva, 1959, as amended:
- a)* Article 19 – with the exception of provisions 745 to 747 thereof and the Appendices related thereto – and
  - b)* Articles 38, 39, 40 and 40A – including the related Appendices 21, 21A and 22 – as well as the Additional Radio Regulations
- shall be abrogated and replaced respectively by the provisions of Articles **25** and **66** of these Regulations.

**5191**    § 5.    On the date specified in No. **5187** (1 January 1982) all the other provisions of the Radio Regulations (Geneva, 1959), as partially revised by the:

- a)* Extraordinary Administrative Radio Conference to Allocate Frequency Bands for Space Radiocommunication Purposes, Geneva, 1963,
- b)* Extraordinary Administrative Radio Conference for the Preparation of a Revised Allotment Plan for the Aeronautical Mobile (R) Service, Geneva, 1966,
- c)* World Administrative Radio Conference to Deal with Matters Relating to the Maritime Mobile Service, Geneva, 1967,
- d)* World Administrative Radio Conference for Space Telecommunications, Geneva, 1971,
- e)* World Maritime Administrative Radio Conference, Geneva, 1974, and the
- f)* World Administrative Radio Conference on the Aeronautical Mobile (R) Service, Geneva, 1978,

shall be abrogated and replaced by the provisions of these Regulations.

**5192**    § 6.    In accordance with the request by the World Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service in Frequency Bands 11.7 - 12.2 GHz (in Regions 2 and 3) and 11.7 - 12.5 GHz (in Region 1), Geneva, 1977, the provisions and associated Plan adopted by that Conference are, in the appropriate



form and without affecting their content and integrity, included in these Regulations as Appendix 30\* and form an integral part of these Regulations.

**5193** § 7. The partial revision of the Radio Regulations contained in  
**Orb-88** the Final Acts of WARC Orb-85 shall enter into force on 30 October 1986 at 0001 hours UTC.

**5193.1** SUP  
**Orb-88**

**5194** § 8. (1) The partial revision of the Radio Regulations contained  
**Mob-87** in the Final Acts of WARC Mob-87 shall enter into force on 3 October 1989 at 0001 hours UTC, except for:

a) those provisions relating to the frequency band 4 000 - 27 500 kHz which are contained in:

- Articles 8 and 12,
- Articles 60, 62 and 65, and
- Appendices 16, 25 and 31 to 35; and

b) Chapters IX and N IX of the Radio Regulations,

which shall enter into force on 1 July 1991 at 0001 hours UTC.

**5195** (2) The use of the frequency bands 12 230 - 12 330 kHz,  
**WARC-92** 16 360 - 16 460 kHz, 17 360 - 17 410 kHz, 18 780 - 18 900 kHz, 19 680 - 19 800 kHz, 22 720 - 22 855 kHz, 25 110 - 25 210 kHz and 26 100 - 26 175 kHz by the maritime mobile service commenced on 1 July 1991 at 0001 hours UTC under the conditions specified in Resolution 325 (Mob-87).

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\* *Note by the Secretary-General:* Appendix 30 has been revised by the First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985, and becomes Appendix 30 (Orb-85).

**5196** § 9. The partial revision of the Radio Regulations contained in  
**Orb-88** the Final Acts of WARC Orb-88 shall enter into force on 16 March  
1990 at 0001 hours UTC.<sup>1</sup>

**5196.1** <sup>1</sup> For the provisional application of certain parts of this revision,  
**Orb-88** see Resolutions **104 (Orb-88)** and **106 (Orb-88)**.

**5197** § 10. The partial revision of the Radio Regulations contained in  
**WARC-92** the Final Acts of WARC-92 shall enter into force on 12 October 1993  
at 0001 hours UTC.



INTERNATIONAL TELECOMMUNICATION UNION

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# Radio Regulations

Edition of 1990

Revised in 1994

**2**

***Appendices to  
the Radio  
Regulations***

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### **Note by the Secretary-General**

Following the decisions of the Additional Plenipotentiary Conference (Geneva, 1992) contained in Chapter II of the ITU Constitution and Chapter I of the ITU Convention relating to the restructuring of the Union, actions previously performed by the Secretary-General and the International Frequency Registration Board (IFRB) under the provisions of the Radio Regulations are now carried out by the Radiocommunication Bureau and by the Radio Regulations Board.

Relevant provisions in the present edition of the Radio Regulations still refer to the IFRB, the Board, the CCIR, CCITT, etc. Required changes in the Radio Regulations consequential to the restructuring of the Union will have to be adopted by a future competent world radiocommunication conference (WRC) and will then be reflected in the next edition of the Radio Regulations.

6.     a) Maritime radiotelephone stations using single-sideband emissions in the bands between 4 000 kHz and 27 500 kHz exclusively allocated to the maritime mobile service shall operate only on the carrier frequencies shown in the Sections A and B in conformity with the technical characteristics specified in Appendix 17.
- b) Ship stations, when using frequencies for single-sideband radiotelephony from the bands 4 000 - 4 063 kHz and ship and coast stations, when using frequencies for single-sideband radiotelephony in the band 8 100 - 8 195 kHz should operate on the carrier frequencies indicated in Sections C-1 and C-2 respectively. Technical characteristics of the equipment shall be those specified in Appendix 17.
- c) Stations employing the single-sideband mode shall use only class J3E emissions.

7.     The channelling plan established in Section C-2 does not prejudice the rights of administrations to establish, and to notify assignments to stations in the maritime mobile service other than those using radiotelephony in the band 8 100 - 8 195 kHz, in conformity with the relevant provisions of these Regulations.

8.     For the use and notification of channels Nos. 427, 428, 429, 607, 608, 832, 834, 835, 836, 837, 1233 up to and including 1241, 1642 up to and including 1656, 1801 up to and including 1805, 1807 up to and including 1815, 2241 up to and including 2253 and 2501 up to and including 2509, see Resolution **325 (Mob-87)**.

## SECTION A

**Table of Single-Sideband Transmitting Frequencies For Duplex  
(Two-Frequency) Operation (in kHz)**

Channel No.	4 MHz Band			
	Coast stations		Ship stations	
	Carrier Frequency	Assigned Frequency	Carrier Frequency	Assigned Frequency
401	4 357	4 358.4	4 065	4 066.4
402	4 360	4 361.4	4 068	4 069.4
403	4 363	4 364.4	4 071	4 072.4
404	4 366	4 367.4	4 074	4 075.4
405	4 369	4 370.4	4 077	4 078.4
406	4 372	4 373.4	4 080	4 081.4
407	4 375	4 376.4	4 083	4 084.4
408	4 378	4 379.4	4 086	4 087.4
409	4 381	4 382.4	4 089	4 090.4
410	4 384	4 385.4	4 092	4 093.4
411	4 387	4 388.4	4 095	4 096.4
412	4 390	4 391.4	4 098	4 099.4
413	4 393	4 394.4	4 101	4 102.4
414	4 396	4 397.4	4 104	4 105.4
415	4 399	4 400.4	4 107	4 108.4
416	4 402	4 403.4	4 110	4 111.4
417	4 405	4 406.4	4 113	4 114.4
418	4 408	4 409.4	4 116	4 117.4
419	4 411	4 412.4	4 119	4 120.4
420	4 414	4 415.4	4 122	4 123.4
421	4 417 *	4 418.4 *	4 125 * 4)	4 126.4 *
422	4 420	4 421.4	4 128	4 129.4
423	4 423	4 424.4	4 131	4 132.4
424	4 426	4 427.4	4 134	4 135.4
425	4 429	4 430.4	4 137	4 138.4
426	4 432	4 433.4	4 140	4 141.4
427 2)	4 435	4 436.4	4 143	4 144.4
428 1) 2) 3)	4 351	4 352.4	—	—
429 1) 2) 3)	4 354	4 355.4	—	—

Channel No.	6 MHz Band			
	Coast stations		Ship stations	
	Carrier Frequency	Assigned Frequency	Carrier Frequency	Assigned Frequency
601	6 501	6 502.4	6 200	6 201.4
602	6 504	6 505.4	6 203	6 204.4
603	6 507	6 508.4	6 206	6 207.4
604	6 510	6 511.4	6 209	6 210.4
605	6 513	6 514.4	6 212	6 213.4
606	6 516 *	6 517.4 *	6 215 * <sup>5)</sup>	6 216.4 *
607 <sup>2)</sup>	6 519	6 520.4	6 218	6 219.4
608 <sup>2)</sup>	6 522	6 523.4	6 221	6 222.4

Channel No.	8 MHz Band			
	Coast stations		Ship stations	
	Carrier Frequency	Assigned Frequency	Carrier Frequency	Assigned Frequency
801	8 719	8 720.4	8 195	8 196.4
802	8 722	8 723.4	8 198	8 199.4
803	8 725	8 726.4	8 201	8 202.4
804	8 728	8 729.4	8 204	8 205.4
805	8 731	8 732.4	8 207	8 208.4
806	8 734	8 735.4	8 210	8 211.4
807	8 737	8 738.4	8 213	8 214.4
808	8 740	8 741.4	8 216	8 217.4
809	8 743	8 744.4	8 219	8 220.4
810	8 746	8 747.4	8 222	8 223.4
811	8 749	8 750.4	8 225	8 226.4
812	8 752	8 753.4	8 228	8 229.4
813	8 755	8 756.4	8 231	8 232.4
814	8 758	8 759.4	8 234	8 235.4
815	8 761	8 762.4	8 237	8 238.4

(continued)

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Channel No.	8 MHz Band <i>(end)</i>			
	Coast stations		Ship stations	
	Carrier Frequency	Assigned Frequency	Carrier Frequency	Assigned Frequency
816	8 764	8 765.4	8 240	8 241.4
817	8 767	8 768.4	8 243	8 244.4
818	8 770	8 771.4	8 246	8 247.4
819	8 773	8 774.4	8 249	8 250.4
820	8 776	8 777.4	8 252	8 253.4
821	8 779 *	8 780.4 *	8 255 *	8 256.4 *
822	8 782	8 783.4	8 258	8 259.4
823	8 785	8 786.4	8 261	8 262.4
824	8 788	8 789.4	8 264	8 265.4
825	8 791	8 792.4	8 267	8 268.4
826	8 794	8 795.4	8 270	8 271.4
827	8 797	8 798.4	8 273	8 274.4
828	8 800	8 801.4	8 276	8 277.4
829	8 803	8 804.4	8 279	8 280.4
830	8 806	8 807.4	8 282	8 283.4
831	8 809	8 810.4	8 285	8 286.4
832 <sup>2)</sup>	8 812	8 813.4	8 288	8 289.4
833	8 291 <sup>7)</sup>	8 292.4	8 291 <sup>7)</sup>	8 292.4
834 <sup>2) 3) 6)</sup>	8 707	8 708.4	—	—
835 <sup>2) 3) 6)</sup>	8 710	8 711.4	—	—
836 <sup>2) 3) 6)</sup>	8 713	8 714.4	—	—
837 <sup>2) 3) 6)</sup>	8 716	8 717.4	—	—



Channel No.	12 MHz Band			
	Coast stations		Ship stations	
	Carrier Frequency	Assigned Frequency	Carrier Frequency	Assigned Frequency
1201	13 077	13 078.4	12 230	12 231.4
1202	13 080	13 081.4	12 233	12 234.4
1203	13 083	13 084.4	12 236	12 237.4
1204	13 086	13 087.4	12 239	12 240.4
1205	13 089	13 090.4	12 242	12 243.4
1206	13 092	13 093.4	12 245	12 246.4
1207	13 095	13 096.4	12 248	12 249.4
1208	13 098	13 099.4	12 251	12 252.4
1209	13 101	13 102.4	12 254	12 255.4
1210	13 104	13 105.4	12 257	12 258.4
1211	13 107	13 108.4	12 260	12 261.4
1212	13 110	13 111.4	12 263	12 264.4
1213	13 113	13 114.4	12 266	12 267.4
1214	13 116	13 117.4	12 269	12 270.4
1215	13 119	13 120.4	12 272	12 273.4
1216	13 122	13 123.4	12 275	12 276.4
1217	13 125	13 126.4	12 278	12 279.4
1218	13 128	13 129.4	12 281	12 282.4
1219	13 131	13 132.4	12 284	12 285.4
1220	13 134	13 135.4	12 287	12 288.4
1221	13 137 *	13 138.4 *	12 290 * 8)	12 291.4 *
1222	13 140	13 141.4	12 293	12 294.4
1223	13 143	13 144.4	12 296	12 297.4
1224	13 146	13 147.4	12 299	12 300.4
1225	13 149	13 150.4	12 302	12 303.4
1226	13 152	13 153.4	12 305	12 306.4
1227	13 155	13 156.4	12 308	12 309.4
1228	13 158	13 159.4	12 311	12 312.4
1229	13 161	13 162.4	12 314	12 315.4
1230	13 164	13 165.4	12 317	12 318.4

(continued)

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Channel No.	12 MHz Band ( <i>end</i> )			
	Coast stations		Ship stations	
	Carrier Frequency	Assigned Frequency	Carrier Frequency	Assigned Frequency
1231	13 167	13 168.4	12 320	12 321.4
1232	13 170	13 171.4	12 323	12 324.4
1233 <sup>2)</sup>	13 173	13 174.4	12 326	12 327.4
1234 <sup>2)</sup>	13 176	13 177.4	12 329	12 330.4
1235 <sup>2)</sup>	13 179	13 180.4	12 332	12 333.4
1236 <sup>2)</sup>	13 182	13 183.4	12 335	12 336.4
1237 <sup>2)</sup>	13 185	13 186.4	12 338	12 339.4
1238 <sup>2)</sup>	13 188	13 189.4	12 341	12 342.4
1239 <sup>2)</sup>	13 191	13 192.4	12 344	12 345.4
1240 <sup>2)</sup>	13 194	13 195.4	12 347	12 348.4
1241 <sup>2)</sup>	13 197	13 198.4	12 350	12 351.4

Channel No.	16 MHz Band			
	Coast stations		Ship stations	
	Carrier Frequency	Assigned Frequency	Carrier Frequency	Assigned Frequency
1601	17 242	17 243.4	16 360	16 361.4
1602	17 245	17 246.4	16 363	16 364.4
1603	17 248	17 249.4	16 366	16 367.4
1604	17 251	17 252.4	16 369	16 370.4
1605	17 254	17 255.4	16 372	16 373.4
1606	17 257	17 258.4	16 375	16 376.4
1607	17 260	17 261.4	16 378	16 379.4
1608	17 263	17 264.4	16 381	16 382.4
1609	17 266	17 267.4	16 384	16 385.4
1610	17 269	17 270.4	16 387	16 388.4
1611	17 272	17 273.4	16 390	16 391.4
1612	17 275	17 276.4	16 393	16 394.4
1613	17 278	17 279.4	16 396	16 397.4
1614	17 281	17 282.4	16 399	16 400.4

(continued)

Channel No.	16 MHz Band ( <i>continuation</i> )			
	Coast stations		Ship stations	
	Carrier Frequency	Assigned Frequency	Carrier Frequency	Assigned Frequency
1615	17 284	17 285.4	16 402	16 403.4
1616	17 287	17 288.4	16 405	16 406.4
1617	17 290	17 291.4	16 408	16 409.4
1618	17 293	17 294.4	16 411	16 412.4
1619	17 296	17 297.4	16 414	16 415.4
1620	17 299	17 300.4	16 417	16 418.4
1621	17 302 *	17 303.4 *	16 420 * <sup>9)</sup>	16 421.4 *
1622	17 305	17 306.4	16 423	16 424.4
1623	17 308	17 309.4	16 426	16 427.4
1624	17 311	17 312.4	16 429	16 430.4
1625	17 314	17 315.4	16 432	16 433.4
1626	17 317	17 318.4	16 435	16 436.4
1627	17 320	17 321.4	16 438	16 439.4
1628	17 323	17 324.4	16 441	16 442.4
1629	17 326	17 327.4	16 444	16 445.4
1630	17 329	17 330.4	16 447	16 448.4
1631	17 332	17 333.4	16 450	16 451.4
1632	17 335	17 336.4	16 453	16 454.4
1633	17 338	17 339.4	16 456	16 457.4
1634	17 341	17 342.4	16 459	16 460.4
1635	17 344	17 345.4	16 462	16 463.4
1636	17 347	17 348.4	16 465	16 466.4
1637	17 350	17 351.4	16 468	16 469.4
1638	17 353	17 354.4	16 471	16 472.4
1639	17 356	17 357.4	16 474	16 475.4
1640	17 359	17 360.4	16 477	16 478.4
1641	17 362	17 363.4	16 480	16 481.4
1642 <sup>2)</sup>	17 365	17 366.4	16 483	16 484.4
1643 <sup>2)</sup>	17 368	17 369.4	16 486	16 487.4
1644 <sup>2)</sup>	17 371	17 372.4	16 489	16 490.4
1645 <sup>2)</sup>	17 374	17 375.4	16 492	16 493.4

*(continued)*

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Channel No.	16 MHz Band ( <i>end</i> )			
	Coast stations		Ship stations	
	Carrier Frequency	Assigned Frequency	Carrier Frequency	Assigned Frequency
1646 <sup>2)</sup>	17 377	17 378.4	16 495	16 496.4
1647 <sup>2)</sup>	17 380	17 381.4	16 498	16 499.4
1648 <sup>2)</sup>	17 383	17 384.4	16 501	16 502.4
1649 <sup>2)</sup>	17 386	17 387.4	16 504	16 505.4
1650 <sup>2)</sup>	17 389	17 390.4	16 507	16 508.4
1651 <sup>2)</sup>	17 392	17 393.4	16 510	16 511.4
1652 <sup>2)</sup>	17 395	17 396.4	16 513	16 514.4
1653 <sup>2)</sup>	17 398	17 399.4	16 516	16 517.4
1654 <sup>2)</sup>	17 401	17 402.4	16 519	16 520.4
1655 <sup>2)</sup>	17 404	17 405.4	16 522	16 523.4
1656 <sup>2)</sup>	17 407	17 408.4	16 525	16 526.4

Channel No.	18/19 MHz Band			
	Coast stations		Ship stations	
	Carrier Frequency	Assigned Frequency	Carrier Frequency	Assigned Frequency
1801 <sup>2)</sup>	19 755	19 756.4	18 780	18 781.4
1802 <sup>2)</sup>	19 758	19 759.4	18 783	18 784.4
1803 <sup>2)</sup>	19 761	19 762.4	18 786	18 787.4
1804 <sup>2)</sup>	19 764	19 765.4	18 789	18 790.4
1805 <sup>2)</sup>	19 767	19 768.4	18 792	18 793.4
1806	19 770 *	19 771.4 *	18 795 *	18 796.4 *
1807 <sup>2)</sup>	19 773	19 774.4	18 798	18 799.4
1808 <sup>2)</sup>	19 776	19 777.4	18 801	18 802.4
1809 <sup>2)</sup>	19 779	19 780.4	18 804	18 805.4
1810 <sup>2)</sup>	19 782	19 783.4	18 807	18 808.4
1811 <sup>2)</sup>	19 785	19 786.4	18 810	18 811.4
1812 <sup>2)</sup>	19 788	19 789.4	18 813	18 814.4
1813 <sup>2)</sup>	19 791	19 792.4	18 816	18 817.4
1814 <sup>2)</sup>	19 794	19 795.4	18 819	18 820.4
1815 <sup>2)</sup>	19 797	19 798.4	18 822	18 823.4

Channel No.	22 MHz Band			
	Coast stations		Ship stations	
	Carrier Frequency	Assigned Frequency	Carrier Frequency	Assigned Frequency
2201	22 696	22 697.4	22 000	22 001.4
2202	22 699	22 700.4	22 003	22 004.4
2203	22 702	22 703.4	22 006	22 007.4
2204	22 705	22 706.4	22 009	22 010.4
2205	22 708	22 709.4	22 012	22 013.4
2206	22 711	22 712.4	22 015	22 016.4
2207	22 714	22 715.4	22 018	22 019.4
2208	22 717	22 718.4	22 021	22 022.4
2209	22 720	22 721.4	22 024	22 025.4
2210	22 723	22 724.4	22 027	22 028.4
2211	22 726	22 727.4	22 030	22 031.4
2212	22 729	22 730.4	22 033	22 034.4
2213	22 732	22 733.4	22 036	22 037.4
2214	22 735	22 736.4	22 039	22 040.4
2215	22 738	22 739.4	22 042	22 043.4
2216	22 741	22 742.4	22 045	22 046.4
2217	22 744	22 745.4	22 048	22 049.4
2218	22 747	22 748.4	22 051	22 052.4
2219	22 750	22 751.4	22 054	22 055.4
2220	22 753	22 754.4	22 057	22 058.4
2221	22 756 *	22 757.4 *	22 060 *	22 061.4 *
2222	22 759	22 760.4	22 063	22 064.4
2223	22 762	22 763.4	22 066	22 067.4
2224	22 765	22 766.4	22 069	22 070.4
2225	22 768	22 769.4	22 072	22 073.4
2226	22 771	22 772.4	22 075	22 076.4
2227	22 774	22 775.4	22 078	22 079.4
2228	22 777	22 778.4	22 081	22 082.4
2229	22 780	22 781.4	22 084	22 085.4
2230	22 783	22 784.4	22 087	22 088.4

(continued)

Channel No.	22 MHz Band ( <i>end</i> )			
	Coast stations		Ship stations	
	Carrier Frequency	Assigned Frequency	Carrier Frequency	Assigned Frequency
2231	22 786	22 787.4	22 090	22 091.4
2232	22 789	22 790.4	22 093	22 094.4
2233	22 792	22 793.4	22 096	22 097.4
2234	22 795	22 796.4	22 099	22 100.4
2235	22 798	22 799.4	22 102	22 103.4
2236	22 801	22 802.4	22 105	22 106.4
2237	22 804	22 805.4	22 108	22 109.4
2238	22 807	22 808.4	22 111	22 112.4
2239	22 810	22 811.4	22 114	22 115.4
2240	22 813	22 814.4	22 117	22 118.4
2241 <sup>2)</sup>	22 816	22 817.4	22 120	22 121.4
2242 <sup>2)</sup>	22 819	22 820.4	22 123	22 124.4
2243 <sup>2)</sup>	22 822	22 823.4	22 126	22 127.4
2244 <sup>2)</sup>	22 825	22 826.4	22 129	22 130.4
2245 <sup>2)</sup>	22 828	22 829.4	22 132	22 133.4
2246 <sup>2)</sup>	22 831	22 832.4	22 135	22 136.4
2247 <sup>2)</sup>	22 834	22 835.4	22 138	22 139.4
2248 <sup>2)</sup>	22 837	22 838.4	22 141	22 142.4
2249 <sup>2)</sup>	22 840	22 841.4	22 144	22 145.4
2250 <sup>2)</sup>	22 843	22 844.4	22 147	22 148.4
2251 <sup>2)</sup>	22 846	22 847.4	22 150	22 151.4
2252 <sup>2)</sup>	22 849	22 850.4	22 153	22 154.4
2253 <sup>2)</sup>	22 852	22 853.4	22 156	22 157.4

Channel No.	25/26 MHz Band			
	Coast stations		Ship stations	
	Carrier Frequency	Assigned Frequency	Carrier Frequency	Assigned Frequency
2501 <sup>2)</sup>	26 145	26 146.4	25 070	25 071.4
2502 <sup>2)</sup>	26 148	26 149.4	25 073	25 074.4
2503 <sup>2)</sup>	26 151	26 152.4	25 076	25 077.4
2504 <sup>2)</sup>	26 154	26 155.4	25 079	25 080.4
2505 <sup>2)</sup>	26 157	26 158.4	25 082	25 083.4
2506 <sup>2)</sup>	26 160	26 161.4	25 085	25 086.4
2507 <sup>2)</sup>	26 163	26 164.4	25 088	25 089.4
2508 <sup>2)</sup>	26 166	26 167.4	25 091	25 092.4
2509 <sup>2)</sup>	26 169	26 170.4	25 094	25 095.4
2510	26 172 *	26 173.4 *	25 097 *	25 098.4 *

#### NOTES TO THE TABLE

- <sup>1)</sup> These coast station frequencies may be paired with a ship station frequency from the table of simplex frequencies for ship and coast stations (see Section B) or with a frequency from the band 4 000-4 063 kHz (see Section C-1) to be selected by the administration concerned.
- <sup>2)</sup> For the use and notification of these frequencies, see Resolution 325 (Mob-87).
- <sup>3)</sup> These channels may also be used for simplex (single frequency) operation.
- <sup>4)</sup> For the conditions of use of the carrier frequency 4 125 kHz, see Nos. **N 2980**, **N 2981**, **2982**, **4379** and **4380**.
- <sup>5)</sup> For the conditions of use of the carrier frequency 6 215 kHz, see Nos. **2986** and **N 2993**.
- <sup>6)</sup> These coast station frequencies may be paired with a ship station frequency from the table of simplex frequencies for ship and coast stations (see Section B) or with a frequency from the band 8 100-8 195 kHz (see Section C-2) to be selected by the administration concerned.
- <sup>7)</sup> For the conditions of use of the carrier frequency 8 291 kHz, see No. **N 3001**.
- <sup>8)</sup> For the conditions of use of the carrier frequency 12 290 kHz, see No. **N 3009**.
- <sup>9)</sup> For the conditions of use of the carrier frequency 16 420 kHz, see No. **N 3017**.
- <sup>\*</sup> The frequencies followed by an asterisk are calling frequencies (see Nos. **4375** and **4376**).

## SECTION B

**Table of Single-Sideband Transmitting Frequencies for Simplex (Single-Frequency) Operation and for Intership Cross-Band (Two-Frequency) Operation  
(in kHz)**

(See paragraph 4 of this Appendix)

4 MHz Band <sup>1</sup>		6 MHz Band		8 MHz Band <sup>2</sup>		12 MHz Band	
Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
4 146	4 147.4	6 224	6 225.4	8 294	8 295.4	12 353	12 354.4
4 149	4 150.4	6 227	6 228.4	8 297	8 298.4	12 356	12 357.4
		6 230	6 231.4			12 359	12 360.4
						12 362	12 363.4
						12 365	12 366.4

16 MHz Band		18/19 MHz Band		22 MHz Band		25/26 MHz Band	
Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
16 528	16 529.4	18 825	18 826.4	22 159	22 160.4	25 100	25 101.4
16 531	16 532.4	18 828	18 829.4	22 162	22 163.4	25 103	25 104.4
16 534	16 535.4	18 831	18 832.4	22 165	22 166.4	25 106	25 107.4
16 537	16 538.4	18 834	18 835.4	22 168	22 169.4	25 109	25 110.4
16 540	16 541.4	18 837	18 838.4	22 171	22 172.4	25 112	25 113.4
16 543	16 544.4	18 840	18 841.4	22 174	22 175.4	25 115	25 116.4
16 546	16 547.4	18 843	18 844.4	22 177	22 178.4	25 118	25 119.4

- <sup>1</sup> These frequencies may be used for duplex operation with coast stations operating on Channels 428 and 429 (see Section A).
- <sup>2</sup> These frequencies may be used for duplex operation with coast stations operating on Channels 834 up to and including 837 (see Section A).



## SECTION C-1

**Table of Recommended Single-Sideband Transmitting  
Frequencies (in kHz) for Ship Stations in the  
Band 4 000 - 4 063 kHz Shared with the Fixed Service**

The frequencies in this Section may be used:

- for supplementing ship-to-shore channels for duplex operation in Section A;
- for intership simplex (single-frequency) and cross-band operation;
- for cross-band working with coast stations on channels in Section C-2;
- for duplex operation with coast stations working in the band 4 438 - 4 650 kHz;
- for duplex operation with Channels Nos. 428 and 429.

Channel No.	Carrier Frequency	Assigned Frequency	Channel No.	Carrier Frequency	Assigned Frequency
1	4 000*	4 001.4*	12	4 033	4 034.4
2	4 003*	4 004.4*	13	4 036	4 037.4
3	4 006	4 007.4	14	4 039	4 040.4
4	4 009	4 010.4	15	4 042	4 043.4
5	4 012	4 013.4	16	4 045	4 046.4
6	4 015	4 016.4	17	4 048	4 049.4
7	4 018	4 019.4	18	4 051	4 052.4
8	4 021	4 022.4	19	4 054	4 055.4
9	4 024	4 025.4	20	4 057	4 058.4
10	4 027	4 028.4	21	4 060	4 061.4
11	4 030	4 031.4			

\* Administrations are requested to urge ship stations under their jurisdiction to refrain from using the band 4 000 - 4 005 kHz when navigating in Region 3 (see also No. 516).

## SECTION C-2

**Table of Recommended Single-Sideband Transmitting  
Frequencies (in kHz) for Ship and Coast Stations in the  
Band 8 100 - 8 195 kHz Shared with the Fixed Service**

(See paragraph 7 of this Appendix)

The frequencies in this Section may be used:

- for supplementing ship-to-shore and shore-to-ship channels for duplex operation in Section A;
- for intership simplex (single frequency) and cross-band operation;
- for cross-band working with ship stations on channels in Section C-1;
- for ship-to-shore or shore-to-ship simplex operation;
- for duplex operation with Channel Nos. 834, 835, 836 and 837.

Channel No.	Carrier Frequency	Assigned Frequency	Channel No.	Carrier Frequency	Assigned Frequency
1	8 101	8 102.4	17	8 149	8 150.4
2	8 104	8 105.4	18	8 152	8 153.4
3	8 107	8 108.4	19	8 155	8 156.4
4	8 110	8 111.4	20	8 158	8 159.4
5	8 113	8 114.4	21	8 161	8 162.4
6	8 116	8 117.4	22	8 164	8 165.4
7	8 119	8 120.4	23	8 167	8 168.4
8	8 122	8 123.4	24	8 170	8 171.4
9	8 125	8 126.4	25	8 173	8 174.4
10	8 128	8 129.4	26	8 176	8 177.4
11	8 131	8 132.4	27	8 179	8 180.4
12	8 134	8 135.4	28	8 182	8 183.4
13	8 137	8 138.4	29	8 185	8 186.4
14	8 140	8 141.4	30	8 188	8 189.4
15	8 143	8 144.4	31	8 191	8 192.4
16	8 146	8 147.4			

APPENDIX 25

**Frequency Allotment Plan for Coast Radiotelephone Stations  
Operating in the Exclusive Maritime Mobile Bands  
Between 4 000 kHz and 27 500 kHz**

(See Article 16 and Resolution 325 (Mob-87) of the Radio Regulations)

*This Appendix is published together with Appendix 26 (Rev. WARC-92)  
as a separate trilingual (English, French and Spanish) booklet.*

APPENDIX 26  
WARC-92

**Provisions and Associated Frequency Allotment Plan for the  
Aeronautical Mobile (OR) Service in the Bands Allocated Exclusively  
to that Service Between 3 025 kHz and 18 030 kHz**

(See Article 50 of the Radio Regulations)

*This Appendix, as revised by the World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum, Malaga-Torremolinos, 1992 (WARC-92), together with Appendix 25, is published as a separate trilingual (English, French and Spanish) booklet.*

**Curve A:** Co-polar component for individual reception without side-lobe suppression (dB relative to main beam gain)

$$\begin{aligned}
 &0 && \text{for } 0 \leq \varphi \leq 0.25 \varphi_0 \\
 &-12 \left( \frac{\varphi}{\varphi_0} \right)^2 && \text{for } 0.25 \varphi_0 < \varphi \leq 0.707 \varphi_0 \\
 &-\left[ 9.0 + 20 \log \left( \frac{\varphi}{\varphi_0} \right) \right] && \text{for } 0.707 \varphi_0 < \varphi \leq 1.26 \varphi_0 \\
 &-\left[ 8.5 + 25 \log \left( \frac{\varphi}{\varphi_0} \right) \right] && \text{for } 1.26 \varphi_0 < \varphi \leq 9.55 \varphi_0 \\
 &-33 && \text{for } \varphi > 9.55 \varphi_0
 \end{aligned}$$

**Curve A':** Co-polar component for community reception without side-lobe suppression (dB relative to main beam gain)

$$\begin{aligned}
 &0 && \text{for } 0 \leq \varphi \leq 0.25 \varphi_0 \\
 &-12 \left( \frac{\varphi}{\varphi_0} \right)^2 && \text{for } 0.25 \varphi_0 < \varphi \leq 0.86 \varphi_0 \\
 &-\left[ 10.5 + 25 \log \left( \frac{\varphi}{\varphi_0} \right) \right] && \text{for } \varphi > 0.86 \varphi_0 \text{ up to intersection with} \\
 &&& \text{Curve C (then Curve C)}
 \end{aligned}$$

**Curve B:** Cross-polar component for both types of reception (dB relative to main beam gain)

$$\begin{aligned}
 &-25 && \text{for } 0 \leq \varphi \leq 0.25 \varphi_0 \\
 &-\left( 30 + 40 \log \left| \frac{\varphi}{\varphi_0} - 1 \right| \right) && \text{for } 0.25 \varphi_0 < \varphi \leq 0.44 \varphi_0 \\
 &-20 && \text{for } 0.44 \varphi_0 < \varphi \leq 1.4 \varphi_0 \\
 &-\left( 30 + 25 \log \left| \frac{\varphi}{\varphi_0} - 1 \right| \right) && \text{for } 1.4 \varphi_0 < \varphi \leq 2 \varphi_0 \\
 &-30 && \text{until intersection with co-polar component curve; then co-polar component curve.}
 \end{aligned}$$

**Curve C:** Minus the on-axis gain (Curve C in this figure illustrates the particular case of an antenna with an on-axis gain of 37 dBi).

*Note:* for values of  $\varphi_0$  see section 3.7.1

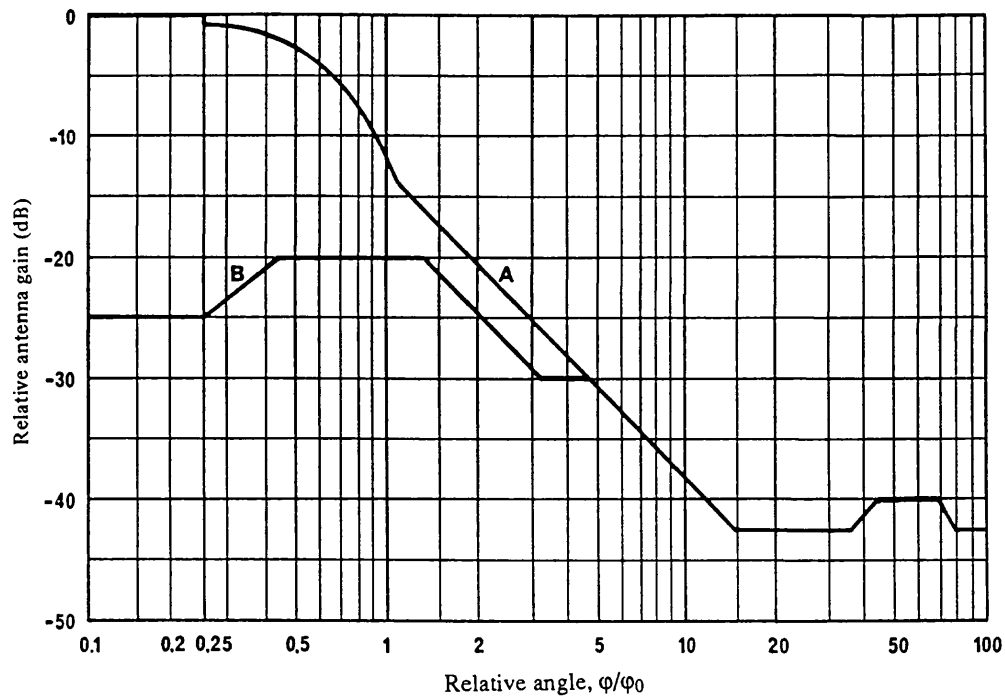
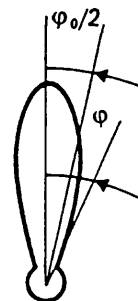


FIGURE 8

*Reference patterns for co-polar and cross-polar components  
for receiving earth station antennas in Region 2*



## APPENDIX 30A (Orb-88)

Orb-88

WARC-92

**Provisions and Associated Plans for Feeder Links  
for the Broadcasting-Satellite Service (11.7 - 12.5 GHz  
in Region 1, 12.2 - 12.7 GHz in Region 2 and 11.7 - 12.2 GHz  
in Region 3) in the Frequency Bands 14.5 - 14.8 GHz <sup>1</sup>  
and 17.3 - 18.1 GHz in Regions 1 and 3,  
and 17.3 - 17.8 GHz in Region 2**

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<sup>1</sup> This use of the band 14.5 - 14.8 GHz is reserved for countries outside Europe.

Article 6.	Procedure Concerning Coordination, Notification and Recording in the Master International Frequency Register of Frequency Assignments to Receiving Terrestrial Stations in Regions 1 and 3 in the Bands 14.5 - 14.8 GHz and 17.7 - 18.1 GHz, and in Region 2 in the Band 17.7 - 17.8 GHz, when Frequency Assignments to Feeder-Link Transmitting Earth Stations for the Broadcasting-Satellite Service in Conformity with the Regions 1 and 3 Plan or the Region 2 Plan are Involved .....	22
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3.2 Members of the Union shall not change the characteristics specified in the Regions 1 and 3 Plan or in the Region 2 Plan, or bring into use assignments to receiving space stations or transmitting earth stations in the fixed-satellite service or to stations of the other services to which these frequency bands are allocated, except as provided for in the Radio Regulations and the appropriate Articles and Annexes of this Appendix.

3.3 The procedures for the use of interim systems in Region 2 for feeder links in the fixed-satellite service for the bands covered by this Appendix are given in Resolution 42 (Rev.Orb-88).

## ARTICLE 4

### Procedure for Modifications to the Plans

4.1 When an administration intends to make a modification to one of the Regional Plans, i.e. either:

- a) to modify the characteristics of any of its frequency assignments in the fixed-satellite service which are shown in the appropriate Regional Plan, or for which the procedure in this Article has been successfully applied, whether or not the station has been brought into use; *or*
- b) to include in the Plan a new frequency assignment in the fixed-satellite service; *or*
- c) to cancel a frequency assignment in the fixed-satellite service,

the following procedure shall be applied before any notification of the frequency assignment is made to the International Frequency Registration Board (see Article 5 of this Appendix and Resolution 42 (Rev.Orb-88)).

4.1.1 Before an administration proposes to include in the Plan under the provisions of paragraph 4.1 b) a new frequency assignment for reception at a space station<sup>1</sup> or to include in the Plan a new frequency assignment for reception at a space station whose orbital position is not designated in the Plan to that administration, all of the assignments to the service areas involved should normally have been brought into service or have been notified to the Board in accordance with Article 5 of this Appendix. Should this not be the case, the administration concerned shall inform the Board of the reasons thereof.

4.2 *Proposed modifications to a frequency assignment in conformity with one of the Regional Plans or proposed inclusion in that Plan of a new frequency assignment*

*For Regions 1 and 3*

4.2.1 An administration proposing a modification to the characteristics of a frequency assignment in conformity with the Regions 1 and 3 Plan or the inclusion of a new frequency assignment in that Plan shall seek the agreement of those administrations:

4.2.1.1 of Regions 1 and 3 having a feeder-link frequency assignment in the fixed-satellite service (Earth-to-space) in the same channel or an adjacent channel, in the same orbital position or an adjacent orbital position in the range  $\pm 12.5^\circ$ , which appears in the Plan or in respect of which proposed modifications to the Plan have already been published by the Board in accordance with the provisions of paragraphs 4.2.6.1 and 4.2.7 of this Article; *or*

4.2.1.2 having a frequency assignment in the band 17.7 - 18.1 GHz to an earth station in the fixed-satellite service (space-to-Earth), which is recorded in the Master Register or which has been coordinated or is being coordinated under the provisions of No. 1060 of the Radio Regulations and which is located within the coordination area of the feeder-link fixed-satellite earth station; *or*

4.2.1.3 having a frequency assignment in the bands 14.5 - 14.8 GHz or 17.7 - 18.1 GHz to a terrestrial station in use or intended to be brought into use within three years of the projected date of bringing the feeder-link

---

<sup>1</sup> The expression "frequency assignment for reception to a space station", wherever it appears in this Article, shall be understood to refer to a frequency assignment associated with a given orbital position.

6.2 In the case of Region 2, when the entry in the Plan contains information on specific earth stations, this shall be used in the interference calculations mentioned in paragraph 6.1 above. When such information is not contained in the Region 2 Plan, an administration which receives a request under paragraph 6.1 shall, within a period of three months, communicate the details of the feeder-link earth stations to the administration planning the terrestrial station, and to the Board in order to update the Plan.

6.3 In the case of Regions 1 and 3, an administration which receives a request under paragraph 6.1 shall, within a period of three months, communicate the details of the feeder-link stations to the administration planning the terrestrial station, and to the Board for information.

6.4 If, at the end of a period of three months, the administration responsible for the terrestrial station does not receive a reply, it may request the assistance of the Board.

6.5 If the administration responsible for the feeder-link earth station does not communicate to the Board, within a period of three months, the information requested under paragraph 6.1, this administration shall only implement its feeder-link earth station provided it does not cause harmful interference to the terrestrial station under consideration.

6.6 If, as a result of the application of this Article, an agreement is reached with the administration responsible for the feeder-link earth station or no comments have been received, the administration responsible for the terrestrial station may notify this station under Article 12 of the Radio Regulations for recording in the Master International Frequency Register. A remark shall be included indicating either that an agreement has been reached or that no comments have been received.

## ARTICLE 7

### **Procedures for the Coordination, Notification and Recording in the Master International Frequency Register of Frequency Assignments to Stations in the Fixed-Satellite Service (Space-to-Earth) in Regions 1 and 3 in the Band 17.7 - 18.1 GHz and in Region 2 in the Band 17.7 - 17.8 GHz, and to Stations in the Broadcasting-Satellite Service in Region 2 in the Band 17.3 - 17.8 GHz When Frequency Assignments to Feeder Links for Broadcasting-Satellite Stations Appearing in the Regions 1 and 3 Plan or the Region 2 Plan are Involved**

7.1 The provisions of Articles 11 and 13 and Appendix 29 of the Radio Regulations are applicable to transmitting space stations in the fixed-satellite service in the band 17.7 - 18.1 GHz, and the provisions of Resolution 33 (WARC-79) of the Radio Regulations are applicable to space stations in the broadcasting-satellite service in Region 2 in the band 17.3 - 17.8 GHz together with the provisions of Annex 4 to this Appendix, except that, in relation to feeder-link stations, the relevant criteria mentioned in Appendix 29 to the Radio Regulations are replaced by those given in Section 1 of Annex 4 to this Appendix.

7.2 Administrations planning to implement assignments for receiving earth stations in Regions 1 and 3 in the 17.7 - 18.1 GHz band and in Region 2 in the 17.7 - 17.8 GHz band in the fixed-satellite service (space-to-Earth) should evaluate the level of interference, assessed on the basis of coordination contours calculated in accordance with Section 3 of Annex 4 to this Appendix, which might be caused by the closest feeder-link earth station which could be located on the border of the territory of another administration. Should the administration planning receiving earth stations find that interference may be caused by such a feeder-link earth station, it may request the administration responsible for the feeder-link earth stations to indicate the geographical coordinates, the antenna characteristics and the elevation angle of the horizon around its actual and planned feeder-link earth stations.

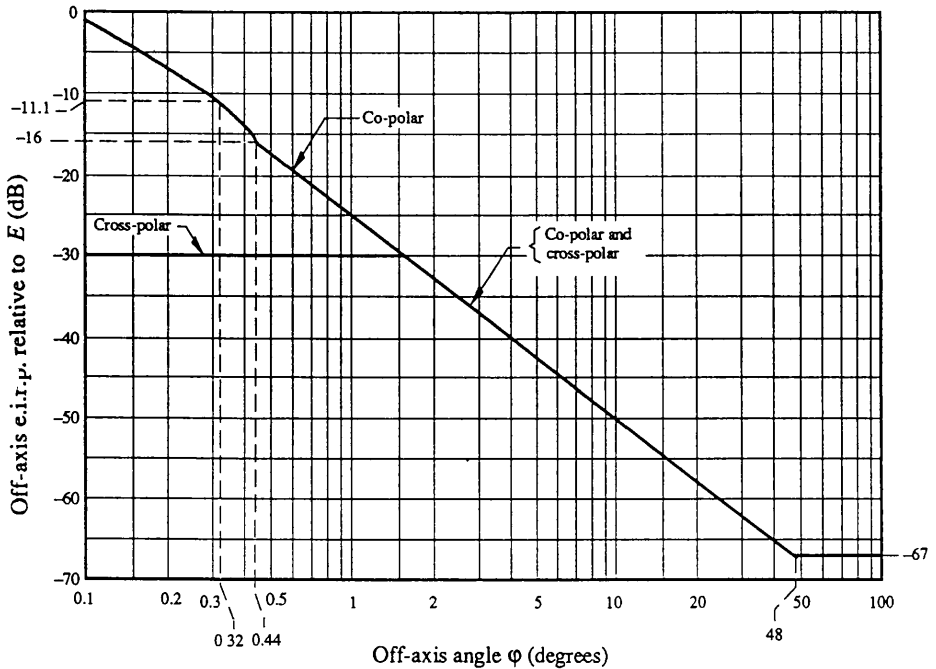


FIGURE A

*Earth station e.i.r.p. at angles off antenna axis*

Co-polar component (dBW):

$E - 21 - 20 \log \theta$ (dBW)	for $0^\circ < \theta \leq 0.1^\circ$
$E - 5.7 - 53.2 \theta^2$ (dBW)	for $0.1^\circ < \theta \leq 0.32^\circ$
$E - 25 - 25 \log \theta$ (dBW)	for $0.32^\circ < \theta \leq 0.44^\circ$
$E - 67$ (dBW)	for $0.44^\circ < \theta \leq 48^\circ$
	for $\theta > 48^\circ$

Cross-polar component (dBW):

$E - 30$ (dBW)	for $0^\circ \leq \theta \leq 1.6^\circ$
$E - 25 - 25 \log \theta$ (dBW)	for $1.6^\circ < \theta \leq 48^\circ$
$E - 67$ (dBW)	for $\theta > 48^\circ$

where:

$E$  (dBW) is the earth station e.i.r.p. on the antenna axis;

and

$\theta$  = off-axis angle referred to the main lobe axis (degrees).

The value of  $E$  to be taken into account in the above formulae is specified in column 8 of the Plan.

If the cross-section of the receiving antenna beam is elliptical, the effective beamwidth  $\varphi_0$  is a function of the angle of rotation  $q$  between the plane containing the satellite and the major axis of the beam cross-section and the plane in which the beamwidth is required.

The relationship between the maximum gain of an antenna and the half-power beamwidth can be derived from the expression:

$$G_m = 27\,843/ab$$

or

$$G_m(\text{dB}) = 44.44 - 10 \log a - 10 \log b$$

where:

$a$  and  $b$  are the angles (in degrees) subtended at the satellite by the major and minor axes of the elliptical cross-section of the beam.

An antenna efficiency of 55% is assumed.

### 3.7.2 *Minimum beamwidth*

A minimum value of  $0.6^\circ$  for the half-power beamwidth of the receiving antenna has been used for planning.

### 3.7.3 *Reference patterns*

The reference patterns for the co-polar and cross-polar components of the satellite receiving antenna used in the Plan are given in Figure B.

In some cases, to reduce co-polar interference, the pattern shown in Figure C is used; this use is indicated in the Plan by note 1. This pattern is derived from an antenna producing an elliptical beam with fast roll-off in the main lobe. Three curves for different values of  $\varphi_0$  are shown as examples.

## ANNEX 4

## Criteria for Sharing Between Services

1. *Threshold values for determining when coordination is required between transmitting space stations in the fixed-satellite service or the broadcasting-satellite service and a receiving space station in the feeder-link Plans in the frequency bands 17.3 - 18.1 GHz (Regions 1 and 3) and 17.3 - 17.8 GHz (Region 2)*

With respect to paragraph 7.1, Article 7 of this Appendix, coordination of a transmitting space station in the fixed-satellite service or in the broadcasting-satellite service with a receiving space station in a broadcasting-satellite feeder link in the Regions 1 and 3 Plan or the Region 2 Plan is required, for inter-satellite geocentric angular separations of less than  $3^\circ$  or greater than  $150^\circ$ , when the power flux-density arriving at the receiving space station of a broadcasting-satellite feeder-link station of another administration would cause an increase in the noise temperature of the feeder-link space station which exceeds a threshold value of  $\Delta T_s/T_s$  corresponding to 4%.  $\Delta T_s/T_s$  is calculated in accordance with Case II of the method given in Appendix 29.

The above provision does not apply when the geocentric angular separation between a transmitting space station in the fixed-satellite service or in the broadcasting-satellite service and a receiving space station in the feeder-link Plan exceeds  $150^\circ$  of arc and the free-space power flux-density of the transmitting space station in the fixed-satellite service does not exceed a value of  $-137$  dB(W/m<sup>2</sup>/MHz) on the Earth's surface at the equatorial Earth limb.

2. *Not used.*
3. *Method for the determination of the coordination area around a feeder-link transmitting earth station of the Region 2 and Regions 1 and 3 Plans with respect to receiving earth stations in the fixed-satellite service in the frequency band 17.7 - 18.1 GHz*

### 3.1 *Introduction*

In the frequency band 17.7 - 17.8 GHz in Region 2 and 17.7 - 18.1 GHz in Regions 1 and 3, which is allocated to the fixed-satellite service, in both the Earth-to-space direction (for broadcasting-satellite service feeder links only), and the space-to-Earth direction, emissions from transmitting feeder-link earth stations might cause interference at receiving earth stations in the fixed-satellite service.

Electromagnetic coupling of an emission originating at a feeder-link earth station into a receiving earth station might occur through two propagation mechanisms or “modes”:

Propagation mode (1): coupling along a great circle tropospheric interference horizon path;

Propagation mode (2): coupling through scatter from hydro-meteors.

The determination of whether emissions from a feeder-link earth station might cause unacceptable interference in a receiving earth station is by means of coordination contours drawn around a feeder-link earth station on a map. When a receiving earth station is located within either or both coordination contours, i.e., within the coordination area, there is a possibility of unacceptable interference.

The procedure for the determination of the coordination area for a feeder-link earth station in relation to a receiving earth station in the fixed-satellite service is similar to that described in Appendix 28 but differs from it in the details described below.



**APPENDIX 34**  
**Mob-87**

**Table of Calling Frequencies Assignable to Ship Stations for A1A or A1B Morse Telegraphy  
at Speeds Not Exceeding 40 Bauds\***

(See Article 60 and Resolution 312 (Rev. Mob-87))  
(kHz)

Group	Channel series	4 MHz Band	6 MHz Band	8 MHz Band	12 MHz Band	16 MHz Band	22 MHz Band	25/26 MHz Band
I	1 2	4 182 4 182.5	6 277 6 277.5	8 366 8 366.5	12 550 12 550.5	16 734 16 734.5	22 279.5 22 280	Channel A 25 171.5 Groups I and II
Common channel	3	4 184	6 276	8 368	12 552	16 736	22 280.5	Common Channel C
Common channel	4	4 184.5	6 276.5	8 369	12 533.5	16 738	22 281	25 172
II	5 6	4 183 4 183.5	6 278 6 278.5	8 367 8 367.5	12 551 12 551.5	16 735 16 735.5	22 281.5 22 282	Channel A 25 171.5 Groups I and II
III	7 8	4 185 4 185.5	6 279 6 279.5	8 368.5 8 369.5	12 552.5 12 553	16 736.5 16 737	22 282.5 22 283	Channel B 25 172.5
IV	9 10	4 186 4 186.5	6 280 6 280.5	8 370 8 370.5	12 554 12 554.5	16 737.5 16 738.5	22 283.5 22 284	Groups III and IV

\* Channel width in every band: 0.5 kHz.

*Notes*

1. Only the common channels in the 4, 6, 8, 12 and 16 MHz for A1A Morse telegraphy are harmonically related.
2. Administrations should assign the frequencies as they appear in this Appendix only to ship stations equipped with crystal controlled oscillators.
3. However, administrations may subdivide each appropriate group channel and common channel into specific calling frequencies on every full 100 Hz in the channel and assign these discrete frequencies to ships with synthesized transmitters.

Examples of subdivision of channels (centre frequencies are underlined)

4 181.8	6 276.8	8 365.8	12 549.8	16 733.8	22 279.3	25 171.3
4 181.9	6 276.9	8 365.9	12 549.9	16 733.9	22 279.4	25 171.4
<u>4 182</u>	<u>6 277</u>	<u>8 366</u>	<u>12 550</u>	<u>16 734</u>	<u>22 279.5</u>	<u>25 171.5</u>
4 182.1	6 277.1	8 366.1	12 550.1	16 734.1	22 279.6	25 171.6
4 182.2	6 277.2	8 366.2	12 550.2	16 734.2	22 279.7	25 171.7

4. Administrations should avoid as far as possible, assigning the two frequencies at  $\pm 100$  Hz from the harmonically related common channel.
5. In the 22 MHz and 25/26 MHz bands the channels are not harmonically related to those in the 4 to 16 MHz bands. However, the principle of subdivision of channels into specific calling frequencies on 100 Hz applies.

## APPENDIX 42

**Note by the Secretary-General**

Since WARC-79, the Secretary-General has been informed that the following official country designations, contained in the table of Appendix 42, have changed:

Former designation	New designation
Afghanistan (Democratic Republic of)	Afghanistan (Islamic State of)
Albania (Socialist People's Republic of)	Albania (Republic of)
Algeria (Algerian Democratic and Popular Republic)	Algeria (People's Democratic Republic of)
Angola (People's Republic of)	Angola (Republic of)
Benin (People's Republic of)	Benin (Republic of)
Bulgaria (People's Republic of)	Bulgaria (Republic of)
Burma (Socialist Republic of the Union of)	Myanmar (Union of)
Byelorussian Soviet Socialist Republic	Belarus (Republic of)
Cameroon (United Republic of)	Cameroon (Republic of)
Chad (Republic of the)	Chad (Republic of)
Comoros (Federal and Islamic Republic of the)	Comoros (Islamic Federal Republic of the)
Congo (People's Republic of the)	Congo (Republic of the)
Czechoslovak Socialist Republic	Czech Republic Slovak Republic
Democratic Kampuchea	Cambodia (Kingdom of)
Dominica	Dominica (Commonwealth of)
Fiji	Fiji (Republic of)
Gabon Republic	Gabonese Republic
German Democratic Republic	
Germany (Federal Republic of)	Germany (Federal Republic of)
Guinea (Revolutionary People's Republic of)	Guinea (Republic of)
Hungarian People's Republic	Hungary (Republic of)
Ivory Coast (Republic of the)	Côte d'Ivoire (Republic of)
Kiribati Republic	Kiribati (Republic of)
Madagascar (Democratic Republic of)	Madagascar (Republic of)

Former designation	New designation
Malawi (Republic of)	Malawi
Malta (Republic of)	Malta
Mauritius	Mauritius (Republic of)
Monaco	Monaco (Principality of)
Mongolian People's Republic	Mongolia
Mozambique (People's Republic of)	Mozambique (Republic of)
New Hebrides	Vanuatu (Republic of)
Poland (People's Republic of)	Poland (Republic of)
Roumania (Socialist Republic of)	Romania
Rwanda (Republic of)	Rwandese Republic
Sudan (Democratic Republic of the)	Sudan (Republic of the)
Ukrainian Soviet Socialist Republic	Ukraine
Union of Soviet Socialist Republics	Russian Federation
Upper Volta (Republic of)	Burkina Faso
Uruguay (Oriental Republic of)	Uruguay (Eastern Republic of)
Western Samoa	Western Samoa (Independent State of)
Yemen Arab Republic	
Yemen (People's Democratic Republic of)	Yemen (Republic of)
Yugoslavia (Socialist Federal Republic of)	Yugoslavia (Federal Republic of) *

\* See United Nations Security Council Resolution 757 (1992) and the denotation therein: "Federal Republic of Yugoslavia (Serbia and Montenegro)".

**Table of Allocation of International  
Call Sign Series <sup>1</sup>**

(See Article 25)

Call Sign Series	Allocated to
AAA-ALZ	United States of America
AMA-AOZ	Spain
APA-ASZ	Pakistan (Islamic Republic of)
ATA-AWZ	India (Republic of)
AXA-AXZ	Australia
AYA-AZZ	Argentine Republic
A2A-A2Z	Botswana (Republic of)
A3A-A3Z	Tonga (Kingdom of)
A4A-A4Z	Oman (Sultanate of)
A5A-A5Z	Bhutan (Kingdom of)
A6A-A6Z	United Arab Emirates
A7A-A7Z	Qatar (State of)
A8A-A8Z	Liberia (Republic of)
A9A-A9Z	Bahrain (State of)
BAA-BZZ	China (People's Republic of)
CAA-CEZ	Chile
CFA-CKZ	Canada
CLA-CMZ	Cuba
CNA-CNZ	Morocco (Kingdom of)
COA-COZ	Cuba
CPA-CPZ	Bolivia (Republic of)
CQA-CUZ	Portugal
CVA-CXZ	Uruguay (Oriental Republic of)
CYA-CZZ	Canada
C2A-C2Z	Nauru (Republic of)
C3A-C3Z	Andorra (Principality of)
C4A-C4Z	Cyprus (Republic of)
C5A-C5Z	Gambia (Republic of the)
C6A-C6Z	Bahamas (Commonwealth of the)
*C7A-C7Z	World Meteorological Organization
C8A-C9Z	Mozambique (People's Republic of)
DAA-DRZ	Germany (Federal Republic of)
DSA-DTZ	Republic of Korea
DUA-DZZ	Philippines (Republic of the)
D2A-D3Z	Angola (People's Republic of)

<sup>1</sup> The series of call signs preceded by an asterisk are allocated to international organizations.

Call Sign Series	Allocated to
D4A-D4Z	Cape Verde (Republic of)
D5A-D5Z	Liberia (Republic of)
D6A-D6Z	Comoros (Federal and Islamic Republic of the)
D7A-D9Z	Republic of Korea
EAA-EHZ	Spain
EIA-EJZ	Ireland
EKA-EKZ	* *
ELA-ELZ	Liberia (Republic of)
EMA-EOZ	* *
EPA-EQZ	Iran (Islamic Republic of)
ERA-ESZ	* *
ETA-ETZ	Ethiopia
EUA-EWZ	* *
EXA-EZZ	* *
FAA-FZZ	France
GAA-GZZ	United Kingdom of Great Britain and Northern Ireland
HAA-HAZ	Hungarian People's Republic
HBA-HBZ	Switzerland (Confederation of)
HCA-HDZ	Ecuador
HEA-HEZ	Switzerland (Confederation of)
HFA-HFZ	Poland (People's Republic of)
HGA-HGZ	Hungarian People's Republic
HHa-HHZ	Haiti (Republic of)
HIA-HIZ	Dominican Republic
HJA-HKZ	Colombia (Republic of)
HLA-HLZ	Republic of Korea <sup>1</sup>
HMA-HMZ	Democratic People's Republic of Korea <sup>1</sup>

<sup>1</sup> The two Administrations concerned undertake to change their existing use of HLA-HLZ and HMA-HMZ call sign series to conform with the 1979 Table of Allocations as soon as practicable, in order to clarify their operational arrangements for other administrations. In this regard, the Administration of the Republic of Korea will take action to change the existing call signs registered with the ITU in the HMA-HMZ series as changes occur in the use of call signs in this series. The above-mentioned actions shall, in any case, be completed by 1 January 1984.

\* \* *Note by the Secretary-General:* See the Note by the Secretary-General on page AP42-12 for the new provisional allocations of the call sign series EKA-EKZ, EMA-EOZ, ERA-ESZ and EXA-EZZ, previously allocated to the Union of Soviet Socialist Republics, and the call sign series EUA-EWZ, previously allocated to the Byelorussian Soviet Socialist Republic.

Call Sign Series	Allocated to
HNA-HNZ	Iraq (Republic of)
HOA-HPZ	Panama (Republic of)
HQA-HRZ	Honduras (Republic of)
HSA-HSZ	Thailand
HTA-HTZ	Nicaragua
HUA-HUZ	El Salvador (Republic of)
HVA-HVZ	Vatican City State
HWA-HYZ	France
HZA-HZZ	Saudi Arabia (Kingdom of)
H2A-H2Z	Cyprus (Republic of)
H3A-H3Z	Panama (Republic of)
H4A-H4Z	Solomon Islands
H6A-H7Z	Nicaragua
H8A-H9Z	Panama (Republic of)
IAA-IZZ	Italy
JAA-JSZ	Japan
JTA-JVZ	Mongolian People's Republic
JWA-JXZ	Norway
JYA-JYZ	Jordan (Hashemite Kingdom of)
JZA-JZZ	Indonesia (Republic of)
J2A-J2Z	Djibouti (Republic of)
J3A-J3Z	Grenada
J4A-J4Z	Greece
J5A-J5Z	Guinea-Bissau (Republic of)
J6A-J6Z	Saint Lucia
J7A-J7Z	Dominica
KAA-KZZ	United States of America
LAA-LNZ	Norway
LOA-LWZ	Argentine Republic
LXA-LXZ	Luxembourg
LYA-LYZ	* *
LZA-LZZ	Bulgaria (People's Republic of)
L2A-L9Z	Argentine Republic
MAA-MZZ	United Kingdom of Great Britain and Northern Ireland
NAA-NZZ	United States of America
OAA-OCZ	Peru

*\*\* Note by the Secretary-General:* See the Note by the Secretary-General on page AP42-12 for the new provisional allocation of the call sign series LYA-LYZ, previously allocated to the Union of Soviet Socialist Republics.

Call Sign Series	Allocated to
ODA-ODZ	Lebanon
OEA-OEZ	Austria
OFA-OJZ	Finland
OKA-OMZ	* *
ONA-OTZ	Belgium
OUA-OZZ	Denmark
PAA-PIZ	Netherlands (Kingdom of the)
PJA-PJZ	Netherlands Antilles
PKA-POZ	Indonesia (Republic of)
PPA-PYZ	Brazil (Federative Republic of)
PZA-PZZ	Suriname (Republic of)
P2A-P2Z	Papua New Guinea
P3A-P3Z	Cyprus (Republic of)
P4A-P4Z	* *
P5A-P9Z	Democratic People's Republic of Korea
QAA-QZZ	(Service abbreviations)
RAA-RZZ	* *
SAA-SMZ	Sweden
SNA-SRZ	Poland (People's Republic of)
SSA-SSM	Egypt (Arab Republic of)
SSN-STZ	Sudan (Democratic Republic of the)
SUA-SUZ	Egypt (Arab Republic of)
SVA-SZZ	Greece
S2A-S3Z	Bangladesh (People's Republic of)
S6A-S6Z	Singapore (Republic of)
S7A-S7Z	Seychelles (Republic of)
S9A-S9Z	Sao Tome and Principe (Democratic Republic of)
TAA-TCZ	Turkey
TDA-TDZ	Guatemala (Republic of)
TEA-TEZ	Costa Rica
TFA-TFZ	Iceland
TGA-TGZ	Guatemala (Republic of)
THA-THZ	France
TIA-TIZ	Costa Rica

\* \* *Note by the Secretary-General:* See the Note by the Secretary-General on page AP42-12 for the new provisional allocations of the call sign series OKA-OMZ, previously allocated to the Czechoslovak Socialist Republic, of the call sign series P4A-P4Z, previously allocated to Netherlands Antilles and of the call sign series RAA-RZZ, previously allocated to the Union of Soviet Socialist Republics.



Call Sign Series	Allocated to
TJA-TJZ	Cameroon (United Republic of)
TKA-TKZ	France
TLA-TLZ	Central African Republic
TMA-TMZ	France
TNA-TNZ	Congo (People's Republic of the)
TOA-TQZ	France
TRA-TRZ	Gabon Republic
TSA-TSZ	Tunisia
TTA-TTZ	Chad (Republic of the)
TUA-TUZ	Ivory Coast (Republic of the)
TVA-TXZ	France
TYA-TYZ	Benin (People's Republic of)
TZA-TZZ	Mali (Republic of)
T2A-T2Z	Tuvalu
T3A-T3Z	Kiribati Republic
T4A-T4Z	Cuba
T5A-T5Z	Somali Democratic Republic
T6A-T6Z	Afghanistan (Democratic Republic of)
UAA-UQZ	* *
URA-UTZ	* *
UUA-UZZ	* *
VAA-VGZ	Canada
VHA-VNZ	Australia
VOA-VOZ	Canada
VPA-VSZ	United Kingdom of Great Britain and Northern Ireland
VTa-VWZ	India (Republic of)
VXA-VYZ	Canada
VZA-VZZ	Australia
WAA-WZZ	United States of America
XAA-XIZ	Mexico
XJA-XOZ	Canada
XPA-XPZ	Denmark
XQA-XRZ	Chile
XSA-XSZ	China (People's Republic of)
XTA-XTZ	Upper Volta (Republic of)

\* \* *Note by the Secretary-General:* See the Note by the Secretary-General on page AP42-12 for the new provisional allocations of the call sign series UAA-UQZ and UUA-UZZ, previously allocated to the Union of Soviet Socialist Republics and of the call sign series URA-UTZ, previously allocated to the Ukrainian Soviet Socialist Republic.

Call Sign Series	Allocated to
XUA-XUZ	Democratic Kampuchea
XVA-XVZ	Viet Nam (Socialist Republic of)
XWA-XWZ	Lao People's Democratic Republic
XXA-XXZ	Portugal
XYA-XZZ	Burma (Socialist Republic of the Union of)
YAA-YAZ	Afghanistan (Democratic Republic of)
YBA-YHZ	Indonesia (Republic of)
YIA-YIZ	Iraq (Republic of)
YJA-YJZ	New Hebrides
YKA-YKZ	Syrian Arab Republic
YLA-YLZ	* *
YMA-YMZ	Turkey
YNA-YNZ	Nicaragua
YOA-YRZ	Roumania (Socialist Republic of)
YSA-YSZ	El Salvador (Republic of)
YTA-YUZ	Yugoslavia (Socialist Federal Republic of)
YVA-YYZ	Venezuela (Republic of)
YZA-YZZ	Yugoslavia (Socialist Federal Republic of)
Y2A-Y9Z	German Democratic Republic
ZAA-ZAZ	Albania (Socialist People's Republic of)
ZBA-ZJZ	United Kingdom of Great Britain and Northern Ireland
ZKA-ZMZ	New Zealand
ZNA-ZOZ	United Kingdom of Great Britain and Northern Ireland
ZPA-ZPZ	Paraguay (Republic of)
ZQA-ZQZ	United Kingdom of Great Britain and Northern Ireland
ZRA-ZUZ	South Africa (Republic of)
ZVA-ZZZ	Brazil (Federative Republic of)
2AA-2ZZ	United Kingdom of Great Britain and Northern Ireland
3AA-3AZ	Monaco
3BA-3BZ	Mauritius
3CA-3CZ	Equatorial Guinea (Republic of)
3DA-3DM	Swaziland (Kingdom of)
3DN-3DZ	Fiji
3EA-3FZ	Panama (Republic of)
3GA-3GZ	Chile
3HA-3UZ	China (People's Republic of)

\* \* *Note by the Secretary-General:* See the Note by the Secretary-General on page AP42-12 for the new provisional allocation of the call sign series YLA-YLZ, previously allocated to the Union of Soviet Socialist Republics.

Call Sign Series	Allocated to
3VA-3VZ	Tunisia
3WA-3WZ	Viet Nam (Socialist Republic of)
3XA-3XZ	Guinea (Revolutionary People's Republic of)
3YA-3YZ	Norway
3ZA-3ZZ	Poland (People's Republic of)
4AA-4CZ	Mexico
4DA-4IZ	Philippines (Republic of the)
4JA-4LZ	* *
4MA-4MZ	Venezuela (Republic of)
4NA-4OZ	Yugoslavia (Socialist Federal Republic of)
4PA-4SZ	Sri Lanka (Democratic Socialist Republic of)
4TA-4TZ	Peru
*4UA-4UZ	United Nations Organization
4VA-4VZ	Haiti (Republic of)
4WA-4WZ	* * *
4XA-4XZ	Israel (State of)
*4YA-4YZ	International Civil Aviation Organization
4ZA-4ZZ	Israel (State of)
5AA-5AZ	Libya (Socialist People's Libyan Arab Jamahiriya)
5BA-5BZ	Cyprus (Republic of)
5CA-5GZ	Morocco (Kingdom of)
5HA-5IZ	Tanzania (United Republic of)
5JA-5KZ	Colombia (Republic of)
5LA-5MZ	Liberia (Republic of)
5NA-5OZ	Nigeria (Federal Republic of)
5PA-5QZ	Denmark
5RA-5SZ	Madagascar (Democratic Republic of)
5TA-5TZ	Mauritania (Islamic Republic of)
5UA-5UZ	Niger (Republic of the)
5VA-5VZ	Togolese Republic
5WA-5WZ	Western Samoa
5XA-5XZ	Uganda (Republic of)
5YA-5ZZ	Kenya (Republic of)

\* \* *Note by the Secretary-General:* See the Note by the Secretary-General on page AP42-12 for the new provisional allocations of the call sign series 4JA-4LZ, previously allocated to the Union of Soviet Socialist Republics.

\* \* \* *Note by the Secretary-General:* The call sign series 4WA-4WZ, previously allocated to the Yemen Arab Republic, has now been released.

Call Sign Series	Allocated to
6AA-6BZ	Egypt (Arab Republic of)
6CA-6CZ	Syrian Arab Republic
6DA-6JZ	Mexico
6KA-6NZ	Republic of Korea
6OA-6OZ	Somali Democratic Republic
6PA-6SZ	Pakistan (Islamic Republic of)
6TA-6UZ	Sudan (Democratic Republic of the)
6VA-6WZ	Senegal (Republic of the)
6XA-6XZ	Madagascar (Democratic Republic of)
6YA-6YZ	Jamaica
6ZA-6ZZ	Liberia (Republic of)
7AA-7IZ	Indonesia (Republic of)
7JA-7NZ	Japan
7OA-7OZ	Yemen (People's Democratic Republic of)
7PA-7PZ	Lesotho (Kingdom of)
7QA-7QZ	Malawi (Republic of)
7RA-7RZ	Algeria (Algerian Democratic and Popular Republic)
7SA-7SZ	Sweden
7TA-7YZ	Algeria (Algerian Democratic and Popular Republic)
7ZA-7ZZ	Saudi Arabia (Kingdom of)
8AA-8IZ	Indonesia (Republic of)
8JA-8NZ	Japan
8OA-8OZ	Botswana (Republic of)
8PA-8PZ	Barbados
8QA-8QZ	Maldives (Republic of)
8RA-8RZ	Guyana
8SA-8SZ	Sweden
8TA-8YZ	India (Republic of)
8ZA-8ZZ	Saudi Arabia (Kingdom of)
9AA-9AZ	* *
9BA-9DZ	Iran (Islamic Republic of)
9EA-9FZ	Ethiopia
9GA-9GZ	Ghana
9HA-9HZ	Malta (Republic of)
9IA-9JZ	Zambia (Republic of)
9KA-9KZ	Kuwait (State of)
9LA-9LZ	Sierra Leone

\* \* *Note by the Secretary-General:* See the Note by the Secretary-General on page AP42-12 for the new provisional allocation of the call sign series 9AA-9AZ, previously allocated to the Republic of San Marino.

Call Sign Series	Allocated to
9MA-9MZ 9NA-9NZ 9OA-9TZ 9UA-9UZ 9VA-9VZ 9WA-9WZ 9XA-9XZ 9YA-9ZZ	Malaysia Nepal Zaire (Republic of) Burundi (Republic of) Singapore (Republic of) Malaysia Rwanda (Republic of) Trinidad and Tobago

### Note by the Secretary-General

The following call sign series were allocated by the Secretary-General on a provisional basis between the end of the WARC-79 and 15 March 1994:

Call Sign Series	Allocated to
EKA-EKZ	Armenia (Republic of)
EMA-EOZ	Ukraine
ERA-ERZ	Moldova (Republic of)
ESA-ESZ	Estonia (Republic of)
EUA-EWZ	Belarus (Republic of)
EXA-EXZ	Kyrgyz Republic
EYA-EYZ	Tajikistan (Republic of)
EZA-EZZ	Turkmenistan
E2A-E2Z	Thailand
E3A-E3Z	Eritrea
J8A-J8Z	Saint Vincent and the Grenadines
LYA-LYZ	Lithuania (Republic of)
OKA-OLZ	Czech Republic
OMA-OMZ	Slovak Republic
P4A-P4Z	Aruba
RAA-RZZ	Russian Federation
S5A-S5Z	Slovenia (Republic of)
T7A-T7Z	San Marino (Republic of)
T9A-T9Z	Bosnia and Herzegovina (Republic of)
UAA-UIZ	Russian Federation
UJA-UMZ	Uzbekistan (Republic of)
UNA-UQZ	Kazakhstan (Republic of)
URA-UZZ	Ukraine
V2A-V2Z	Antigua and Barbuda
V3A-V3Z	Belize
V4A-V4Z	Saint Kitts and Nevis
V5A-V5Z	Namibia (Republic of)
V6A-V6Z	Micronesia (Federated States of)
V7A-V7Z	Marshall Islands (Republic of the)
V8A-V8Z	Brunei Darussalam
YLA-YLZ	Latvia (Republic of)
Z2A-Z2Z	Zimbabwe (Republic of)
Z3A-Z3Z	The Former Yugoslav Republic of Macedonia
4JA-4KZ	Azerbaijani Republic
4LA-4LZ	Georgia (Republic of)
9AA-9AZ	Croatia (Republic of)

TABLE 1

**MARITIME IDENTIFICATION DIGITS<sup>1</sup>**

MID	Allocated to
100-200	***
201	Albania (Republic of)
202	Andorra (Principality of)
203	Austria
204	Azores
205	Belgium
206	Belarus (Republic of)
207	Bulgaria (Republic of)
208	Vatican City State
209-210	Cyprus (Republic of)
211	Germany (Federal Republic of)
212	*
213	Georgia (Republic of)
214	*
215	Eritrea
216-217	*
214-217	*
218	Germany (Federal Republic of)
219	Denmark
220-223	*
224	Spain
225-226	*
227	France
228-229	*
230	Finland
231	Faroe Islands

<sup>1</sup> *Note by the Secretary-General:* The Table, as presented in this edition of the Radio Regulations, reflects the current status of allocations, including the new allocations resulting from the actions undertaken by the Secretary-General in accordance with No. 2087 and No. 2087A, as well as changes having occurred in the denomination of countries and of which the Secretary-General has been notified.

\* Not allocated.

\*\*\* Not available for allocation at this stage.

MID	Allocated to
232-233	United Kingdom of Great Britain and Northern Ireland
234-235	*
236	Gibraltar
237	Greece
238	Croatia (Republic of)
239	Greece
240-241	*
242	Morocco (Kingdom of)
243	Hungary (Republic of)
244-246	Netherlands (Kingdom of the)
247	Italy
248	*
249	Malta
250	Ireland
251	Iceland
252	Liechtenstein (Principality of)
253	Luxembourg
254	Monaco (Principality of)
255	Madeira
256	Malta
257-259	Norway
260	*
261	Poland (Republic of)
262	*
263	Portugal
264	Romania
265	Sweden
266	*
267	Slovak Republic
268	San Marino (Republic of)
269	Switzerland (Confederation of)
270	Czech Republic
271	Turkey
272	Ukraine
273	Russian Federation
274	The Former Yugoslav Republic of Macedonia
275	Latvia (Republic of)
276	Estonia (Republic of)

\* Not allocated.

\*\*\* Not available for allocation at this stage.



MID	Allocated to
277	Lithuania (Republic of)
278	Slovenia (Republic of)
279	Yugoslavia (Federal Republic of) <sup>1</sup>
280-300	* * *
301	Anguilla
302	*
303	Alaska (State of)
304	Antigua and Barbuda
305	*
306	Netherlands Antilles
307	Aruba
308	Bahamas (Commonwealth of the)
309	*
310	Bermuda
311	*
312	Belize
313	*
314	Barbados
315	*
316	Canada
317-318	*
319	Cayman Islands
320	*
321	Costa Rica
322	*
323	Cuba
324	*
325	Dominica (Commonwealth of)
326	*
327	Dominican Republic
328	*
329	Guadeloupe (French Department of)
330	Grenada
331	Greenland

<sup>1</sup> *Note by the Secretary-General:* See United Nations Security Council Resolution 757 (1992) and the denomination therein: "Federal Republic of Yugoslavia (Serbia and Montenegro)".

\* Not allocated.

\* \* \* Not available for allocation at this stage.

MID	Allocated to
332	Guatemala (Republic of)
333	*
334	Honduras (Republic of)
335	*
336	Haiti (Republic of)
337	*
338	Hawaii (State of)
339	Jamaica
340	*
341	Saint Kitts and Nevis
342	*
343	Saint Lucia
344	*
345	Mexico
346	*
347	Martinique (French Department of)
348	Montserrat
349	*
350	Nicaragua
351	*
352-353	Panama (Republic of)
354-357	*
358	Puerto Rico
359	El Salvador (Republic of)
360	*
361	Saint Pierre and Miquelon (Territorial Collectivity of)
362	Trinidad and Tobago
363	*
364	Turks and Caicos Islands
365	*
366	United States of America
367-375	*
376	Saint Vincent and the Grenadines
377	*
378	British Virgin Islands
379	United States Virgin Islands
380-400	* * *

\* Not allocated.

\* \* \* Not available for allocation at this stage.

MID	Allocated to
401	Afghanistan (Islamic State of)
402	*
403	Saudi Arabia (Kingdom of)
404	*
405	Bangladesh (People's Republic of)
406-407	*
408	Bahrain (State of)
409	*
410	Bhutan (Kingdom of)
411	*
412	China (People's Republic of)
413-415	*
416	Taiwan (Province of China)
417	Sri Lanka (Democratic Socialist Republic of)
418	*
419	India (Republic of)
420-421	*
422	Iran (Islamic Republic of)
423-424	*
425	Iraq (Republic of)
426-427	*
428	Israel (State of)
429-430	*
431	Japan
432-437	*
438	Jordan (Hashemite Kingdom of)
439	*
440	Korea (Republic of)
441-444	*
445	Democratic People's Republic of Korea
446	*
447	Kuwait (State of)
448-449	*
450	Lebanon
451-452	*
453	Macao
454	*

\* Not allocated.

\*\*\* Not available for allocation at this stage.

MID	Allocated to
455	Maldives (Republic of)
456	*
457	Mongolia
458	*
459	Nepal
460	*
461	Oman (Sultanate of)
462	*
463	Pakistan (Islamic Republic of)
464-465	*
466	Qatar (State of)
467	*
468	Syrian Arab Republic
469	*
470	United Arab Emirates
471-472	*
473	Yemen (Republic of)
474	*
475	Yemen (Republic of)
476	*
477	Hongkong
478-479	*
480-500	* * *
501	Adelie Land
502	*
503	Australia
504-505	*
506	Myanmar (Union of)
507	*
508	Brunei Darussalam
509	*
510	Micronesia (Federated States of)
511	*
512	New Zealand
513	*
514	Cambodia (Kingdom of)
515	*

\* Not allocated.

\* \* \* Not available for allocation at this stage.

MID	Allocated to
516	Christmas Island (Indian Ocean)
517	*
518	Cook Islands
519	*
520	Fiji (Republic of)
521-522	*
523	Cocos (Keeling) Islands
524	*
525	Indonesia (Republic of)
526-528	*
529	Kiribati (Republic of)
530	*
531	Lao People's Democratic Republic
532	*
533	Malaysia
534-535	*
536	Northern Mariana Islands (Commonwealth of the)
537	*
538	Marshall Islands (Republic of the)
539	*
540	New Caledonia
541	*
542	Niue
543	*
544	Nauru (Republic of)
545	*
546	French Polynesia
547	*
548	Philippines (Republic of the)
549-552	*
553	Papua New Guinea
554	*
555	Pitcairn Island
556	*
557	Solomon Islands
558	*

\* Not allocated.

\* \* \* Not available for allocation at this stage.

MID	Allocated to
559	American Samoa
560	*
561	Western Samoa (Independent State of)
562	*
563	Singapore (Republic of)
564-566	*
567	Thailand
568-569	*
570	Tonga (Kingdom of)
571	*
572	Tuvalu
573	*
574	Viet Nam (Socialist Republic of)
575	*
576	Vanuatu (Republic of)
577	*
578	Wallis and Futuna
579	*
580-600	* * *
601	South Africa (Republic of)
602	*
603	Angola (Republic of)
604	*
605	Algeria (People's Democratic Republic of )
606	*
607	Saint Paul and Amsterdam Islands
608	Ascension
609	Burundi (Republic of)
610	Benin (Republic of)
611	Botswana (Republic of)
612	Central African Republic
613	Cameroon (Republic of)
614	*
615	Congo (Republic of the)
616	Comoros (Islamic Federal Republic of the)
617	Cape Verde (Republic of)
618	Crozet Archipelago

\* Not allocated.

\* \* \* Not available for allocation at this stage.

MID	Allocated to
619	Côte d'Ivoire (Republic of)
620	*
621	Djibouti (Republic of)
622	Egypt (Arab Republic of)
623	*
624	Ethiopia
625	*
626	Gabonese Republic
627	Ghana
628	*
629	Gambia (Republic of the)
630	Guinea-Bissau (Republic of)
631	Equatorial Guinea (Republic of)
632	Guinea (Republic of)
633	Burkina Faso
634	Kenya (Republic of)
635	Kerguelen Islands
636	Liberia (Republic of)
637-641	*
642	Libya (Socialist People's Libyan Arab Jamahiriya)
643	*
644	Lesotho (Kingdom of)
645	Mauritius (Republic of)
646	*
647	Madagascar (Republic of)
648	*
649	Mali (Republic of)
650	Mozambique (Republic of)
651-653	*
654	Mauritania (Islamic Republic of)
655	Malawi
656	Niger (Republic of the)
657	Nigeria (Federal Republic of)
658	*
659	Namibia (Republic of)
660	Reunion (French Department of)
661	Rwandese Republic
662	Sudan (Republic of the)

\* Not allocated.

\*\*\* Not available for allocation at this stage.

MID	Allocated to
663	Senegal (Republic of)
664	Seychelles (Republic of)
665	Saint Helena
666	Somali Democratic Republic
667	Sierra Leone
668	Sao Tome and Principe (Democratic Republic of)
669	Swaziland (Kingdom of)
670	Chad (Republic of)
671	Togolese Republic
672	Tunisia
673	*
674	Tanzania (United Republic of)
675	Uganda (Republic of)
676	Zaire (Republic of)
677	Zanzibar
678	Zambia (Republic of)
679	Zimbabwe (Republic of)
680-700	* * *
701	Argentine Republic
702-709	*
710	Brazil (Federative Republic of)
711-719	*
720	Bolivia (Republic of)
721-724	*
725	Chile
726-729	*
730	Colombia (Republic of)
731-734	*
735	Ecuador
736-739	*
740	Falkland Islands (Malvinas)
741-744	*
745	Guiana (French Department of)
746-749	*
750	Guyana
751-754	*
755	Paraguay (Republic of)
756-759	*

\* Not allocated.

\* \* \* Not available for allocation at this stage.



MID	Allocated to
760	Peru
761-764	*
765	Suriname (Republic of)
766-769	*
770	Uruguay (Eastern Republic of)
771-774	*
775	Venezuela (Republic of)
776-779	*
780-999	* * *

\* Not allocated.

\* \* \* Not available for allocation at this stage.

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## APPENDIX 44

# **Ship Station Selective Call Numbers and Coast Station Identification Numbers**

## **Part I. Table<sup>1</sup> of Blocks of Selective Call Numbers for Ship Stations and Selective Call Numbers for Groups of Ship Stations Supplied to Administrations**

Blocks* of selective call numbers for ship stations and selective call numbers for groups of ship stations	Supplied to
00000* 00001-00499 00500-00699 00700-00799 00800-00899 00900-00999 01000-01009 01010* 01011-01199 01200-01399 01400-01499 01500-01599 01600-01699 01700-01799 01800-01899	Argentine Republic Argentine Republic Cyprus (Republic of) Fiji (Republic of) Hungary (Republic of) Saudi Arabia (Kingdom of) Australia Australia Australia Peru Bolivia (Republic of) Tanzania (United Republic of) Myanmar (Union of) Cyprus (Republic of) Singapore (Republic of)

<sup>1</sup> *Note by the Secretary-General:* The Table, as presented in this edition of the Radio Regulations, reflects the current status of allocations, including the new allocations resulting from the actions undertaken by the Secretary-General in accordance with No. 2088, as well as changes having occurred in the denomination of countries and of which the Secretary-General has been notified.

\* The numbers formed by the same digit repeated five times, or by two different digits repeated alternately, are reserved for calling predetermined groups of ship stations, and are to be considered as not included in the blocks of call numbers for ship stations supplied to administrations.

Blocks* of selective call numbers for ship stations and selective call numbers for groups of ship stations	Supplied to
01900-01999 02000-02019 02020* 02021-02099 02100-02199 02200-02299 02300-02399 02400-02449 # 02500-02549 # 02600-02699 02700-02799 02800-02999 03000-03029 03030* 03031-03199 03200-03299 03300-04039 04040* 04041-05049 05050* 05051-05199 05200-05399 05400-05899 05900-05999 06000-06059 06060* 06061-07069 07070* 07071-08079 08080* 08081-08399	Seychelles (Republic of) Slovenia (Republic of) Argentine Republic Slovenia (Republic of) Bangladesh (People's Republic of) Cape Verde (Republic of) Saint Vincent and the Grenadines Cook Islands Niue Western Samoa (Independent State of) Mauritius (Republic of) Antigua and Barbuda China (People's Republic of) China (People's Republic of) China (People's Republic of) Canada Denmark Canada Denmark China (People's Republic of) Denmark Cyprus (Republic of) Denmark Bulgaria (Republic of) Denmark China (People's Republic of) Denmark Denmark Denmark Denmark Denmark

\* The numbers formed by the same digit repeated five times, or by two different digits repeated alternately, are reserved for calling predetermined groups of ship stations, and are to be considered as not included in the blocks of call numbers for ship stations supplied to administrations.

# Half-block.

Blocks* of selective call numbers for ship stations and selective call numbers for groups of ship stations	Supplied to
08400-09089 09090* 09091-09499 09500-09699 09700-09999 10000-10099 10100 10101* 10102-10399 10400-11110 11111* 11112-12120 12121* 12122-12199 12200-12499 12500-13130 13131* 13132-13599 13600-13699 13700-13899 13900-13999 14000-14140 14141* 14142-14199 14200-15150 15151* 15152-16160 16161* 16162-16699 16700-17170 17171* 17172-17699	Spain Spain Spain Denmark China (People's Republic of) Denmark Denmark Spain Denmark United States of America United States of America United States of America United States of America United States of America France Sweden China (People's Republic of) Sweden Malta Denmark United States of America Finland Finland Finland France France France France France Greece Greece Greece

\* The numbers formed by the same digit repeated five times, or by two different digits repeated alternately, are reserved for calling predetermined groups of ship stations, and are to be considered as not included in the blocks of call numbers for ship stations supplied to administrations.

Blocks* of selective call numbers for ship stations and selective call numbers for groups of ship stations	Supplied to
17700-18180 18181* 18182-18699 18700-18999 19000-19099 19100-19190 19191* 19192-19399 19400-19499 19500-19599 19600-20201 20202* 20203-20299 20300-21211 21212* 21213-21299 21300-22199 22200-22221 22222* 22223-22299 22300-22399 22400-22699 22700-22899 22900-22999 23000-23099 23100-23199 23232* 23233-23299 23300-23399 23400-23499 23500-23999 24000-24099	Germany (Federal Republic of) China (People's Republic of) Germany (Federal Republic of) Honduras (Republic of) Chile Germany (Federal Republic of) China (People's Republic of) Germany (Federal Republic of) Ghana Ethiopia China (People's Republic of) China (People's Republic of) China (People's Republic of) Italy Italy Italy Norway Denmark Italy Denmark Iraq (Republic of) Kuwait (State of) Iraq (Republic of) Indonesia (Republic of) Kiribati (Republic of) Cyprus (Republic of) Chile Chile Saint Vincent and the Grenadines Ecuador India (Republic of) Denmark

\* The numbers formed by the same digit repeated five times, or by two different digits repeated alternately, are reserved for calling predetermined groups of ship stations, and are to be considered as not included in the blocks of call numbers for ship stations supplied to administrations.

Blocks* of selective call numbers for ship stations and selective call numbers for groups of ship stations	Supplied to
24100-24199 24200-24241 24242* 24243-24299 24300-25199 25200-25251 25252* 25253-25299 25300-26261 26262* 26263-26999 27000-27271 27272* 27273-27499 27500-27599 27600-27699 27700-27799 27800-27899 27900-27999 28000-28281 28282* 28283-29291 29292* 29293-30302 30303* 30304-31299 31300-31312 31313* 31314-31399 31400-31899 31900-31999 32000-32099	Colombia (Republic of) Malta China (People's Republic of) Malta Liberia (Republic of) Mauritania (Islamic Republic of) Romania Mauritania (Islamic Republic of) Sweden Sweden Sweden Japan Japan Japan Cyprus (Republic of) Bahamas (Commonwealth of the) Barbados Croatia (Republic of) Kenya (Republic of) Norway Japan Norway Japan Norway Japan Norway Morocco (Kingdom of) Morocco (Kingdom of) Morocco (Kingdom of) France Malta Cuba

\* The numbers formed by the same digit repeated five times, or by two different digits repeated alternately, are reserved for calling predetermined groups of ship stations, and are to be considered as not included in the blocks of call numbers for ship stations supplied to administrations.

Blocks* of selective call numbers for ship stations and selective call numbers for groups of ship stations	Supplied to
32100-32322 32323* 32324-33332 33333* 33334-34342 34343* 34344-35352 35353* 35354-35999 36000-36099 36100-36299 36300-36362 36363* 36364-36399 36400-37372 37373* 37374-38382 38383* 38384-38399 38400-39392 39393* 39394-40403 40404* 40405-41413 41414* 41415-41899 41900-42423 42424* 42425-42699 42700-42899 42900-42999 43000-43433	Norway Slovenia (Republic of) Norway Norway Norway Norway Croatia (Republic of) Norway Ireland Luxembourg Mauritania (Islamic Republic of) Japan Mauritania (Islamic Republic of) Netherlands (Kingdom of the) Netherlands (Kingdom of the) Netherlands (Kingdom of the) Netherlands (Kingdom of the) Netherlands (Kingdom of the) Germany (Federal Republic of) Germany (Federal Republic of) Germany (Federal Republic of) Germany (Federal Republic of) Germany (Federal Republic of) Germany (Federal Republic of) Panama (Republic of) Panama (Republic of) Panama (Republic of) Norway Panama (Republic of) Poland (Republic of)

\* The numbers formed by the same digit repeated five times, or by two different digits repeated alternately, are reserved for calling predetermined groups of ship stations, and are to be considered as not included in the blocks of call numbers for ship stations supplied to administrations.

Blocks* of selective call numbers for ship stations and selective call numbers for groups of ship stations	Supplied to
43434* 43435-43499 43500-44443 44444* 44445-45453 45454* 45455-45499 45500-46463 46464* 46465-47473 47474* 47475-48483 48484* 48485-49299 49300-49399 49400-49493 49494* 49495-49499 49500-49699 49700-50299 50300-50499 50500-50504 50505* 50506-50699 50700-51099 51100-51514 51515* 51516-51599 51600-51799 51800-51999 52000-52199 52200-52299	Poland (Republic of) Poland (Republic of) Sweden Panama (Republic of) Sweden Mauritania (Islamic Republic of) Sweden United Kingdom of Great Britain and Northern Ireland United Kingdom of Great Britain and Northern Ireland United Kingdom of Great Britain and Northern Ireland United Kingdom of Great Britain and Northern Ireland United Kingdom of Great Britain and Northern Ireland United Kingdom of Great Britain and Northern Ireland United Kingdom of Great Britain and Northern Ireland United Kingdom of Great Britain and Northern Ireland Brunei Darussalam Mauritania (Islamic Republic of) United Kingdom of Great Britain and Northern Ireland Mauritania (Islamic Republic of) Lithuania (Republic of) Denmark United Kingdom of Great Britain and Northern Ireland Israel (State of) Israel (State of) Israel (State of) Norway Switzerland (Confederation of) Venezuela (Republic of) Switzerland (Confederation of) Norway Portugal Germany (Federal Republic of) Vanuatu (Republic of)

\* The numbers formed by the same digit repeated five times, or by two different digits repeated alternately, are reserved for calling predetermined groups of ship stations, and are to be considered as not included in the blocks of call numbers for ship stations supplied to administrations.



Blocks* of selective call numbers for ship stations and selective call numbers for groups of ship stations	Supplied to
52300-52399 52400-52499 52500-52524 52525* 52526-52599 52600-53534 53535* 53536-54544 54546-55554 55555* 55556-56099 56100-56199 56200-56299 56300-56399 56400-56564 56565* 56566-56599 56600-56699 56700-56799 56800-57099 57100-57499 57500-57574 57575* 57576-57599 57600-57699 57700-57799 57800-57899 57900-58099 58100-58199	Marshall Islands (Republic of the) Micronesia (Federated States of) Venezuela (Republic of) United Kingdom of Great Britain and Northern Ireland Venezuela (Republic of) Russian Federation Russian Federation Russian Federation Russian Federation Estonia (Republic of) Russian Federation Cyprus (Republic of) Malaysia Cyprus (Republic of) Turkey Turkey Turkey Thailand Estonia (Republic of) Yugoslavia (Federal Republic of) <sup>1</sup> Norway Ecuador Yugoslavia (Federal Republic of) <sup>1</sup> Ecuador Uruguay (Eastern Republic of) Mozambique (Republic of) Venezuela (Republic of) Romania Algeria (People's Democratic Republic of)

\* The numbers formed by the same digit repeated five times, or by two different digits repeated alternately, are reserved for calling predetermined groups of ship stations, and are to be considered as not included in the blocks of call numbers for ship stations supplied to administrations.

<sup>1</sup> *Note by the Secretary-General:* See the United Nations Security Council Resolution 757 (1992) and the denomination therein: "Federal Republic of Yugoslavia (Serbia and Montenegro)".

Blocks* of selective call numbers for ship stations and selective call numbers for groups of ship stations	Supplied to
58200-58299 58300-58399 58400-58584 58585* 58586-58899 58900-58999 59000-59099 59100-59199 59200-59399 59400-59499 59500-59594 59595* 59596-59699 59700-59799 59800-59899 59900-59999 60000-60099 60100-60599 60600-60605 60606* 60607-60699 60700-60999 61000-61099 61100-61199 61200-61299 61300-61615 61616* 61617-61999 62000-62099 62100-62625 62627-62999 63000-63099	Austria Costa Rica Brazil (Federative Republic of) Brazil (Federative Republic of) Brazil (Federative Republic of) Sri Lanka (Democratic Socialist Republic of) Ecuador Brazil (Federative Republic of) Iran (Islamic Republic of) Libya (Socialist People's Libyan Arab Jamahiriya) Brazil (Federative Republic of) Brazil (Federative Republic of) Brazil (Federative Republic of) New Zealand Germany (Federal Republic of) Monaco (Principality of) Brazil (Federative Republic of) Germany (Federal Republic of) Latvia (Republic of) Latvia (Republic of) Latvia (Republic of) Pakistan (Islamic Republic of) Netherlands Antilles United Kingdom of Great Britain and Northern Ireland Brazil (Federative Republic of) Bahamas (Commonwealth of the) Bahamas (Commonwealth of the) Bahamas (Commonwealth of the) Jordan (Hashemite Kingdom of) Germany (Federal Republic of) Germany (Federal Republic of) Qatar (State of)

\* The numbers formed by the same digit repeated five times, or by two different digits repeated alternately, are reserved for calling predetermined groups of ship stations, and are to be considered as not included in the blocks of call numbers for ship stations supplied to administrations.

Blocks* of selective call numbers for ship stations and selective call numbers for groups of ship stations	Supplied to
63100-63199 63200-63299 63300-63399 63400-63499 63500-63635 63637-64599 64600-64645 64646* 64647-64799 64800-65655 65657-65699 65700-65999 66000-66665 66667-67675 67677-67699 67700-68685 68686* 68687-68999 69000-69299 69300-69499 69500-69599 69600-69695 69697-69699 69700-69799 69800-69899 70707* 71717* 72500-72726 72727* 72728-73736 73737* 73738-73999	Bahamas (Commonwealth of the) Bahrain (State of) Malta United Arab Emirates Germany (Federal Republic of) Germany (Federal Republic of) South Africa (Republic of) South Africa (Republic of) South Africa (Republic of) Germany (Federal Republic of) Germany (Federal Republic of) Turkey Russian Federation Russian Federation Russian Federation Ukraine Ukraine Ukraine Azerbaijani Republic Georgia (Republic of) Turkmenistan Kazakhstan (Republic of) Kazakhstan (Republic of) Belarus (Republic of) Czech Republic Azerbaijani Republic Georgia (Republic of) Belgium Belgium Belgium Belgium Belgium

\* The numbers formed by the same digit repeated five times, or by two different digits repeated alternately, are reserved for calling predetermined groups of ship stations, and are to be considered as not included in the blocks of call numbers for ship stations supplied to administrations.

Blocks* of selective call numbers for ship stations and selective call numbers for groups of ship stations	Supplied to
74000-74299 74300-74499 74500-74699 74700-74746 74747* 74748-74799 74800-75499 75500-75756 75758-75999 76000-76699 76700-76766 76767* 76768-76799 76800-77499 77500-77699 77700-77776 77777* 77778-77799 77800-77999 78000-78199 78200-78399 78400-78699 78700-78786 78787* 78788-78799 78800-78999 79000-79099 79100-79199 79200-79399 79400-79499 79500-79599 79600-79796	Germany (Federal Republic of) Austria Germany (Federal Republic of) Sierra Leone Sierra Leone Sierra Leone Germany (Federal Republic of) Iceland Iceland Germany (Federal Republic of) Philippines (Republic of the) Philippines (Republic of the) Philippines (Republic of the) Denmark Yemen (Republic of) Mexico Mexico Mexico Denmark Egypt (Arab Republic of) Singapore (Republic of) Denmark Mexico Mexico Mexico Denmark Oman (Sultanate of) Namibia (Republic of) Syrian Arab Republic Tuvalu Senegal (Republic of) Germany (Federal Republic of)

\* The numbers formed by the same digit repeated five times, or by two different digits repeated alternately, are reserved for calling predetermined groups of ship stations, and are to be considered as not included in the blocks of call numbers for ship stations supplied to administrations.

Blocks* of selective call numbers for ship stations and selective call numbers for groups of ship stations	Supplied to
79797* 79798-79899 79900-80807 80809-81799 81800-81817 81818* 81819-81899 81900-81999 82000-82827 82828* 82829-82899 82900-83837 83838* 83839-84799 84800-84847 84848* 84849-84899 84900-85857 85859-86867 86868* 86869-87799 87800-87877 87878* 87879-88887 88888* 88889-89897 89898* 89899 89900-89999 90000-90908 90909* 90910-91918	United Kingdom of Great Britain and Northern Ireland Germany (Federal Republic of) Netherlands (Kingdom of the) Netherlands (Kingdom of the) Slovak Republic Slovak Republic Slovak Republic Djibouti (Republic of) Germany (Federal Republic of) Malta Germany (Federal Republic of) France Malta France Netherlands (Kingdom of the) Netherlands (Kingdom of the) Netherlands (Kingdom of the) Denmark Denmark Italy Denmark Germany (Federal Republic of) Italy Germany (Federal Republic of) Italy Germany (Federal Republic of) Italy Germany (Federal Republic of) Germany (Federal Republic of) Norway Italy Norway

\* The numbers formed by the same digit repeated five times, or by two different digits repeated alternately, are reserved for calling predetermined groups of ship stations, and are to be considered as not included in the blocks of call numbers for ship stations supplied to administrations.

Blocks* of selective call numbers for ship stations and selective call numbers for groups of ship stations	Supplied to
91919* 91920-92928 92929* 92930-93938 93939* 93940-94899 94900-94948 94949* 94950-95958 95959* 95960-96968 96969* 96970-96999 97000-97978 97979* 97980-98599 98600-98988 98989* 98990-99998	Italy Norway Italy Norway Italy Norway Sweden Israel (State of) Sweden Israel (State of) Sweden Israel (State of) Sweden France Germany (Federal Republic of) France Germany (Federal Republic of) Germany (Federal Republic of) Germany (Federal Republic of)

\* The numbers formed by the same digit repeated five times, or by two different digits repeated alternately, are reserved for calling predetermined groups of ship stations, and are to be considered as not included in the blocks of call numbers for ship stations supplied to administrations.

**Part II. Table <sup>1</sup> of Blocks of  
Coast Station Identification Numbers  
Supplied to Administrations**

Blocks of coast station identification numbers	Supplied to
0100-0119	Argentine Republic
0120-0129	Peru
0140-0149	Bolivia (Republic of)
0150-0159	Tanzania (United Republic of)
0180-0189	Cyprus (Republic of)
0200-0209	Slovenia (Republic of)
0210-0219	Bangladesh (People's Republic of)
0220-0229	Cape Verde (Republic of)
0270-0279	Algeria (People's Democratic Republic of)
0330-0339	Australia
0400-0409	Namibia (Republic of)
0480-0489	Belgium
0570-0579	Romania
0580-0589	Canada
0690-0699	Czech Republic
0700-0719	Brazil (Federative Republic of)
0770-0779	Colombia (Republic of)
0810-0819	Bulgaria (Republic of)
0830-0899	Denmark
0990-1089	Spain
1090-1139	United States of America
1590-1609	Finland
1630-1669	France
1780-1789	Greece
1820-1889	Chile
1920-1929	Ghana
1950-1959	Ethiopia
1980-1989	Ireland
2010-2059	China (People's Republic of)

<sup>1</sup> *Note by the Secretary-General:* The Table, as presented in this edition of the Radio Regulations reflects the current status of allocations, including the new allocations resulting from the actions undertaken by the Secretary-General in accordance with No. 2088, as well as changes having occurred in the denomination of countries and of which the Secretary-General has been notified.

Blocks of coast station identification numbers	Supplied to
2070-2109	Italy
2130-2149	Iraq (Republic of)
2180-2189	Kuwait (State of)
2200-2209	Indonesia (Republic of)
2280-2289	Libya (Socialist People's Libyan Arab Jamahiriya)
2300-2339	India (Republic of)
2360-2409	Japan
2450-2459	Morocco (Kingdom of)
2480-2489	Malta
2500-2509	Monaco (Principality of)
2510-2519	Cuba
2520-2529	Mauritania (Islamic Republic of)
2550-2599	Norway
2740-2749	Iceland
2770-2779	Netherlands (Kingdom of the)
2780-2789	Croatia (Republic of)
2790-2799	Kenya (Republic of)
2830-2849	Germany (Federal Republic of)
2890-2899	Panama (Republic of)
2930-2949	Poland (Republic of)
2950-2959	Sweden
3170-3179	Maldives (Republic of)
3200-3269	United Kingdom of Great Britain and Northern Ireland
3450-3459	Israel (State of)
3500-3509	Switzerland (Confederation of)
3560-3579	Portugal
3620-3639	Azerbaijani Republic
3640-3649	Georgia (Republic of)
3650-3699	Ukraine
3700-3769	Russian Federation
3800-3819	Malaysia
3830-3839	Thailand
3850-3859	Yugoslavia (Federal Republic of) <sup>1</sup>
3870-3879	Uruguay (Eastern Republic of)
3910-3919	Venezuela (Republic of)
3950-3959	Sudan (Republic of the)

<sup>1</sup> Note by the Secretary-General: See the United Nations Security Council Resolution 757 (1992) and the denomination therein: "Federal Republic of Yugoslavia (Serbia and Montenegro)".



Blocks of coast station identification numbers	Supplied to
4010-4029 4050-4069 4150-4159 4330-4349 4360-4369 4400-4499 4500-4509 4510-4519 4520-4529 4600-4619 4620-4629 4630-4639 4640-4649 4650-4659 4660-4669 4670-4679 4680-4689 4690-4699 4710-4719 4750-4759 4800-4809 4810-4819 4820-4829 4830-4839 4860-4869 4900-4939 4950-4959 4980-4999 5010-5019 5100-5109 5250-5259 5300-5309 5670-5679 5770-5779 5890-5899 6060-6069 6200-6209	New Zealand Pakistan (Islamic Republic of) Philippines (Republic of the) South Africa (Republic of) Turkey Russian Federation Kazakhstan (Republic of) Turkmenistan Belarus (Republic of) Germany (Federal Republic of) Singapore (Republic of) United Kingdom of Great Britain and Northern Ireland Sierra Leone Bahrain (State of) Seychelles (Republic of) Slovak Republic Djibouti (Republic of) Qatar (State of) United Arab Emirates Ecuador Zaire (Republic of) Yemen (Republic of) Egypt (Arab Republic of) Saudi Arabia (Kingdom of) Suriname (Republic of) Mexico Lithuania (Republic of) Syrian Arab Republic Oman (Sultanate of) Senegal (Republic of) Venezuela (Republic of) Iran (Islamic Republic of) Estonia (Republic of) Mozambique (Republic of) Sri Lanka (Democratic Socialist Republic of) Latvia (Republic of) Jordan (Hashemite Kingdom of)



INTERNATIONAL TELECOMMUNICATION UNION

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# Radio Regulations

Edition of 1990

Revised in 1994

**3**

***Resolutions and  
Recommendations***

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Geneva 1994

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### **Note by the Secretary-General**

Following the decisions of the Additional Plenipotentiary Conference (Geneva, 1992) contained in Chapter II of the ITU Constitution and Chapter I of the ITU Convention relating to the restructuring of the Union, actions previously performed by the Secretary-General and the International Frequency Registration Board (IFRB) under the provisions of the Radio Regulations are now carried out by the Radiocommunication Bureau and by the Radio Regulations Board.

Relevant provisions in the present edition of the Radio Regulations still refer to the IFRB, the Board, the CCIR, CCITT, etc. Required changes in the Radio Regulations consequential to the restructuring of the Union will have to be adopted by a future competent world radiocommunication conference (WRC) and will then be reflected in the next edition of the Radio Regulations.

### Note by the Secretary-General

The Resolutions are arranged in order and numbered along the lines of the grouping and numbering system below. As some Resolutions in one group have a direct relationship to other groups, this has been reflected, as far as possible, to facilitate consultation\*.

	Numbers
RESOLUTIONS OF GENERAL APPLICATION .....	1-99
- Principles, general procedures and cooperation .....	1-22
<i>See also:</i> <i>Nos. 35, 37, 39, 70, 93, 94</i>	
- Specific procedures.....	30-46
<i>See also:</i> <i>Nos. 1, 7, 8</i>	
<i>Nos. 200, 201</i>	
<i>Nos. 325, 329</i>	
<i>Nos. 506, 507, 525</i>	
- Technical matters .....	60-70
<i>See also:</i> <i>Nos. 524, 527</i>	
<i>No. 712</i>	
FIXED SERVICE/FIXED-SATELLITE SERVICE .....	100-199
<i>See also:</i> <i>No. 8</i>	
<i>Nos. 32, 33, 34, 42</i>	
<i>Nos. 506, 507</i>	
<i>No. 706</i>	
MOBILE SERVICE/MOBILE-SATELLITE SERVICE.....	200-299
<i>See also:</i> <i>Nos. 38, 46, 70</i>	
<i>No. 315</i>	
MARITIME MOBILE SERVICE/MARITIME MOBILE-SATELLITE SERVICE .....	300-399
<i>See also:</i> <i>Nos. 200, 201, 207, 210</i>	
<i>Nos. 704, 706</i>	
AERONAUTICAL MOBILE SERVICE/AERONAUTICAL MOBILE-SATELLITE SERVICE.....	400-499
<i>See also:</i> <i>Nos. 207, 208</i>	
<i>No. 704</i>	
BROADCASTING SERVICE/BROADCASTING-SATELLITE SERVICE.....	500-599
<i>See also:</i> <i>Nos. 21, 32, 33, 34, 42</i>	
OTHER SERVICES.....	600-699

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\* In this respect, see also the Analytical Index.

## RELATING TO MORE THAN ONE SERVICE..... 700-799

*See also:* Nos. 32, 33, 34, 42  
 No. 113  
 Nos. 207, 209, 213  
 Nos. 506, 507

## RESOLUTIONS ABROGATED SINCE WARC-79:

*By WARC Mob-83:* Nos. 11, 305, 313

*By WARC Mob-87:* Nos. 12, 30, 202, 203, 204, 206, 301, 302, 303, 304, 306,  
 307, 308, 309, 311, 317, 318, 320, 321, 400, 401, 402,  
 404, 407, 600

*By WARC Orb-88:* Nos. 3, 31, 40, 41, 43, 100, 101, 102, 502, 503, 504, 700,  
 701

*By WARC-92:* Nos. 6, 9, 36, 62, 64, 66, 67, 68, 90, 91, 92, 108, 324, 337,  
 501, 509, 510, 520, 521, 708, 709

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RESOLUTION No. 21 (WARC-92)

**Implementation of Changes in Frequency Allocations  
Between 5 900 kHz and 19 020 kHz**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that parts of the frequency bands between 5 900 kHz and 19 020 kHz which were previously allocated on an exclusive or shared basis to the fixed and mobile services have been reallocated to the broadcasting service;
- b)* that some existing fixed and mobile assignments may need to be removed progressively from those reallocated bands to make way for the broadcasting service;
- c)* that the assignments to be removed, termed “displaced assignments”, must be reaccommodated in other appropriate frequency bands;
- d)* that developing countries may require special assistance from the IFRB, as well as in application of Resolution 22 (WARC-92), in replacing their displaced assignments with appropriate protection;
- e)* that procedures already exist in Article 12 of the Radio Regulations that may be used to this effect;

*recognizing*

the difficulties that administrations and the IFRB might encounter during the period of transition from the previous allocations to those made by this Conference;

*resolves*

1. that the duration of the transition period shall be from 1 April 1992 to 1 April 2007;
2. that, as of 1 April 1992, administrations should no longer notify any frequency assignments to stations of the fixed and mobile services in the reallocated bands. Assignments notified in these bands after 1 April 1992 shall bear a symbol to indicate that the finding will be examined by the IFRB as of 1 April 2007 in accordance with the provisions of No. **1240** of the Radio Regulations;
3. that, as of 1 April 1992, the IFRB shall undertake a continuing action to review the Master International Frequency Register with the help of administrations. In this respect the IFRB shall periodically consult the administrations concerning the frequency assignments to links for which another satisfactory means of telecommunication exists, with a view to either downgrading assignments of class of operation A or deleting such assignments;
4. that administrations shall, for assignments of class of operation A in the reallocated bands, either notify the replacement frequencies to the IFRB or request the IFRB's assistance in selecting the replacement frequencies in application of No. **1218** of the Radio Regulations and Resolution **103** (WARC-79);
5. that the IFRB shall develop in due time a draft procedure to be used for the replacement of remaining frequency assignments and shall consult administrations in accordance with No. **1001.1** of the Radio Regulations;

6. that the IFRB should modify the draft procedures taking into account, to the extent practicable, comments received from administrations and propose replacement assignments at the latest three years before 1 April 2007. In so doing, the IFRB shall request administrations to take appropriate action to bring their assignments in conformity with the Table of Frequency Allocations by the due date;

7. that a replacement frequency assignment whose basic characteristics, with the exception of the assigned frequency, have not been modified in the above process, shall keep its original date. However, if these basic characteristics of a replacement frequency assignment are different from those of the displaced assignment, the replacement assignment shall be treated in accordance with Nos. 1376 to 1380 of the Radio Regulations;

*invites administrations*

when seeking reaccommodation of the displaced assignments for their fixed and mobile services in the bands between 5 900 kHz and 19 020 kHz which have been reallocated to the broadcasting service, to make every effort to find replacement assignments in the bands allocated to the fixed and mobile services concerned.



RESOLUTION No. 22 (WARC-92)

**Assistance to the Developing Countries to Facilitate  
the Implementation of Changes in Frequency Band Allocations  
Which Necessitate the Transfer of Existing Assignments**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that major changes have been made in the Table of Frequency Allocations, extending bands allocated to some services and allocating bands to new services in order to facilitate the development of new technologies;
- b)* that these extensions of bands and new allocations require that existing frequency assignments to stations of the services in the reallocated bands be transferred;
- c)* that many of these assignments correspond to services which are vital to the telecommunication networks of many countries, particularly developing countries;
- d)* that the allocations referred to in *considering a)* cannot be used effectively until the process of transferring the existing assignments therein has been concluded;
- e)* that the transfer of these assignments will necessitate investments and in many cases a transfer of technology, which will require both resources and technical training;

*recognizing*

a) that, owing to the world economic situation, most developing countries still lack the resources needed for investment in various sectors of development;

b) that the Plenipotentiary Conference (Nice, 1989) established the Telecommunications Development Conferences and the Telecommunications Development Bureau (BDT) to discharge the Union's dual responsibility as a United Nations specialized agency and executing agency for implementing projects under the United Nations development system or other funding initiatives so as to facilitate and enhance telecommunications development by offering, organizing and coordinating technical cooperation and assistance activities;

*resolves*

1. to request the BDT, when formulating its immediate plans for assistance to the developing countries, to consider as a matter of priority the introduction of specific modifications in the radiocommunication networks of the developing countries, coordinating the necessary technical advisory activities with the IFRB and the CCIR;

2. that a future world development conference should, when defining the priorities of the BDT, consider the needs of developing countries and should assist them with the resources needed to implement the required modifications to their radiocommunication networks;

3. that the World Development Conference should give the BDT the necessary instructions and elements to enable it to provide technical assistance to the developing countries, and should monitor its activities in this respect;

*requests the IFRB and the CCIR*

to provide the BDT with their assistance in the implementation of this Resolution;

*requests the Director of the BDT*

to place this Resolution on the draft agenda of the next world development conference;

*invites the Administrative Council*

to ensure that this Resolution is placed on the agenda of the next world development conference.

## RESOLUTION No. 46 (WARC-92)

**Interim Procedures for the Coordination and Notification of Frequency Assignments of Non-Geostationary-Satellite Networks in Certain Space Services and the Other Services to Which the Bands are Allocated<sup>1</sup>**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that in several different space radiocommunication services there is increasing interest in the use of space systems using non-geostationary-satellite networks;
- b)* that, in order to ensure the satisfactory operation of such networks, other networks and other radio services sharing the same frequency bands, taking into account the relevant allocations, there is a need for procedures to regulate the frequency assignments of non-geostationary-satellite networks;
- c)* that the coordination methods for non-geostationary-satellite networks require specific criteria and calculation methods which are not yet available;
- d)* that, consequently, there is a need for interim procedures to be applied until such time as a future conference, with the benefit of further studies by the CCIR and taking account of the experience gained in practice, is able to adopt a permanent procedure;

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<sup>1</sup> This Resolution shall be applied only to the frequency bands for which specific reference is made to this Resolution in the footnotes to the Table of Frequency Allocations. For the purpose of applying the interim procedures annexed to this Resolution, an administration, when providing information in the form of Appendices 3 or 4, shall state whether it relates to a geostationary satellite or to a non-geostationary satellite and shall provide the appropriate orbital information.

*considering also*

- e) that the Plenipotentiary Conference (Nice, 1989), initiated the formation of a Voluntary Group of Experts, one of whose tasks is to simplify the procedures of the Radio Regulations;
- f) that any new procedures adopted by this Conference must therefore be as simple as possible and should, where appropriate, make use of the existing procedures of the Radio Regulations;
- g) that any interim procedures must take full account of the status of the allocations to services, both terrestrial and space, in frequency bands which may be used by non-geostationary-satellite networks;
- h) that any interim procedures must also take full account of the interests of all countries, including the state of development of their terrestrial and space radiocommunication services;

*considering further*

- i) that the provisions of No. **2613** of the Radio Regulations, while necessary to safeguard geostationary-satellite networks in the fixed-satellite service from interference which might be caused by non-geostationary-satellite networks, would, if more widely applied, prejudice the development of such systems in other space radiocommunication services;

*recognizing*

that the operation of telecommunication systems in the MSS bands must be in conformity with the International Telecommunication Convention and the Administrative Regulations in force, in particular their respective preambles and, in this respect:

- a) the right of each Member to decide how or whether to participate in the above systems, and to determine the terms and conditions of access to such systems from its territory;

- b)* the obligation for entities and organizations providing international or national telecommunication services by non-geostationary-satellite networks to operate at the point of delivery under the legal, financial and regulatory requirements of the Member of the Union in whose territory these services are authorized;

*resolves*

1. that, pending the adoption of a permanent procedure by a future competent conference, the use of frequency assignments by:

- a)* non-geostationary-satellite systems in the space services in relation to other non-geostationary-satellite systems, geostationary-satellite systems and terrestrial systems;
- b)* geostationary-satellite systems in relation to non-geostationary-satellite systems; and,
- c)* terrestrial systems in relation to the earth stations of non-geostationary-satellite networks;

to which this Resolution applies shall be regulated in accordance with the interim procedures and the associated provisions in the annex hereto;

2. that the interim procedures annexed to this Resolution apply in addition to those of Articles 11 and 13 for geostationary-satellite networks and shall replace those of Articles 11 and 13 for non-geostationary-satellite networks;

3. that the interim procedures annexed to this Resolution shall be applied from 4 March 1992;

*invites*

1. all administrations concerned in or by the introduction and operation of non-geostationary-satellite systems in the relevant space services to cooperate in the application of these interim procedures;

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2. all those administrations which acquire experience in the application of the annexed interim procedures to contribute to the studies of the CCIR;

*instructs the IFRB*

to apply these procedures and to provide the necessary assistance to administrations;

*invites the CCIR*

to study and develop Recommendations on the coordination methods, the necessary orbital data relating to non-geostationary-satellite systems, and the sharing criteria;

*instructs the Secretary-General*

to bring this Resolution, at an appropriate stage, to the attention of the Administrative Council with a view to the inclusion of this subject in the agenda of a future conference.

## ANNEX TO RESOLUTION No. 46 (WARC-92)

**Interim Procedures for the Coordination and Notification of Frequency Assignments of Non-Geostationary-Satellite Networks in Certain Space Services and the Other Services to Which the Bands are Allocated<sup>1</sup>****Section A. General Information**

A.1 The assistance of the IFRB can be requested in the application of the provisions of this annex.

A.2 In the absence of specific provisions relating to the evaluation of the interference, the calculation methods and the criteria should be based on relevant CCIR Recommendations agreed by the administrations concerned either as a result of Resolution 703 (Rev.WARC-92) or otherwise. In the event of disagreement on a CCIR Recommendation or in the absence of such Recommendations, the methods and criteria shall be agreed between the administrations concerned. Such agreements shall be concluded without prejudice to other administrations.

A.3 When applying the provisions of this Resolution for non-geostationary-satellite networks, administrations should provide the following information in addition to that of Appendix 3 or Appendix 4:

- i)* right ascension of the ascending node;
- ii)* argument of perigee;
- iii)* active service arc.

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<sup>1</sup> Sections I, II and III apply to terrestrial services only in the case where a power flux-density limit at the surface of the Earth (for a space station) or at the border of the territory of another administration (for an earth station) specified in a provision of the Radio Regulations is exceeded.



**Section I. Procedures for the Advance Publication  
of Information on Planned Satellite Networks**

*Publication of Information*

1.1 An administration (or one acting on behalf of a group of named administrations) which intends to bring into use a satellite network within a satellite system shall, prior to the coordination procedure described in paragraphs 2.1 and 2.2, send to the International Frequency Registration Board, not earlier than six years<sup>1</sup> and preferably not later than two years before the date of bringing into service of each satellite network, the information listed in Appendix 4.

1.2 Amendments to the information sent in accordance with the provisions of paragraph 1.1 shall also be sent to the Board as soon as they become available. Modifications which are of such a nature as to change significantly the character of the network may require recommencing the advance publication procedure.

1.3 On receipt of the complete information sent under paragraphs 1.1 and 1.2, the Board shall publish it in a special section of its weekly circular within three months and shall also, when the weekly circular contains such information, so advise all administrations by circular telegram. The circular telegram shall indicate the frequency bands to be used and, in the case of a geostationary satellite, the orbital location of the space station. When the Board is not in a position to comply with the time limit referred to above, it shall periodically so inform the administrations, giving the reasons therefor.

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<sup>1</sup> See also No. 1550.

*Comments on Published Information*

1.4 If, after studying the information published under paragraph 1.3, any administration is of the opinion that interference which may be unacceptable may be caused to assignments of its existing or planned satellite networks or to assignments to its existing or planned terrestrial radiocommunication stations, it shall, within four months after the date of the weekly circular containing the complete information listed in Appendix 4, send the administration concerned its comments on the particulars of the interference to its existing or planned satellite systems or to its existing or planned terrestrial stations. 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 the administration has no basic objections to the planned satellite network(s) of the system on which details have been published.

1.4A An administration sending information under paragraphs 1.1 and 1.2 shall, if requested by an administration receiving information published under paragraph 1.3, provide the technical methods and criteria it proposes to use for the evaluation of the interference.

1.4B An administration receiving information published under paragraph 1.3, may provide to the administration sending information under paragraphs 1.1 and 1.2 the technical methods and criteria it proposes to use for the evaluation of the interference.

*Resolution of Difficulties*

1.5 An administration receiving comments sent in accordance with paragraph 1.4 and administrations sending such comments shall endeavour to resolve any difficulties that may arise and shall provide any additional information that may be available.

1.5A In case of difficulties arising, the administration responsible for the planned network shall first explore all possible means of meeting its requirements without considering the possibility of adjustment to stations or networks of other administrations. If no such means can be found, the administration concerned may then request other administrations, either bilaterally or multilaterally, to mutually help resolve these difficulties.

1.5B An administration receiving a request under paragraph 1.5A shall, in consultation with the requesting administration, explore all possible means of meeting the latter's requirements.

1.5C If, after following the procedure described in paragraphs 1.5A and 1.5B, there are unresolved difficulties, the administrations concerned shall jointly make every possible effort to resolve these difficulties by means of mutually acceptable adjustments.

#### *Results of Advance Publication*

1.6 An administration on behalf of which details of planned satellite networks have been published in accordance with the provisions of paragraphs 1.1 to 1.3 shall, after the period of four months specified in paragraph 1.4, inform the Board whether or not comments provided for in paragraph 1.4 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 coordination or the sending of the notices to the Board. The Board shall publish this information in the special section of its weekly circular.

1.7 When, upon expiry of a period of six years plus the extension provided for in No. 1550 after the date of the publication of the special section referred to in paragraph 1.3, the administration responsible for the network has not submitted the Appendix 3 information for coordination under paragraph 2.1 or paragraph 2.2 or notification under No. 1488, as appropriate, the information published under paragraph 1.3 shall be cancelled after the administration concerned has been informed.

*Commencement of Coordination or Notification Procedures*

1.8 When communicating to the Board the information referred to in paragraph 1.1, an administration may, at the same time or at a later time, communicate:

1.8A the information required for the network coordination of a frequency assignment to a station of a satellite network in accordance with the provisions of paragraph 2.6, or

1.8B the information required for notification of a frequency assignment to a station of a satellite network when coordination for that assignment is not required.

1.8C Such coordination or notification information, as the case may be, shall be considered as having been received by the Board not earlier than six months after the date of receipt of the information referred to in paragraph 1.1.

## **Section II. Coordination of Frequency Assignments to a Station of a Satellite Network**

### *Requirement for Coordination*

2.1 Before an administration (or one acting on behalf of one or more named administrations) notifies to the Board or brings into use any frequency assignment to a station of a non-geostationary-satellite network, it shall effect coordination of the assignment with any other administration whose assignment to a station in a geostationary-satellite network, or whose assignment to a station of a non-geostationary-satellite network or whose assignment to a terrestrial station might be affected.

2.2 Before an administration (or one acting on behalf of one or more named administrations) notifies to the Board or brings into use any frequency assignment to a station of a geostationary-satellite network, it shall effect coordination of the assignment with any other administration whose assignment to a station of a non-geostationary-satellite network might be affected.

2.3 Coordination under paragraphs 2.1 and 2.2 may be effected for a satellite network using the information relating to the space station, including its service area, and the parameters of one or more typical earth stations which may be located in all or part of the space station service area.

2.4 If a frequency assignment is brought into use before the commencement of the coordination procedure of paragraphs 2.1 or 2.2, when this coordination is required, the operation in advance of the receipt by the Board of the Appendix 3 information shall in no way afford any priority of the date.

2.5 Frequency assignments to be taken into account in the application of paragraphs 2.1 and 2.2 are those with a frequency overlap with the planned assignment, pertaining to the same service or to another service to which the band is allocated with equal rights, or a higher category of allocation (see Nos. **420** to **425** and **435**), and which:

for space services, are:

- 2.5.1 in conformity with No. **1503**, and
- 2.5.2 either recorded in the Master Register, or coordinated under the provisions of this Section or of Section II of Article **11**, or
- 2.5.3 included in the coordination procedure with effect from the date of receipt by the Board, in accordance with paragraph 2.6 or No. **1074** or **1074A** of Article **11**, of the relevant information as specified in Appendix 3;

or, for terrestrial services, are:

- 2.5.4 recorded in the Master Register with a favourable finding with respect to No. **1240**, or
- 2.5.5 not notified but in use or planned to be brought into use within the next three years.

#### *Coordination Data*

2.6 The administration seeking coordination shall send to the Board the information listed in Appendix 3.

2.7 On receipt of the complete information referred to in paragraph 2.6, the Board shall:

- 2.7.1 examine this information with respect to its conformity with No. 1503; the date of its receipt shall be considered as the date from which the assignment will be taken into account for coordination;
- 2.7.2 publish in the special section of its weekly circular, within three months, the information received under paragraph 2.6 and the result of the examination under paragraph 2.7.1<sup>1</sup>. When the Board is not in a position to comply with the time limit referred to above, it shall periodically so inform the administrations giving the reasons therefor.

*Examination of Coordination Data and Agreement Between Administrations*

2.8 On receipt of the special section referred to in paragraph 2.7.2, an administration shall promptly examine the matter with regard to interference which would be caused to the frequency assignments of its network or terrestrial stations, or caused by these assignments. In so doing, it shall have regard to the proposed date of bringing into use of the assignment for which coordination is sought. It shall then, within six months from the date of the relevant weekly circular, notify the administration seeking coordination of its agreement. If, however, the administration with which coordination is sought

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<sup>1</sup> To help administrations identify services that may be affected, the Board shall also publish a list of administrations whose assignments comply with paragraphs 2.5 and 2.5.1 to 2.5.3 or paragraphs 2.5 and 2.5.4.

does not agree, it shall, within the same period, send to the administration seeking coordination the technical details of the networks or information on the terrestrial stations concerned upon which its disagreement is based, including the characteristics contained in Section C of Appendix 1 or Appendix 3 which have not previously been notified to the Board, 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.

2.8A Affected administrations, as well as the administration seeking coordination, shall make all possible mutual efforts to overcome the difficulties in a manner acceptable to the parties concerned.

### *Results of Coordination*

2.9 An administration which has initiated a coordination procedure under the provisions of paragraphs 2.1 to 2.6 shall communicate to the Board the names of the administrations with which agreement has been reached. The Board shall publish this information in the special section of its weekly circular.

2.10 An administration which has sought coordination, as well as any administration which has complied with the provisions of paragraph 2.8, shall communicate to the Board any modifications to the published characteristics of their respective networks or stations that were required to reach agreement on the coordination. The Board shall publish this information in accordance with paragraph 2.7.2, indicating that these modifications resulted from the joint efforts of the administrations concerned to reach agreement on the coordination.



*Notification of Frequency Assignments in the Event of Continuing Disagreement*

2.11 In the event of continuing disagreement between an administration seeking to effect coordination and any administration 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 eight months from the date of publication of the special section referred to in paragraph 2.7.2, taking into account the provisions of No. 1496. When the assistance of the Board has been requested, the submission of the notice shall be deferred for a further three months.

**Section III. Coordination of Frequency Assignments to Earth Stations  
of a Non-Geostationary-Satellite Network  
in Relation to Terrestrial Stations**

*Requirement for Coordination*

3.1 Before an administration notifies to the Board or brings into use any frequency assignment to a fixed earth station or to typical earth stations in a particular band allocated with equal rights to space and terrestrial radiocommunication services, it shall effect coordination of the assignment with each administration whose territory lies wholly or partly within the coordination area<sup>1</sup>. The request for coordination may specify all or some of the frequency assignments to the associated space station, but thereafter each assignment shall be dealt with individually.

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<sup>1</sup> The coordination area is defined as the service area in which it is intended to operate the typical earth stations, extended in all directions by a coordination distance of 500 km, or as a circular zone with a radius of 500 km centred on the coordinates of the fixed earth station. For a service area in which aircraft earth stations operate, the coordination area is the service area extended in all directions by a coordination distance of 1 000 km.

### *Coordination Data*

3.2 For the purpose of effecting coordination, the administration requesting coordination shall send to each administration concerned under paragraph 3.1 all pertinent information concerning the proposed frequency assignment as listed in Appendix 3, and an indication of the approximate date on which it is planned to begin operations. A copy of this information with the date of dispatch of the request for coordination shall also be sent to the Board for information.

### *Acknowledgement of Receipt of Coordination Data*

3.3 An administration with which coordination is sought under paragraph 3.1 shall immediately acknowledge receipt of the coordination data.

### *Examination of Coordination Data and Agreement Between Administrations*

3.4 On receipt of the coordination data, an administration shall, having regard to the proposed date of bringing into use of the assignment for which coordination was requested, promptly examine the matter with regard to both:

- 3.4.1 interference which would affect 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 into service of the earth station assignment, or within the next three years, whichever is the longer; and

- 3.4.2 interference which would be caused to reception at an earth station by the service rendered by its terrestrial radio-communication stations operating in accordance with the Convention and these Regulations, or to be so operated prior to the planned date of bringing into service of the earth station assignment, or within the next three years, whichever is the longer.

3.5 The administration with which coordination is sought shall, within four months from dispatch of the coordination data:

- 3.5.1 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

- 3.5.2 notify that administration of its disagreement.

3.6 In the case mentioned in paragraph 3.5.2, the administration with which coordination is sought shall send to the administration requesting coordination a diagram drawn to an appropriate scale indicating the location of those terrestrial radiocommunication stations which are or will be within the coordination area, together with all other relevant basic characteristics using Appendix 1 and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem.

3.7 When the administration with which coordination is sought sends to the administration seeking coordination the information required in the case of paragraph 3.5.2, a copy thereof shall also be sent to the Board.

*Notification of Frequency Assignments in the Event of Continuing Disagreement*

3.8 In the event of continuing disagreement between an administration seeking to effect coordination and an administration 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 six months from the date of the request for coordination, taking into account the provisions of No. 1496. When the assistance of the Board has been requested, the submission of the notice shall be deferred for a further three months.

**Section IV. Coordination of Frequency Assignments to  
Terrestrial Stations for Transmission in Relation to Earth Stations  
of a Non-Geostationary-Satellite Network**

*Requirement for Coordination*

4.1 Before an administration notifies to the Board, or brings into use any frequency assignment to a terrestrial station for transmission within the coordination area<sup>1</sup> of an earth station of a non-geostationary-satellite network, in a band allocated with equal rights to terrestrial radiocommunication services and space radiocommunication services (space-to-Earth), it shall effect coordination of the proposed assignment with the administration responsible for the earth stations with respect to the frequency assignments:

- 4.1.1 which are in conformity with No. 1503; and
- 4.1.2 for which coordination has been agreed under paragraph 3.5.1.

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<sup>1</sup> The coordination area is defined as the service area in which it is intended to operate the typical earth stations, extended in all directions by a coordination distance of 500 km, or as a circular zone with a radius of 500 km centred on the coordinates of the fixed earth station. For a service area in which aircraft earth stations operate, the coordination area is the service area extended in all directions by a coordination distance of 1 000 km.

*Coordination Data*

4.2 For the purpose of effecting coordination, the administration requesting coordination shall send to each administration concerned under paragraph 4.1 all pertinent information. 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 stations. Thereafter each assignment shall be dealt with individually.

*Acknowledgement of Receipt of Coordination Data*

4.3 An administration with which coordination is sought under paragraph 4.1 shall immediately acknowledge receipt of the coordination data.

*Examination of Coordination Data and Agreement Between Administrations*

4.4 On receipt of the coordination data, the administration with which coordination is sought shall promptly examine the matter with regard to interference which would affect the services rendered by its earth stations covered by paragraph 4.1, which are operating or are to be operated within the next three years.

4.5 The administration with which coordination is sought shall, within an overall period of four months from dispatch of the coordination data, either notify the administration requesting coordination of its agreement to the proposed assignment or, if this is not possible, indicate the reasons for its objection and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem.

*Notification of Frequency Assignments in the Event of Continuing Disagreement*

**4.6** In the event of continuing disagreement between an administration seeking to effect coordination and an administration 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 six months from the date of the request for coordination, taking into account the provisions of Nos. **1230** and **1496**. When the assistance of the Board has been requested, the submission of the notice shall be deferred for a further three months.

**Section V. Notification of Frequency Assignments**

*Notification of Assignments to Space Stations and Earth Stations*

**5.1** An administration shall, for the purpose of notifying an assignment to the Board, apply the provisions of Article **13**. When applying the provisions of Article **13** to frequency assignment notices relating to space stations and earth stations covered by this Resolution, the Board shall:

- 5.1.1** in applying No. **1504**, also examine the notice with respect to its conformity with the provisions of paragraphs 2.1 or 2.2 relating to coordination of the use of the frequency assignment with the other administrations concerned;
- 5.1.2** in applying No. **1505**, also examine the notice with respect to its conformity with the provisions of paragraph 3.1 relating to coordination of the use of the frequency assignment with the other administrations concerned;

- 5.1.3 in applying No. **1506**, also examine the notice with respect to the probability of harmful interference when the coordination under paragraph 2.1 or 2.2 has not been successfully effected;
- 5.1.4 in applying No. **1509**, also examine the notice with respect to the probability of harmful interference when the coordination under paragraph 3.1 has not been successfully effected;
- 5.1.5 not apply Nos. **1515** and **1516**.

5.2 The examination under paragraph 5.1.3 or 5.1.4 shall take into account the frequency assignments for transmission or reception already recorded in the Master Register.

#### *Notification of Assignments to Terrestrial Stations*

5.3 An administration shall, for the purpose of notifying an assignment to the Board, apply the provisions of Article **12**. When applying the provisions of Article **12** the Board shall, in application of No. **1353**, examine frequency assignment notices relating to terrestrial stations covered by this Resolution with respect to their conformity with the provisions of paragraph 4.1 relating to coordination of the use of the frequency assignment with the other administrations concerned.

## RESOLUTION No. 70 (WARC-92)

**Establishment of Standards for the Operation of  
Low-Orbit Satellite Systems**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that the radio-frequency spectrum is a limited natural resource, to which all ITU Members should have access on equitable conditions;
- b)* that the ITU is required to coordinate efforts to harmonize the development of telecommunication facilities, notably those using space techniques, with a view to taking the utmost advantage of their possibilities;
- c)* that one of the purposes of the ITU is to foster collaboration among its Members with a view to the establishment of rates at levels as low as possible consistent with an efficient service and with the independent and sound financial administration of telecommunications;
- d)* that, in the performance of its studies, each International Consultative Committee is required to pay due attention to the study of questions and to the formulation of recommendations directly connected with the establishment, development and improvement of telecommunications in developing countries at both the regional and international level;
- e)* that the Telecommunications Development Bureau is required to carry out studies, as necessary, on technical, economic, financial, managerial, regulatory and general policy issues in the field of telecommunications;



f) that Resolution 15 of the Plenipotentiary Conference (Nice, 1989), relating to the role of the ITU in the development of world telecommunications, establishes that the ITU should ensure that all its work reflects the position of the ITU as the authority responsible within the United Nations system for establishing in a timely manner technical and operational standards for all forms of telecommunication and for effecting the rational use of the radio-frequency spectrum;

g) that CCITT Recommendations provide for the apportionment of accounting revenues on international traffic between terminal countries, in principle on an equitable basis;

h) that CCITT and CCIR Recommendations provide technical bases for a signalling and operational interface between terrestrial and satellite radio systems and public telecommunication networks;

i) that the Radio Regulations provide for the coordination of frequency assignments utilized by mobile satellite networks and that the CCIR has been invited in Resolution **46 (WARC-92)** to study frequency sharing and coordination for the mobile-satellite service, with particular attention to low-orbit satellite systems;

*recognizing*

that current technological developments allow for the provision of telecommunication services through low-orbit satellite systems offering worldwide coverage, and that there are no standards governing the coordination, sharing and operation of such systems within the world telecommunication network;

*bearing in mind*

that only a very limited number of low-orbit satellite systems offering worldwide coverage could coexist in any given frequency band;

*resolves*

1. to invite the organs of the ITU within their fields of competence to carry out, as a matter of priority, technical, regulatory and operational studies to permit the establishment of standards governing the operation of low-orbit satellite systems so as to ensure equitable and standard conditions of access for all countries and to guarantee proper worldwide protection for existing services and systems in the telecommunication network;
2. to invite administrations interested in, or affected by, the introduction and operation of low-orbit satellite systems to participate in such work as the organs of the ITU may undertake in that connection.

## RESOLUTION No. 93 (WARC-92)

**Review of Certain Resolutions and Recommendations of the World Administrative Radio Conference (Geneva, 1979) (WARC-79); the World Administrative Radio Conference for the Mobile Services (Geneva, 1983) (Mob-83); the World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987) (HFBC-87); the World Administrative Radio Conference for the Mobile Services (Geneva, 1987) (Mob-87), and the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (Second Session – Geneva, 1988) (Orb-88)**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

that owing to the action taken at this Conference and that resulting from decisions adopted at the above-mentioned Conferences, there is a need to review the existing Resolutions and Recommendations to ensure their appropriate consistency;

*considering further*

a) that the following Resolutions and Recommendations of the above-mentioned Conferences have been revised as indicated:

Resolution No. 703 (Rev.WARC-92)

Calculation Methods and Interference Criteria Recommended by the CCIR for Sharing Frequency Bands Between Space Radiocommunication and Terrestrial Radiocommunication Services or Between Space Radiocommunication Services

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### Recommendation No. 66 (Rev.WARC-92)

#### Studies of the Maximum Permitted Levels of Spurious Emissions

*b)* that the following Resolutions and Recommendations of the above-mentioned Conferences either have been implemented or do not require any further action:

#### Resolution No. 6

Relating to the Preparation of a Handbook to Explain and Illustrate the Procedures of the Radio Regulations

#### Resolution No. 9

Relating to the Revision of Entries in the Master International Frequency Register in the Bands Allocated to the Fixed Service Between 3 000 kHz and 27 500 kHz

#### Resolution No. 36

Relating to the Preparation of Explanatory Information by the International Frequency Registration Board on the Application of the New Method for Designating Emissions in Notification Procedures and the Consequential Revision of the Master International Frequency Register

#### Resolution No. 62

Relating to the Experimental Use of Radio Waves by Ionospheric Research Satellites

#### Resolution No. 64

Relating to CCIR Study of Lightning Protection of Radio Equipment

#### Resolution No. 66

Relating to the Division of the World into Regions for the Purposes of Allocating Frequency Bands

#### Resolution No. 67

Relating to Improvements in the Design and Use of Radio Equipment

Resolution No. 68

Relating to the Redefinition of Certain Terms Contained in Annex 2 to the International Telecommunication Convention (Malaga-Torremolinos, 1973) and Applicable to the Radio Regulations

Resolution No. 90 (Mob-83)

Relating to the Revision, Replacement and Abrogation of Resolutions and Recommendations of the World Administrative Radio Conference, Geneva, 1979

Resolution No. 91 (HFBC-87)

Revision, Replacement and Abrogation of Resolutions and Recommendations of the World Administrative Radio Conference (Geneva, 1979)

Resolution No. 92 (Orb-88)

Revision, Replacement and Cancellation of Resolutions of the World Administrative Radio Conference, Geneva, 1979, and the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (First Session – Geneva, 1985) (Orb-85)

Resolution No. 108 (Orb-88)

Use of the Bands 4500 - 4800 MHz, 6725 - 7025 MHz, 10.70 - 10.95 GHz, 11.2 - 11.45 GHz and 12.75 - 13.25 GHz Prior to the Date of Entry into Force of Appendix 30B

Resolution No. 324 (Mob-87)

Procedures to be Applied for the Coordination of the Use of the Frequency 518 kHz for the International NAVTEX System

Resolution No. 337 (Mob-87)

Resolutions and Recommendations Which Remain in Effect Until the Provisions of the Radio Regulations as Partially Revised by WARC Mob-87 Take Effect

## **RES93-4**

### **Resolution No. 501**

Relating to Examination by the IFRB of the Notices Referring to Stations in the Broadcasting Service in Region 2 in the Band 535 - 1 605 kHz During the Period Preceding the Entry into Force of the Final Acts of the Regional Administrative MF Broadcasting Conference (Region 2)

### **Resolution No. 509**

Relating to the Convening of a Regional Broadcasting Conference to Review and Revise the Provisions of the Final Acts of the African VHF/UHF Broadcasting Conference, Geneva, 1963

### **Resolution No. 510**

Relating to the Convening of a Planning Conference for Sound Broadcasting in the Band 87.5 - 108 MHz for Region 1 and Certain Countries Concerned in Region 3

### **Resolution No. 520 (Orb-88)**

Future Change in Article 8 for the Broadcasting-Satellite Service (Sound) In the Frequency Range 500 MHz to 3 000 MHz

### **Resolution No. 521 (Orb-88)**

Selection of a Frequency Band for Use by the Broadcasting-Satellite Service and Intended for Wide RF-Band High Definition Television, and of an Associated Frequency Band for HDTV Feeder Links, and the Adoption of Related Provisions by a Future Competent Conference

### **Resolution No. 708 (Mob-87)**

Criteria for Sharing between the Radiodetermination-Satellite Service and Terrestrial Services in the Bands 1 610 - 1 626.5 MHz, 2 483.5 - 2 500 MHz and 2 500 - 2 516.5 MHz

Resolution No. 709 (Orb-88)

Coordination Between Feeder-Link Earth Stations and Stations of other Services in the Bands 14.5 - 14.8 GHz and 17.7 - 18.1 GHz in Regions 1 and 3

Recommendation No. 3

Relating to the Transmission of Electric Power by Radio Frequencies from a Spacecraft

Recommendation No. 12

Relating to the Convening of Future Administrative Radio Conferences to Deal with Specific Services

Recommendation No. 67

Relating to the Definitions of "Service Area" and "Coverage Area"

Recommendation No. 70

Relating to Studies of the Technical Characteristics of Equipment

Recommendation No. 101

Relating to Feeder Links for the Broadcasting-Satellite Service

Recommendation No. 102

Relating to the Study of Modulation Methods for Radio-Relay Systems in Relation to Sharing with Fixed-Satellite Service Systems

Recommendation No. 104 (Mob-87)

Provision of Frequency Bands for Feeder Links in the Fixed-Satellite Service for the Mobile-Satellite Service or for the Aeronautical, Land, or Maritime Mobile-Satellite Services in the Bands 1 530 - 1 559 MHz and 1 626.5 - 1 660.5 MHz

RES93-6

Recommendation No. 205 (Mob-87)

Future Public Land Mobile Telecommunication Systems

Recommendation No. 408 (Mob-87)

Development of a World-Wide System for Public Correspondence with Aircraft

Recommendation No. 504

Relating to the Preparation of a Broadcasting Plan in the Band 1 605 - 1 705 kHz in Region 2

Recommendation No. 511 (HFBC-87)

Possibility of Extending the Frequency Spectrum Allocated Exclusively to HF Broadcasting at a Future Competent World Administrative Radio Conference

Recommendation No. 602 (Rev.Mob-83)

Relating to the Planning of Frequencies in the Band 283.5 - 315 kHz Used by Maritime Radiobeacons in the European Maritime Area

Recommendation No. 708

Relating to Frequency Bands Shared Between Space Radiocommunication Services and Between Space and Terrestrial Radiocommunication Services

Recommendation No. 716 (Orb-88)

Use of Certain Frequency Bands Below 3 000 MHz by the Space Research and Space Operation Services

*resolves*

that the Resolutions and Recommendations of WARC-79, Mob-83, HFBC-87, Mob-87 and Orb-88 listed under *a)* above shall apply as revised by this Conference and that those listed under *b)* above shall be abrogated.



RESOLUTION No. 94 (WARC-92)

**Review of Resolutions and Recommendations of the  
World Administrative Radio Conferences**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

*a)* that this Conference has reviewed a number of Resolutions and Recommendations of the following Conferences: WARC-79, Mob-83, HFBC-87, Mob-87 and Orb-88;

*b)* the action taken under Resolution **93 (WARC-92)** adopted by this Conference;

*considering further*

the need to continue to review the Resolutions and Recommendations of the above Conferences and of this Conference;

*invites the CCIR and the IFRB*

*and instructs the Secretary-General*

to report to the future competent conferences referred to in *resolves* on the action taken in response to the relevant Resolutions and Recommendations;

*resolves*

that the Administrative Council should include in the agenda of future competent conferences the review of the relevant Resolutions and Recommendations with a view to their possible revision, replacement or abrogation.

## RESOLUTION No. 112 (WARC-92)

**Allocation of Frequencies to the Fixed-Satellite Service  
in the Band 13.75 - 14 GHz**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a) that this Conference has added an allocation to the fixed-satellite service in the band 13.75 - 14 GHz;
- b) that this band is shared with the radiolocation and radionavigation services and certain limitations have been placed on the fixed-satellite, radiolocation and radionavigation services;
- c) that the impact of the allocation to the fixed-satellite service on the space research service, the Earth exploration-satellite service and the standard frequency and time-signal satellite service needs to be studied;
- d) the impact of the allocation to the fixed-satellite service on the use of the space research service and the Earth exploration-satellite service under the provisions of No. **713** of the Radio Regulations and the scientific and environmental value of the observations by active sensors;

*recognizing*

- a) that stations in the space research service which underwent advance publication prior to 31 January 1992 shall operate on an equal basis with stations in the fixed-satellite service;
- b) that provisions of No. **855B** of the Radio Regulations stipulate that until 1 January 2000, stations in the fixed-satellite service shall not cause harmful interference to non-geostationary space stations in the space research service and the Earth exploration-satellite service;

*resolves to invite the CCIR*

1. to conduct the necessary studies, prior to 31 January 1994, with respect to the values given in No. 855A of the Radio Regulations relating to allocations in the band 13.75 - 14 GHz and to report the outcome at least one year before the next competent conference;
2. to conduct the necessary studies with regard to technical compatibility between the primary allocation to the fixed-satellite service (Earth-to-space) and the secondary allocations to the space research service and the Earth exploration-satellite service in the band 13.75 - 14 GHz;

*also resolves*

to invite administrations and organizations interested in these radiocommunication services having allocations in the band 13.75 - 14 GHz to participate in the work of the CCIR;

*further resolves*

to invite administrations concerned to establish bilateral coordination procedures for the introduction of new earth stations in the fixed-satellite service;

*instructs the Secretary-General*

to bring this Resolution to the attention of the Administrative Council and the next ordinary Plenipotentiary Conference with a view to placing the review of No. 855A on the agenda of the next world administrative radio conference.

## RESOLUTION No. 113 (WARC-92)

**Adjustments to the Fixed Service as a Consequence of Changes  
to the Frequency Allocations Within the Range 1 - 3 GHz**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a) that the present Conference has allocated new frequency bands in the range 1 - 3 GHz for the mobile, mobile-satellite, broadcasting-satellite (sound) services and has identified spectrum for the future public land mobile telecommunication systems (FPLMTS);
- b) that various frequency bands in the range 1 - 3 GHz are allocated to the fixed service on a primary basis;
- c) that the fixed service in this range is extensively used and is likely to be used well into the future by many administrations;
- d) that the terrestrial components of FPLMTS can share with the fixed service where there is adequate geographical or frequency separation (see CCIR Report to WARC-92);
- e) that the fixed service has for many years satisfactorily shared the frequency bands 2025 - 2120 MHz and 2200 - 2290 MHz with the space research, space operation and Earth exploration-satellite services;

*recognizing*

that, although new techniques will make it possible to transfer some systems in the fixed service to higher frequency bands or to use other means of telecommunications, there are technical and economic factors that will require continued operation of systems in the range 1 - 3 GHz;

*noting*

that item 2.9.1 of the agenda of this Conference drew attention to the need to safeguard the interests of existing services that may be affected by changes to the Table of Frequency Allocations;

*resolves*

that, when administrations implement new services in the range 1 - 3 GHz, they should, to facilitate sharing, take full account of the continuing needs of the fixed service by the appropriate choice of geographical location, frequencies and timescales in coordination with the administrations whose services might be affected;

*invites the CCIR*

1. to continue its studies of the criteria for sharing between the fixed service and other services;
2. to prepare new radio frequency channelling arrangements, if necessary, for the fixed service in the relevant frequency bands;

*urges administrations*

to continue to participate actively in these studies and to make the necessary adjustments to the fixed service within the timetable adopted by this Conference for the implementation of the new frequency allocations and designations in the range 1 - 3 GHz.

## RESOLUTION No. 211 (WARC-92)

**Use by the Mobile Service of the Frequency Bands  
2 025 - 2 110 MHz and 2 200 - 2 290 MHz**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* the changes made by this Conference to the Table of Allocations to the space services in the bands 2 025 - 2 110 MHz and 2 200 - 2 290 MHz;
- b)* the existing co-primary allocation to the mobile service in Regions 2 and 3 and the changes in the allocations to the mobile service in Region 1;
- c)* the expected rapid growth of mobile systems in bands near 2 GHz;
- d)* that the CCIR Report on the Technical and Operational Bases for the World Administrative Radio Conference 1992 concluded that the introduction of Future Public Land Mobile Telecommunication Systems (FPLMTS) or conventional land mobile systems in the frequency bands used by the space services would cause unacceptable interference to the space services;
- e)* that in some countries the space services have successfully shared with low-density mobile electronic news gathering (ENG) and with aeronautical telemetry systems for many years;

f) that the introduction in Article 27 of suitable limits on the characteristics of mobile systems may be an adequate means of facilitating the expansion of mobile systems in these bands without harmful interference to the space services;

g) that the CCIR is currently studying sharing criteria and preliminary results are available;

*noting*

that these preliminary results indicate that low-density mobile systems (e.g., ENG) using either highly directive antennas (typically in excess of 24 dBi) or alternatively very low e.i.r.p. densities (typically below -12 dBW/MHz) can share with relevant space services in these bands;

*resolves*

1. to invite the CCIR to continue, as a matter of urgency, the study of appropriate provisions to protect the space services operating in the bands 2025 - 2 110 MHz and 2200 - 2290 MHz from harmful interference from emissions by stations of the mobile service;

2. to recommend that administrations do not introduce high-density or conventional type land mobile systems in the 2025 - 2 110 MHz and 2200 - 2290 MHz bands;

3. that administrations, when considering in the near future the introduction of mobile systems in the above bands, should permit only low-density mobile systems;

4. that until the CCIR develops appropriate Recommendations, the protection criteria for space services as given in CCIR Recommendation 609 (Space research), Recommendation 363 (Space operations) and Recommendation 514 (Earth exploration-satellite) be used as guidance;

5. that the next competent conference should consider reviewing Article 27 to define the conditions under which sharing between the mobile and the space services in these bands is possible;

*invites the CCIR*

1. to develop the appropriate provisions mentioned in *resolves* 1;
2. to report the results of its studies to the next competent conference;

*instructs the Secretary-General*

to bring this Resolution to the attention of the next Administrative Council with a view to including this subject in the agenda of the next competent conference.



RESOLUTION No. 212 (WARC-92)

**Implementation of Future Public Land Mobile  
Telecommunication Systems (FPLMTS)**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that the CCIR has recommended the 1 - 3 GHz band as the most suitable for FPLMTS;
- b)* that the CCIR has recommended approximately 60 MHz for use by personal stations and approximately 170 MHz for use by mobile stations;
- c)* that the CCIR has recognized that space techniques are an integral part of FPLMTS;
- d)* that, in No. **746A** of the Radio Regulations, this Conference has identified bands to accommodate this future service;

*considering further*

- e)* that the CCIR has not completed its studies regarding duplexing methods, modulation techniques, channelling arrangements, signalling or communication protocols;
- f)* that no worldwide numbering plan currently exists that would facilitate worldwide roaming;

*noting*

- a) that the initial implementation of the terrestrial components of FPLMTS is expected to commence by the year 2000;
- b) that the implementation of the satellite component of FPLMTS in the bands 1 980 - 2 010 MHz and 2 170 - 2 200 MHz is expected to be necessary by the year 2010;

*invites administrations*

to give due consideration to the accommodation of other services currently operating in these bands when implementing FPLMTS;

*invites the CCIR*

to continue its studies with a view to developing suitable and acceptable technical characteristics for FPLMTS that will facilitate worldwide use and roaming, and ensure that FPLMTS can also meet the telecommunication needs of the developing countries and rural areas;

*invites the CCITT*

- a) to complete its studies of signalling and communication protocols;
- b) to develop a common worldwide numbering plan and associated network capabilities that will facilitate worldwide roaming;

*resolves*

that administrations which implement FPLMTS:

- a) should make the necessary frequencies available for system development;
- b) should use those frequencies when FPLMTS are implemented;
- c) should use the relevant international technical characteristics, as identified by the Recommendations of the CCIR and CCITT.

RESOLUTION No. 213 (WARC-92)

**Sharing Studies Concerning the Use  
of the Bands 1 492 - 1 525 MHz and 1 675 - 1 710 MHz  
in Region 2 by the Mobile-Satellite Service**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that agenda item 2.2.4 of this Conference requested the consideration, *inter alia*, of an allocation of frequency bands to the mobile-satellite service;
- b)* that spectrum adjacent to or near the existing mobile-satellite allocations may offer opportunities for implementation;
- c)* that the band 1 490 - 1 525 MHz is used by the aeronautical mobile service in the countries listed in footnote No. **723** and by other terrestrial services;
- d)* that the band 1 675 - 1 710 MHz is principally used by the meteorological-satellite and meteorological aids services;
- e)* that operational and technical means may be found that would allow sharing of the band 1 490 - 1 525 MHz between the services mentioned in *c)* above and the mobile-satellite service;
- f)* that operational and technical means may be found that would allow sharing of the band 1 675 - 1 710 MHz between the services mentioned in *d)* above and the mobile-satellite service;
- g)* that there is a need to determine the operational and technical means for preventing harmful interference to the services mentioned in *c)* and *d)* above;

## RES213-2

### *resolves*

1. that studies be undertaken by the CCIR to examine the operational and technical measures that would facilitate sharing;
2. that the World Meteorological Organization (WMO) be invited to participate in these sharing studies;

### *invites*

1. the CCIR to study as a matter of urgency the technical and operational issues relating to the sharing of these bands between the services mentioned in *c)* and *d)* above and the mobile-satellite service;
2. administrations to participate actively in such studies by sending contributions to the CCIR relating to the aforementioned studies;

### *instructs the Secretary-General*

to bring this Resolution to the notice of WMO.

RESOLUTION No. 338 (WARC-92)

**Provisional Application of Article 56 to Ensure  
Harmonization with the International Convention for the  
Safety of Life at Sea (SOLAS) as Revised in 1988**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that provisions of Article 56 of the Radio Regulations were modified at the World Administrative Radio Conference for the Mobile Services (Geneva, 1987) (WARC Mob-87) and were supported by a majority of administrations but were not accepted by all administrations in regard to carriage of personnel certificated for maintenance of shipborne equipment for distress and safety communications;
- b)* that the 1988 Conference on the Global Maritime Distress and Safety System (GMDSS) of Contracting Governments to the 1974 SOLAS Convention adopted maintenance requirements to ensure equipment availability which were more flexible than those adopted by WARC Mob-87;
- c)* that the resulting inconsistency between the Radio Regulations and the SOLAS Convention relating to this matter of standards for maintenance and operation of shipborne GMDSS equipment has significant implications and should be reconciled;
- d)* that the 45th session of the Administrative Council, in accordance with Resolution 7 of the Plenipotentiary Conference (Nice, 1989), placed Articles 55 and 56 on the WARC-92 agenda in order to find an appropriate solution to this problem;

*noting*

that this Conference took appropriate decisions regarding Articles 55 and 56 to harmonize the provisions of the Radio Regulations with the SOLAS Convention;

*recognizing*

that administrations desiring to implement the GMDSS should be able to do so in compliance with the Radio Regulations and the SOLAS Convention;

*resolves*

that during the period preceding the date of entry into force of the partial revision of the Radio Regulations by WARC-92, administrations may apply Article 56, as contained in the Final Acts of WARC-92, on a provisional basis;

*instructs the Secretary-General*

to communicate this Resolution to the International Maritime Organization (IMO).

RESOLUTION No. 410 (WARC-92)

**Development of an Arrangement for the Allotment of  
Frequencies for the Aeronautical Mobile (OR) Service in  
the Exclusive Bands Between 3 025 kHz and 18 030 kHz**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that Resolution 9 of the Plenipotentiary Conference, (Nice, 1989) instructed the IFRB to undertake actions with a view to improving use by the aeronautical mobile (OR) service of the frequency bands governed by Appendix 26 to the Radio Regulations;
- b)* that the IFRB prepared, following consultation with administrations, a draft channelling arrangement;
- c)* that a revision of Article 12 and consequential amendments to Appendix 26 have been adopted by this Conference;
- d)* that the allotment arrangement submitted by the IFRB to this Conference will need to be further developed in accordance with this Resolution;

*appreciating*

the efforts made by the IFRB despite the limited resources available;

*resolves*

1. that the IFRB shall, in the development of Part III of Appendix **26(Rev.)**, immediately after the Conference, add to the allotment arrangement contained in its Report to the Conference and as modified during the Conference the following allotments:

- a) one 3 kHz allotment, on the nearest possible channel within the same band, for each allotment contained in Appendix **26** (Part IV) which is not covered by an assignment in the Master Register;
- b) one 3 kHz allotment, on the nearest possible channel within the same band, for each requirement submitted to the Conference or for which an assignment notice is received by the Board by 1 May 1992;
- c) one 3 kHz allotment, on an appropriate channel in each band, for those administrations not having an allotment in the new allotment arrangement as a result of the above actions, except for those administrations which have explicitly stated that they do not require an allotment;

2. that the IFRB shall communicate the results of its above actions to administrations by 15 December 1992;

3. that in applying the above process, the IFRB shall endeavour to resolve any difficulties that may arise from the sharing of a channel by two or more allotments, in consultation with the administrations concerned;

4. that the IFRB shall distribute Part III of Appendix **26(Rev.)** to all administrations as soon as possible and in any case not later than 12 October 1993;

*instructs the Secretary-General*

to publish Part III of Appendix **26(Rev.)** after the IFRB has completed its tasks under *resolves* 1 to 4 above.



RESOLUTION No. 411 (WARC-92)

**Implementation of the New Provisions  
Applicable in the Frequency Bands Allocated Exclusively to  
the Aeronautical Mobile (OR) Service Between  
3 025 kHz and 18 030 kHz**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that the conditions for use of each of the frequency bands between 3 025 kHz and 18 030 kHz allocated exclusively to the aeronautical mobile (OR) service were modified by this Conference so as to enable a more efficient usage of the available frequency spectrum;
- b)* that the implementation of the modified conditions of use will entail a considerable workload for administrations, since a large number of frequency assignments to both aircraft and aeronautical stations will have to be transferred from existing frequencies to the new frequencies and channels designated by this Conference;
- c)* that the full implementation of the modified provisions for the frequency usage may require considerable investment for the replacement of the existing equipment;

*d)* that, nevertheless, the modified provisions for frequency usage should be implemented fully and as soon as possible so that the advantages of the new arrangement may be realized at the earliest opportunity;

*e)* that the changeover to the new conditions of operation should be effected with the least possible disruption to the service rendered by each station;

*recognizing*

*a)* that the implementation of the decisions made by the present Conference relating to the new arrangement of the frequency bands allocated exclusively to the aeronautical mobile (OR) service between 3 025 kHz and 18 030 kHz should follow an orderly procedure for the transfer of existing services from the old to the new conditions of operation;

*b)* that the procedures for the transfer of the existing frequency assignments in the aeronautical mobile (OR) service, in the bands allocated exclusively to that service between 3 025 kHz and 18 030 kHz, are specified in Resolution **412 (WARC-92)** adopted by this Conference;

*resolves*

1. that the provisions of Appendix **26(Rev.)**, as well as the relevant provisions of Article **12** of the Radio Regulations, as modified by this Conference, shall apply to any new frequency assignment, as from 0001 UTC on 12 October 1993;

2. that administrations shall take all the necessary measures to comply with the new conditions of use of the bands governed by Appendix **26(Rev.)** by not permitting the installation of new equipment whose emissions occupy a necessary bandwidth exceeding 2 800 Hz;

3. that, until 15 December 1995, administrations may continue to use their existing assignments in accordance with the characteristics recorded in the Master International Frequency Register. After that date administrations shall take all necessary measures to modify the characteristics of their assignments so as to ensure their conformity with the provisions of Appendix 26(Rev.);
4. that, not later than 15 December 1997, administrations shall discontinue all emissions whose bandwidth exceeds 2 800 Hz;

*invites Administrations*

to make every effort to eliminate incompatibilities which may occur in the transition period.

RESOLUTION No. 412 (WARC-92)

**Transfer of Frequency Assignments of Aeronautical Stations  
Operating in the Frequency Bands Allocated Exclusively to  
the Aeronautical Mobile (OR) Service Between  
3 025 kHz and 18 030 kHz**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that the conditions for use of each of the frequency bands between 3 025 kHz and 18 030 kHz allocated exclusively to the aeronautical mobile (OR) service were modified by this Conference so as to enable a more efficient usage of the frequency spectrum available;
- b)* that administrations will need to change the frequencies of their aeronautical and aircraft stations to bring them into conformity with the new Frequency Allotment Plan, as contained in Appendix **26(Rev.)**, and to notify such transfers, where appropriate, to the Board;

*resolves*

- 1. that, at an appropriate date, the Board shall send each Administration a list of assignments to stations of the aeronautical mobile (OR) service entered on its behalf in the Master Register in the bands allocated exclusively to that service between 3 025 kHz and 18 030 kHz;
- 2. that, in the above list, the Board shall indicate, for each frequency assignment, a replacement frequency(-ies) which fulfil(s) the provisions of Appendix **26(Rev.)** and which is(are) intended to replace the frequency of the assignment concerned;

3. that, after receipt of the above list, administrations shall take all the necessary measures to modify the characteristics of their assignments, so as to bring them into conformity with the provisions of Appendix **26(Rev.)**, as early as possible and in any event, not later than 15 December 1997; any modification which has been implemented shall be notified to the Board in accordance with No. **1214** of the Radio Regulations;

4. that the frequency assignments notified by administrations under paragraph 3 above shall be examined by the Board under the relevant provisions of Sub-Section IIC and Section III of Article 12 of the Radio Regulations, as modified by this Conference;

5. that the assignments existing in the Master Register on 15 December 1997 which are not in conformity with the provisions of Appendix **26(Rev.)** shall be treated as follows:

5.1 within 60 days from 15 December 1997, the Board shall send relevant extracts of the Master Register to the administrations concerned advising them that, under this Resolution, the assignments in question are to be modified, within a period of 90 days, so as to meet the provisions of Appendix **26(Rev.)**;

5.2 if an administration fails to notify the Board of the modifications within the prescribed period, the original entry will be retained in the Master Register for information only, without a date in Column 2, without a finding in Column 13A and with a suitable remark in the Remarks column. The administration will be advised of this action.

RESOLUTION No. 522 (WARC-92)

**Further Work by the CCIR Concerning the  
Broadcasting-Satellite Service (Sound)**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that this Conference has made frequency allocations for the broadcasting-satellite service (sound) (BSS (sound)) down links and the complementary terrestrial service in the bands specified in Article 8, with an interim procedure to govern the introduction of this service;
- b)* that further technical development is necessary for the introduction of BSS (sound);
- c)* that BSS (sound) systems could employ satellites in the geostationary-satellite orbit (GSO) or in non-geostationary-satellite orbits (non-GSO);
- d)* that the most urgent guidance required will relate to the means to be employed for coordinating and avoiding mutual harmful interference between non-GSO systems, between GSO and non-GSO systems of the broadcasting-satellite service (sound), and between BSS (sound) systems and the systems of other services;

*noting*

the provisions of No. 2674 of the Radio Regulations;

*resolves*

1. that the CCIR should study this subject as a matter of urgency;
2. that CCIR studies should focus in particular on:
  - i) the characteristics of GSO and non-GSO BSS (sound) systems compatible with No. 2674 of the Radio Regulations,
  - ii) the appropriate sharing criteria;
3. to invite administrations and the IFRB to participate in the work of the CCIR on this subject;
4. to invite administrations which introduce BSS (sound) systems to publish reports on their experience of such systems;

*invites the Administrative Council*

to take account of the urgent need for regulatory provisions including measures to ensure frequency sharing between the BSS (sound) and other services in the same frequency bands, and to place this matter on the agenda of the next competent administrative radio conference,

*instructs the Secretary-General*

to bring this Resolution to the notice of the Administrative Council.

RESOLUTION No. 523 (WARC-92)

**Convening of a World Administrative Radio Conference for  
the Planning of HF Bands Allocated to the Broadcasting Service**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a) that this Conference has made new allocations to the HF broadcasting service;
- b) that the use of the new bands allocated, contained in No. **521B** of the Radio Regulations, will be governed by planning procedures to be established by a competent world administrative radio conference (WARC);
- c) that the use of these bands is limited to single-sideband transmissions;
- d) the decision by the ITU Administrative Council at its 46th session not to convene in 1993 the HFBC Conference scheduled under Resolution 1 of the Plenipotentiary Conference (Nice, 1989);
- e) that the Administrative Council's decision was based on an IFRB report stressing the difficulties encountered by administrations and the IFRB in implementing the improved HFBC planning system adopted by WARC HFBC-87;

*noting*

that the Administrative Council's decision was not accompanied by any guarantee that the planning conference would be held in the short or medium term;



*resolves*

1. that administrations are required to abide strictly by the provisions of No. **531** of the Radio Regulations adopted by WARC HFBC-87 and by those adopted by this Conference (Nos. **521C**, **528A**, **529B** and **534A** of the Radio Regulations);
2. that administrations will not bring broadcasting stations into service in the bands referred to in the above-mentioned footnotes until the planning process has been completed, in conformity with those footnotes;

*resolves further*

that a WARC shall be convened as soon as possible to undertake the planning process;

*recommends*

that the next Plenipotentiary Conference should take the necessary steps to include the convening of that planning conference in the schedule of future ITU conferences;

*instructs the IFRB*

to make a comprehensive report to the next competent WARC on the planning trials undertaken since WARC HFBC-84 and, on the basis of the experience acquired, to propose a flexible, simplified planning method, which could be used for the subsequent development of a planning system;

*instructs the Secretary-General*

to bring this Resolution to the attention of the Administrative Council.

## RESOLUTION No. 524 (WARC-92)

**Future Consideration of the Plans for the Broadcasting-Satellite Service in the Band 11.7 - 12.5 GHz (Region 1) and the Band 11.7 - 12.2 GHz (Region 3) in Appendix 30 and the Associated Feeder-Link Plans in Appendix 30A**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a) that Article 14 of Appendix 30 indicates that the broadcasting-satellite service Plan for Regions 1 and 3 in Appendix 30 meets requirements until January 1994;
- b) that WARC Orb-88 in Resolution 521, *resolves* 3, stated that “while the Plans for the 11.7 - 12.7 GHz band can already be used for certain types of high definition television, studies should be continued on the long range future suitability of these bands for HDTV without prejudice to the existing plans in this band”;
- c) that modernization of the Plans in Appendix 30 associated with Regions 1 and 3, which had their origins in WARC-77, would be valuable in offering the prospects of more efficient utilization of the spectrum and orbit resources by taking into account technological improvements (e.g. satellite antennas and receiver sensitivity) which could be used to increase the capacity and the flexibility of the Plan without reducing the number of current assignments to each country;
- d) that improvements in the use of the 12 GHz planned band may enable countries, in particular those which have high rainfall climatic zones, to accommodate their BSS (HDTV) needs, or part of their needs, in that band;

*invites the CCIR*

to study, as a matter of priority, the technical possibilities for improving the efficiency and flexibility of the Plans for Regions 1 and 3 contained in Appendices 30 and 30A, taking into account the intent of the conference referred to below, and to study the particular needs of high rainfall climatic zones for HDTV and the technical methods which could be used to implement this service in the 12 GHz band;

*urges administrations*

to contribute to the studies of the CCIR and, also, to consider the need for a future competent conference to review and as necessary revise the relevant parts of Appendices 30 and 30A;

*recommends the next Plenipotentiary Conference*

to consider the convening of an administrative radio conference to revise those parts of the Plans in Appendices 30 and 30A applying to Regions 1 and 3 in the light of the studies carried out by the CCIR;

*resolves*

1. that the future conference, in revising the Region 1 and 3 parts of Appendices 30 and 30A, should:
  - a) maintain each country's assigned BSS capacity in the Plan, as a minimum;
  - b) provide for the needs of new countries;
  - c) protect notified systems which are in conformity with Appendices 30 and 30A;
  - d) take account, as far as possible, of systems which have been communicated to the IFRB under Article 4 of Appendices 30 and 30A;

2. that the future conference shall ensure that the integrity of the Region 2 Plans and their associated provisions is preserved, by providing the same protection to the assignments contained in those Plans as they now receive under the relevant provisions of the Radio Regulations and by not requiring more protection from assignments in the Region 2 Plans than that currently provided under the Radio Regulations;

*instructs the Secretary-General*

to bring this Resolution to the attention of the Administrative Council with a view to the convening of a conference to undertake the review and any necessary revision of the relevant parts of Appendices **30** and **30A** and associated provisions of the Radio Regulations, taking account of the latest CCIR studies.

RESOLUTION No. 525 (WARC-92)

**Introduction of High-Definition Television (HDTV) Systems  
of the Broadcasting-Satellite Service (BSS) in the  
Band 21.4 - 22.0 GHz in Regions 1 and 3**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that this Conference has reallocated the band 21.4 - 22.0 GHz in Regions 1 and 3 to the broadcasting-satellite service to be implemented after 1 April 2007;
- b)* that until 1 April 2007 the existing services operating in the band 21.4 - 22.0 GHz in Regions 1 and 3 in accordance with the Table of Frequency Allocations are therefore entitled to continue operating without harmful interference from other services;
- c)* that it is nevertheless desirable to facilitate the introduction of experimental HDTV systems in this band before 1 April 2007 without affecting the continued operation of existing services;
- d)* that it also may be possible to introduce operational HDTV systems in this band before 1 April 2007 without affecting the continued operation of existing services;
- e)* that after 1 April 2007 the introduction of HDTV systems in this band must be regulated in a flexible and equitable manner until such time as a future competent world administrative radio conference has adopted definitive provisions for this purpose in accordance with Resolution 507 (WARC-79);
- f)* that procedures are required for the three sets of circumstances envisaged in *considerings c), d) and e)* above;

*resolves*

to adopt the interim procedures contained in the annex hereto with effect from 1 April 1992;

*invites all administrations*

to comply with the above procedures;

*instructs the IFRB*

to apply the above procedures.

## ANNEX TO RESOLUTION No. 525 (WARC-92)

### **Interim Procedures for the Introduction of BSS (HDTV) Systems in the Band 21.4 - 22.0 GHz in Regions 1 and 3**

#### **Section I. General Provisions**

1. It shall be understood that prior to 1 April 2007 all existing services in the band 21.4 - 22.0 GHz in Regions 1 and 3 operating in accordance with the Table of Frequency Allocations shall be entitled to continue to operate. After that date they may continue to operate, but they shall neither cause harmful interference to BSS (HDTV) systems nor be entitled to claim protection from such systems. It shall be understood that the introduction of an operational BSS (HDTV) system in the band 21.4 - 22.0 GHz in Regions 1 and 3 should be regulated by an interim procedure in a flexible and equitable manner until the date to be decided by a future competent conference.

**Section II. Interim Procedure Relating to Experimental BSS (HDTV) Systems  
Introduced Before 1 April 2007**

2. For the purpose of introducing experimental BSS (HDTV) systems in the band 21.4 - 22.0 GHz in Regions 1 and 3 before 1 April 2007 under the provisions of Article 34 of the Radio Regulations, the procedures contained in Resolution 33 (WARC-79) shall be applied.

**Section III. Interim Procedure Relating to Operational BSS (HDTV) Systems  
Introduced Before 1 April 2007**

3. For the purpose of introducing operational BSS (HDTV) systems in the band 21.4 - 22.0 GHz in Regions 1 and 3 before 1 April 2007, the procedure contained in Resolution 33 (WARC-79) shall be applied, if the power flux-density at the Earth's surface produced by emissions from a space station, on the territory of any other country, exceeds:

- $-115$  dB(W/m<sup>2</sup>) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane; or
- $-105$  dB(W/m<sup>2</sup>) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane; or
- values to be derived by linear interpolation between these limits for angles of arrival between 5 and 25 degrees above the horizontal plane.

These limits relate to the power flux-density which would be obtained under assumed free-space propagation conditions.

4. If the power flux-density at the Earth's surface produced by emissions from a space station does not exceed these limits, the procedure in Sections B and C of Resolution 33 (WARC-79) only shall be applied.

**Section IV. Interim Procedure Relating to BSS (HDTV) Systems  
Introduced After 1 April 2007**

5. For the purpose of introducing and operating BSS (HDTV) systems in the band 21.4 - 22.0 GHz in Regions 1 and 3 after 1 April 2007, and before a future conference has taken decisions on definitive procedures, the procedure in Sections B and C of Resolution 33 (WARC-79) shall be applied.
6. For the purpose of this Section, BSS (HDTV) systems introduced under provisions of Sections II and III of this Resolution shall be taken into account.
7. Administrations shall, to the maximum extent possible, seek to ensure that operational BSS (HDTV) systems introduced in the band 21.4 - 22.0 GHz in Regions 1 and 3 under Sections III or IV of this Resolution have characteristics which take into account the studies of the CCIR for the preparation of a future competent world administrative radio conference.



RESOLUTION No. 526 (WARC-92)

**Future Adoption of Procedures to Ensure Flexibility in the Use of  
the Frequency Band Allocated to the Broadcasting-Satellite Service (BSS)  
for Wide RF-Band High-Definition Television (HDTV)  
and to the Associated Feeder Links**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that this Conference has added an allocation to the BSS in the bands 21.4 - 22.0 GHz in Regions 1 and 3 and 17.3 - 17.8 GHz in Region 2 for use by wide RF-band HDTV;
- b)* that considerable further technological development of wide RF-band HDTV is expected before it can be introduced for general operational use;
- c)* that this Conference has adopted interim provisions to be applied during the period before 1 April 2007 to regulate the introduction of experimental or operational BSS (HDTV) systems (see Resolution **525 (WARC-92)**);
- d)* that in the longer term regulatory provisions designed to ensure flexible and equitable use of the BSS (HDTV) and associated feeder-link allocations will be necessary to replace these interim provisions;

*resolves to urge all administrations*

to study the development of future regulatory provisions for BSS (HDTV) to ensure flexibility in the use of the bands 21.4 - 22.0 GHz in Regions 1 and 3 and 17.3 - 17.8 GHz in Region 2, having regard to the interests of all countries and the state of technical development of this new service;

RES526-2

*instructs the Secretary-General*

to bring this Resolution to the attention of the Administrative Council with a view to placing an appropriate item on the agenda of a future world administrative radio conference.

## RESOLUTION No. 527 (WARC-92)

**Terrestrial VHF Digital Sound Broadcasting**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that advances in technology have made available digital sound broadcasting systems of high quality;
- b)* that such digital sound broadcasting systems will offer a considerably higher sound quality as well as additional system characteristics which the present FM broadcasting system does not possess;
- c)* that digital sound broadcasting can, in addition to possessing the properties mentioned above, permit greater spectrum efficiency than conventional FM sound broadcasting;
- d)* that digital sound broadcasting systems require less effective radiated power;
- e)* that the bands 87.5 - 108 MHz in Region 1, 88 - 108 MHz in Region 2 and 87 - 108 MHz in Region 3 are generally widely used for high-powered FM sound broadcasting service, except in some countries;
- f)* that several European countries are considering the implementation of digital sound broadcasting on an interim basis in the VHF bands allocated to the broadcasting service, while ensuring the protection of assignments in the relevant broadcasting Plans in force;

## RES527-2

*resolves to invite the CCIR*

in order to harmonize the implementation of terrestrial digital sound broadcasting;

1. to undertake, as a matter of urgency, the relevant technical studies associated with the introduction of terrestrial digital sound broadcasting, focusing primarily on the VHF broadcasting bands;
2. in particular, to consider the system characteristics and propagation phenomena in relation to developing compatibility criteria in the same and adjacent bands, including protection of the safety services;

*invites the BDT*

to include among its priorities the definition of a project relating to the study by the CCIR of exceptional severe propagation phenomena in the regions of concern to developing countries;

*instructs the Secretary-General*

to bring this Resolution to the attention of the Administrative Council with a view to placing on the agenda of a competent administrative radio conference the subject of terrestrial VHF digital sound broadcasting for Region 1 countries and interested countries in Region 3;

*invites administrations*

to contribute actively to the relevant CCIR studies.

RESOLUTION No. 528 (WARC-92)

**Introduction of the Broadcasting-Satellite Service (Sound)  
Systems and Complementary Terrestrial Broadcasting in the Bands  
Allocated to these Services Within the Range 1 - 3 GHz**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that this Conference has made frequency allocations to the broadcasting-satellite service (sound) and complementary terrestrial broadcasting;
- b)* that it is necessary to ensure that the introduction of the broadcasting-satellite service (sound) and complementary terrestrial broadcasting proceeds in a flexible and equitable manner;
- c)* that efficient use of the spectrum will be enhanced by a worldwide allocation;
- d)* that a worldwide allocation may cause difficulties to some countries in relation to their existing services;
- e)* that future planning may limit the effect on other services;

*resolves*

1. that a competent conference should be convened, preferably not later than 1998, for the planning of the broadcasting-satellite service (sound) in the bands allocated to this service in the range 1 - 3 GHz; and the development of procedures for the coordinated use of complementary terrestrial broadcasting;
2. that this Conference should review criteria for sharing with other services;

3. that in the interim period, broadcasting-satellite systems may only be introduced within the upper 25 MHz of the appropriate band in accordance with Resolution 33 (WARC-79). The complementary terrestrial service may be introduced during this interim period subject to coordination with administrations whose services may be affected;

4. that the calculation methods and the interference criteria to be employed in evaluating the interference should be based upon relevant CCIR Recommendations agreed by the administrations concerned as a result of Resolution 703 (Rev.WARC-92) or otherwise;

*invites the CCIR*

to conduct the necessary studies prior to the Conference;

*instructs the Secretary-General*

to bring this Resolution to the attention of the Administrative Council to consider including in the agenda of an administrative radio conference to be held preferably not later than the year 1998 the matters addressed above.

RESOLUTION No. 703 (Rev.WARC-92)

**Calculation Methods and Interference Criteria  
Recommended by the CCIR for Sharing Frequency Bands  
Between Space Radiocommunication and Terrestrial  
Radiocommunication Services or Between  
Space Radiocommunication Services**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that, in frequency bands shared with equal rights by space radiocommunication and terrestrial radiocommunication services, it is necessary to impose certain technical limitations and coordination procedures on each of the sharing services for the purpose of limiting mutual interference;
- b)* that, in frequency bands shared by space stations located on geostationary satellites, it is necessary to impose coordination procedures for the purpose of limiting mutual interference;
- c)* that the calculation methods and interference criteria relating to coordination procedures referred to in paragraphs *a)* and *b)* above are based upon CCIR Recommendations;
- d)* that, in recognition of the successful sharing of the frequency bands by space radiocommunication and terrestrial radiocommunication services, and the continuing improvements in space technology and that of the Earth segment, each CCIR Plenary Assembly subsequent to the Xth Plenary Assembly (Geneva, 1963) has improved upon some of the technical criteria recommended by the preceding Plenary Assembly;

e) that CCIR Plenary Assemblies are held more frequently and with greater regularity than administrative radio conferences which are competent to modify the Radio Regulations making substantial use of CCIR Recommendations;

f) that the CCIR has adopted a procedure for approving Recommendations between Plenary Assemblies;

g) that the International Telecommunication Convention recognizes the right of Members of the Union to make special agreements on telecommunication matters; however, such agreements shall not be in conflict with the terms of the Convention or of the Regulations annexed thereto as far as harmful interference to the radio services of other countries is concerned;

*is of the opinion*

a) that future decisions of the CCIR are likely to make further changes in the recommended calculation methods and interference criteria;

b) that administrations should receive advance information of the drafts of the relevant CCIR Recommendations;

c) that the administrations should whenever possible apply the current CCIR Recommendations on sharing criteria when planning systems for use in frequency bands shared with equal rights between space radiocommunication and terrestrial radiocommunication services, or between space radiocommunication services;



*invites Administrations*

to submit contributions to the CCIR Study Groups, providing information on practical results and experience of sharing between terrestrial and space radiocommunication services or between space services, which help to bring about significant improvements in coordination procedures, calculation methods and harmful interference thresholds, and thereby to optimize the available orbit/spectrum resources;

*resolves*

1. that the Director of the CCIR, in consultation with Study Group Chairmen, shall prepare a list identifying the relevant parts of new or revised Recommendations approved by the CCIR affecting the calculation methods and the interference criteria and also those specific sections of the Radio Regulations to which they are applicable, relating to sharing between space radiocommunication and terrestrial radiocommunication services, or between space radiocommunication services. The Director of the CCIR shall forward this list to the IFRB within thirty days following the approval of these Recommendations;
2. that the IFRB shall forward this list and the appropriate texts to all administrations within thirty days, asking them to indicate within four months those CCIR Recommendations or specific technical criteria defined in the Recommendations referred to in paragraph 1 above to which they agree for use in the application of the pertinent provisions of the Radio Regulations;
3. that, should an administration, in its reply to the consultation conducted by the IFRB under paragraph 2 above, indicate that certain CCIR Recommendations or technical criteria defined in those Recommendations are unacceptable, the relevant calculation methods and the interference criteria defined in the Radio Regulations shall continue to apply with respect to cases involving that administration;

4. that the IFRB shall publish, for the information of all administrations, a list based on the replies to the enquiry, of the CCIR Recommendations or of the relevant calculation methods and the interference criteria defined in those Recommendations, indicating the administrations to which each of those Recommendations or relevant technical criteria are acceptable or are not and the administrations which did not reply;
5. that the administrations which do not reply within four months to the consultation conducted by the IFRB under paragraph 2 above should, however, inform the IFRB of their decision on the application of these Recommendations under the relevant provisions of the Radio Regulations at a later stage;
6. that the IFRB shall take into account:
  - a) the applicability of the CCIR calculation methods and interference criteria when making technical examinations with respect to cases involving only administrations to which such methods and criteria are acceptable;
  - b) the applicability of the calculation methods and interference criteria defined in the Radio Regulations in accordance with the list referred to in paragraph 4 above, when making technical examinations with respect to cases involving the administrations which did not accept or did not reply to the consultation conducted by the IFRB under paragraph 2 above.

## RESOLUTION No. 710 (WARC-92)

**Primary Service Requirements for the Meteorological-Satellite and Earth Exploration-Satellite Services in the Band 401 - 403 MHz**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a) that many administrations use frequencies in the bands 401 - 402 MHz and 402 - 403 MHz for reporting to satellites from airborne, land-based and maritime data collection platforms;
- b) that the CCIR has conducted studies of the characteristics, requirements and sharing criteria necessary for compatibility with the services sharing the bands with these systems, the results of which are reported in CCIR Report 541 and Recommendation 514;
- c) that the meteorological-satellite and earth exploration-satellite services in the bands 401 - 402 MHz and 402 - 403 MHz are secondary to other services in these bands and that, in order for continuous reliable observations to be made, it is essential that transmission of the data be achieved without harmful interference,

*resolves*

that the next competent world administrative radio conference should examine the allocation to the meteorological-satellite and earth exploration-satellite services in the bands 401 - 402 MHz and 402 - 403 MHz with the intent of raising the allocation status to primary,

RES710-2

*invites the Administrative Council*

to take the necessary action to place this matter on the agenda of the next competent world administrative radio conference.

## RESOLUTION No. 711 (WARC-92)

**Possible Relocation of Frequency Assignments to Certain Space Missions from the 2 GHz Band to Bands above 20 GHz**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* the changes in the allocations to space services made by this Conference in the bands 2 025 - 2 110 MHz and 2 200 - 2 290 MHz;
- b)* the possibility of technical improvements in the space services concerned which might lead to more efficient usage of the spectrum;
- c)* the possibility that frequency assignments to some space missions could be relocated in bands above 20 GHz;

*resolves*

1. that it is desirable to review the present and planned use of the frequency bands 2 025 - 2 110 MHz and 2 200 - 2 290 MHz, with the intent, when practicable, of assigning frequencies to some space missions in bands above 20 GHz and possibly reducing the allocations to the space services in the 2 GHz band;
2. that the next competent world administrative radio conference should consider this matter, taking account of the results of the relevant CCIR studies, which may make it possible to revise the Radio Regulations, so that no frequency assignments would be permitted in the bands around 2 GHz after a date in the near future to be determined by that conference for those space missions whose frequency assignments might be accommodated in the bands above 20 GHz, and so that, if appropriate, the spectrum needs of the mobile and space services might be equitably accommodated in the 2 GHz band;

*invites the CCIR*

1. to carry out the review mentioned in *resolves* 1 above;
2. to conduct the necessary studies on the evolution of the space research, space operations, Earth exploration-satellite and mobile services in the bands available to each service around 2 GHz and on the compatibility between these services in the 2 GHz band;
3. to report to the next competent conference the spectrum requirement of each service in the bands mentioned in *invites the CCIR* 2 and, where necessary, indicate the criteria for sharing between these services;

*urges administrations*

to participate actively in these studies;

*instructs the Secretary-General*

to bring this Resolution to the attention of the next Administrative Council with a view to including this subject in the agenda of the next competent conference.

## RESOLUTION No. 712 (WARC-92)

**Consideration by a Future Competent World Administrative  
Radio Conference of Issues Dealing with Allocations to Space Services  
Which Were not Placed on the Agenda of WARC-92**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that the agenda of this Conference called for the development of new Recommendations and Resolutions relating to allocations to space services which were not placed on this agenda;
- b)* that the allocation to the Earth exploration-satellite service at 8.025 - 8.4 GHz is complex and not uniform worldwide;
- c)* that Resolution **112 (WARC-92)** relating to the allocation to the fixed-satellite service in the band 13.75 - 14 GHz is liable to raise problems of compatibility with the space research and the Earth exploration-satellite services, particularly radio altimeters;
- d)* that the Earth exploration-satellite service has a secondary status in Regions 1 and 3 in the band 18.6 - 18.8 GHz, that this band is vital for sensing ecologically important data, and that it is being implemented on an increasing number of Earth-exploration satellites;
- e)* that the current allocation to the inter-satellite service at 23 GHz is insufficient to ensure full inter-operability between data-relay satellite systems;

f) that future active Earth sensing requirements for monitoring environmental data in the 35 GHz range have been identified;

g) that the CCIR has agreed to certain important technical parameters required for coordination of the space science services under Appendix 28;

*resolves*

that the next competent world administrative radio conference should consider the following matters:

- use of existing allocations in the 8 - 20 GHz range to the Earth-exploration satellite and space research services, with a view to establishing common worldwide primary allocations to these services in appropriate bands;
- additional inter-satellite service requirements for up to 50 MHz of spectrum near 23 GHz;
- provision of up to 1 GHz of frequency spectrum around 35 GHz for use by space-based active Earth sensors;
- inclusion of CCIR-approved technical coordination parameters in Appendix 28 of the Radio Regulations;

*invites the CCIR*

to carry out the necessary studies with a view to presenting, at the appropriate time, the technical information likely to be required as a basis for the work of the Conference;

*instructs the Secretary-General*

to bring this Resolution to the attention of the Administrative Council at its next session with a view to including these matters in the agenda of the next competent conference.



### Note by the Secretary-General

The Recommendations are arranged in order and numbered along the lines of the grouping and numbering system below. As some Recommendations in one group have a direct relationship to other groups, this has been reflected, as far as possible, to facilitate consultation\*.

	Numbers
RECOMMENDATIONS OF GENERAL APPLICATION.....	1-99
– Principles, general procedures and cooperation .....	1-20
– Specific procedures .....	30-39
– Technical matters .....	60-69
<i>See also:</i>	
Nos. 8, 31	
No. 100	
No. 319	
No. 505	
Nos. 603, 605, 621	
No. 711	
– Equipment/Terminology .....	70-79
<i>See also:</i>	
Nos. 67, 69	
FIXED SERVICE/FIXED-SATELLITE SERVICE .....	100-199
<i>See also:</i>	
No. 12	
Nos. 706, 715	
MOBILE SERVICE/MOBILE-SATELLITE SERVICE .....	200-299
<i>See also:</i>	
No. 12	
Nos. 706, 715	
MARITIME MOBILE SERVICE/MARITIME MOBILE-SATELLITE SERVICE .....	300-399
<i>See also:</i>	
Nos. 7, 9, 14	
No. 604	
AERONAUTICAL MOBILE SERVICE/AERONAUTICAL MOBILE-SATELLITE SERVICE .....	400-499
<i>See also:</i>	
Nos. 7, 9	
No. 604	
Nos. 709, 714	
BROADCASTING SERVICE/BROADCASTING-SATELLITE SERVICE .....	500-599
<i>See also:</i>	
Nos. 9, 12	
Nos. 704, 705, 712, 714, 715	
OTHER SERVICES .....	600-699
<i>See also:</i>	
No. 12	
Nos. 701, 704, 707, 710	

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\* In this respect, see also the Analytical Index.

RELATING TO MORE THAN ONE SERVICE..... 700-799

*See also:* Nos. 12, 61, 65

RECOMMENDATIONS ABROGATED SINCE WARC-79:

*By WARC Mob-83:* Nos. 200, 202, 309

*By WARC HFBC-87:* Nos. 500, 501

*By WARC Mob-87:* Nos. 201, 203, 204, 300, 301, 307, 308, 311, 313, 314,  
315, 400, 404, 600, 703, 713

*By WARC-92:* Nos. 3, 12, 67, 70, 101, 102, 104, 205, 408, 504, 511, 602,  
708, 716

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## RECOMMENDATION No. 66 (Rev.WARC-92)

**Studies of the Maximum Permitted Levels of Spurious Emissions**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that Appendix 8 to the Radio Regulations specifies the maximum permitted levels of spurious emissions, in terms of the mean power level of any spurious component supplied by a transmitter to the antenna transmission line, for the frequency bands below 17.7 GHz;
- b)* that the principal objective of Appendix 8 is to specify the maximum permitted levels of spurious emissions that, while being achievable, provide protection against harmful interference;
- c)* that excessive levels of spurious emissions may give rise to harmful interference;
- d)* that while Appendix 8 applies only to the mean power of the transmitter and the spurious emissions, there are a variety of emissions where the interpretation of the term “mean power” and its consequential measurement are difficult;
- e)* that whilst the CCIR is studying this problem, it has not yet furnished adequate Recommendations pertaining to Appendix 8 for frequency bands above 960 MHz;
- f)* that spurious emissions from transmitters operating in space stations may cause harmful interference, particularly in regard to intermodulation components from wide-band amplifiers which cannot be adjusted after launch;

- g) that spurious emissions may cause harmful interference to passive services, including the radio astronomy service in bands above 17.7 GHz;
- h) that spurious emissions from earth stations also require particular study;
- i) that no information is available from the CCIR regarding spurious emissions from stations employing digital modulation techniques;
- j) that transmitters operating in space stations are increasingly employing spread-spectrum and other wideband digital modulation techniques that can produce out-of-band and spurious emissions at frequencies far removed from the carrier frequency;

*recommends that the CCIR*

1. study as a matter of urgency the question of spurious emissions resulting from space services transmissions, and, on the basis of those studies, develop Recommendations for maximum permitted levels of spurious emissions in terms of mean power of spurious components supplied by the transmitter to the antenna transmission line;
2. continue the study of spurious emission levels in all frequency bands, emphasizing the study of those frequency bands, services and modulation techniques not presently covered by Appendix 8;
3. establish appropriate measurement techniques for spurious emissions, including the determination of reference levels for wideband transmissions as well as the applicability of reference measurement bandwidths;
4. study the categorizing of emissions and spurious emissions in terms of "mean power" and develop appropriate Recommendations to facilitate the interpretation and measurement of "mean power" as it applies to the various classes of emissions;

5. submit a report to the next competent conference on the results of its studies with a view to reviewing and including spurious and out-of-band emission limits in Appendix 8 of the Radio Regulations, principally for the protection of the radio astronomy and other passive services.

RECOMMENDATION No. 519 (WARC-92)

**Introduction of Single-Sideband (SSB) Emissions and  
Possible Advancement of the Date for Cessation of the Use  
of Double-Sideband (DSB) Emissions in the HF Bands  
Allocated to the Broadcasting Service**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that WARC HFBC-87 in Resolution **517** called for the introduction of SSB transmissions in the HF bands allocated exclusively to the broadcasting service with the characteristics specified in Appendix **45** to the Radio Regulations;
- b)* that the use of SSB instead of DSB modulation techniques would lead to improved spectrum utilization;
- c)* that, in accordance with Recommendation **515 (HFBC-87)**, new HF broadcasting transmitters installed after 31 December 1990 should as far as possible be capable of operating either in both SSB and DSB, or in the SSB mode alone;
- d)* that the new extension bands allocated by WARC-92 for HF broadcasting are reserved only for SSB emissions;
- e)* that Resolution **517 (HFBC-87)** specifies the date of 31 December 2015 for the cessation of DSB emissions;

f) that the final date for the cessation of DSB emissions shall be periodically reviewed by competent future world administrative radio conferences in the light of the latest available complete statistics on the worldwide distribution of SSB transmitters and synchronous demodulator receivers, as stipulated in Resolution **517 (HFBC-87)**;

*recommends*

that the next competent world administrative radio conference should consider the possibility of advancing the date given in *considering e)* for the cessation of DSB emissions;

*invites the Administrative Council*

to place this Recommendation on the agenda of the next competent world administrative radio conference.

RECOMMENDATION No. 520 (WARC-92)

**Elimination of HF Broadcasting on Frequencies Outside the  
HF Bands Allocated to the Broadcasting Service**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that there is an increasing number of HF broadcasting stations operating on frequencies outside the bands allocated to the broadcasting service;
- b)* that the common use of the HF bands by the broadcasting and other services, without the relevant allocations or detailed regulations, results in inefficient use of the frequency spectrum;
- c)* that such use has led to harmful interference;
- d)* that this Conference has allocated additional spectrum to the broadcasting service in the HF bands;

*recommends*

that administrations shall take practicable steps to eliminate HF broadcasting outside the HF bands allocated to the broadcasting service.



## RECOMMENDATION No. 621 (WARC-92)

**Implementation of Wind Profiler Radars at Frequencies  
near 50 MHz, 400 MHz and 1 000 MHz**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*having noted*

a request to the ITU from the Secretary-General of the World Meteorological Organization (WMO), in May 1989, for advice and assistance in the identification of appropriate frequencies near 50 MHz, 400 MHz and 1 000 MHz in order to accommodate allocations and assignments for wind profiler radars;

*considering*

- a)* that wind profiler radars are important meteorological systems used to measure wind direction and speed as a function of altitude;
- b)* that in order to conduct such measurements up to a height of 30 kilometres it is necessary to allocate frequency bands for these radars in the general vicinity of 50 MHz (3 to 30 km), 400 MHz (500 m to about 10 km) and 1 000 MHz (100 m to 3 km), respectively;
- c)* that many administrations plan to deploy wind profiler radars in operational networks in order to improve meteorological predictions, support studies of the climate and enhance the safety of navigation;
- d)* that it is highly desirable to use wind profiler radars in frequency bands which have been generally agreed, preferably on a worldwide basis;

e) that the CCIR is studying various proposals for these wind profiler radars at frequencies around 50 MHz, 400 MHz and 1 000 MHz and that frequencies in the 400 MHz region may be preferred for measurements of winds at altitudes that are of the greatest general interest;

f) that it is essential in the interest of safety to protect the COSPAS-SARSAT system and other safety services from harmful interference which may be caused by wind profiler radars;

g) that studies have already shown that wind profiler radars operating in the vicinity of 400 MHz must be sufficiently separated in frequency from the COSPAS-SARSAT system centred on 406.025 MHz;

h) that in the interest of efficient spectrum utilization it is necessary to include technical characteristics and sharing criteria in future studies;

*invites the CCIR*

to continue as a matter of urgency its studies of the characteristics and requirements of wind profiler radars, to make Recommendations as to the technically suitable frequency bands, associated standards and frequency sharing criteria necessary for compatibility with the services that may be affected, and to submit a report to the Conference referred to in *invites the Administrative Council*;

*recommends*

1. that administrations authorizing experiments with or the operational use of such radars should take all necessary actions to ensure protection from harmful interference to the COSPAS-SARSAT system, particularly by avoiding assignments in the band 402 - 406 MHz, and to other services;

2. that administrations and international organizations concerned with wind profiler radars, particularly the International Civil Aviation Organization (ICAO), the International Maritime Organization (IMO), the World Meteorological Organization (WMO) and COSPAS-SARSAT, should contribute to the CCIR studies;

*invites the Administrative Council*

to consider including on the agenda of the next competent WARC the question of appropriate frequency allocations for the operational use of wind profiler radars;

*instructs the Secretary-General*

to bring this Recommendation to the attention of the ICAO, IMO and WMO.

RECOMMENDATION No. 717 (WARC-92)

**Sharing Criteria in Frequency Bands  
Shared by the Mobile-Satellite Service and the Fixed,  
Mobile and Other Radio Services**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that this Conference has made frequency allocations for the mobile-satellite service shared with other radio services;
- b)* that provisional sharing criteria have been adopted in the bands allocated by this Conference to the mobile-satellite service;
- c)* that both geostationary and non-geostationary satellites may be operated in the mobile-satellite service;

*recommends that the CCIR*

- 1. study, as a matter of urgency, the appropriate criteria for sharing between the mobile-satellite service and other services in the same frequency bands, including power limits and power flux-density limits as indicated in Articles 27 and 28 of the Radio Regulations, while placing minimum restrictions on the services operating in these bands;
- 2. issue, as a matter of urgency, Recommendations on the subject;

*recommends that administrations*

send, as a matter of urgency, their contributions relating to these studies to the CCIR.

RECOMMENDATION No. 718 (WARC-92)

**Alignment of Allocations in the 7 MHz Band Allocated  
to the Amateur Service**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a)* that it is desirable to have exclusive worldwide allocations to the amateur and broadcasting services in the bands around 7 MHz;
- b)* that the sharing of frequency bands by these services is undesirable and should therefore be avoided;
- c)* that a number of administrations have made proposals to this Conference for the alignment of the allocations to the amateur service around 7 MHz;
- d)* that this Conference was able to give only limited consideration to these proposals;

*recommends*

that a future competent world administrative radio conference should consider the possibility of aligning the allocations to the amateur service around 7 MHz, with due regard to the requirements of other services;

*invites the Administrative Council*

to place this Recommendation on the agenda of the next competent world administrative radio conference.

## RECOMMENDATION No. 719 (WARC-92)

**Multiservice Satellite Networks Using  
the Geostationary-Satellite Orbit**

The World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992),

*considering*

- a) that the Conference has allocated, on a primary basis, the bands 19.7 - 20.2 GHz and 29.5 - 30 GHz in Region 2, and 20.1 - 20.2 GHz and 29.9 - 30 GHz in Regions 1 and 3 to the mobile-satellite service;
- b) that these bands are also allocated to the fixed-satellite service;
- c) that some administrations have expressed interest in developing multiservice satellite networks in these bands;
- d) that Recommendation **715 (Orb-88)** calls for simplification of the process for bringing into use satellite networks with different classes of user terminals;
- e) that the Voluntary Group of Experts (VGE), among other means of simplifying the Radio Regulations, is studying service definitions accommodating a range of services;

*recognizing*

that the introduction of multiservice satellite networks using, *inter alia*, mobile earth stations, may have an impact on networks operating in the fixed-satellite service;

*recommends*

that, as a matter of urgency, studies should be carried out on the technical characteristics, including pointing techniques of multiservice satellite networks using the geostationary-satellite networks encompassing mobile-

satellite and fixed-satellite applications, and the sharing criteria necessary for compatibility with the fixed-satellite service in the frequency bands referred to above;

*invites the CCIR*

to carry out these studies;

*recommends administrations*

to participate actively in these studies;

*recommends further*

a) that a future competent world administrative radio conference review the allocations of these bands, taking into account the results of the CCIR studies and the work of the VGE;

b) that a future competent world administrative radio conference consider the requirement for a single service definition encompassing mobile-satellite service and fixed-satellite service applications, and the possible need for additional frequency spectrum to accommodate the growth of these services;

*invites the Administrative Council*

to place this matter on the agenda of the next competent world administrative radio conference.