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Volume III

INTERIM REPORT
of the
INTERNATIONAL ADMINISTRATIVE AERONAUTICAL
RADIO CONFERENCE
(First Session)
GENEVA, 1948
on the
ESTABLISHMENT OF THE PLAN FOR THE ALLOTMENT OF FREQUENCIES
for the
AERONAUTICAL MOBILE R SERVICE



R E S O L U T I O N

Concerning the temporary Suspension of the Work of the Conference with regard to the Establishment of a Plan for the Allotment of Frequencies for the Aeronautical Mobile R Service.

The International Administrative Aeronautical Radio Conference, Geneva, 1948,

CONSIDERING

1. that the final frequency allotment plan for the aeronautical mobile R service should satisfy, as fully as possible, the needs of all categories of this service;
 2. that there exists unanimous agreement among the delegations present at the Conference that the requirements of Major World Air Routes * and those of Regional and Domestic Air Routes should be examined and should be satisfied in the same degree;
 3. that, according to the studies of the Conference and the information available to it, the spectrum space allocated to the aeronautical Mobile R service is inadequate to satisfy fully all the requirements of this service without further study;
 4. that it has been possible to study in detail the requirements of the Major World Air Routes and to satisfy their minimum requirements to a large extent in the draft plan produced, while the attempt to satisfy the stated requirements of the Regional and Domestic Air Routes with the remaining frequencies and with the repetition of the former frequencies did not give satisfactory results;
 5. that certain essential information in regard to Regional and Domestic Air Route requirements, especially that relating to the possibility to coordinate the use of frequencies in adjacent countries or regions, not being available to the Conference, the necessity of having such information did not become fully apparent until the Conference had proceeded to the stage where frequencies were being allotted to Major World Air Routes, to Regional and Domestic Air Routes. It cannot therefore, at the present time, determine the needs of the Regional and Domestic Air Routes with the same accuracy as those of the Major World Air Routes;
- * Major World Air Route is considered to be a long distance route, made up of one or more segments, essentially international in character, extending through more than one country and requiring long distance communication facilities.

Major World Air Route Area is an area embracing a certain number of Major World Air Routes which generally follow the same traffic pattern and so related geographically that the same frequency families may logically be applied.

6. that, without this essential information, the requirements of the Regional and Domestic Air Routes cannot be correctly evaluated in relation to those of the Major World Air Routes;
7. that the essential information referred to in paragraph (5) cannot be obtained until Administrations have coordinated their frequency requirements within each region, taking into consideration not only the present use of MF, HF in the shared bands, and VHF, but also the possibility of their future use;
8. that, in view of the above paragraph, the Conference cannot at present, particularly with respect to the lower frequency orders, draw up a final plan acceptable to all Member States of the Union, which would satisfy, to an equitable degree, the requirements of all kinds of air service operations; and
9. that this Conference, convened in accordance with the Resolution adopted by the International Administrative Radio Conference, 1947, "Relating to the Preparation of the new International Frequency List", is the only body authorized to prepare a frequency allotment plan in the aeronautical exclusive bands between 2850 and 18030 kc/s.

DECIDES :

10.
 - a) to take no final decision at present with regard to all documents of the Conference relating to the establishment of a plan for the allotment of frequencies in the bands allocated to the aeronautical mobile R service;
 - b) to suspend its work temporarily as of 25 September 1948;
 - c) to meet again in Geneva on 31st July 1949;
 - d) to establish, during its Second Session, a final frequency allotment plan in the bands allocated to the aeronautical mobile R service;
11.
 - a) to forward to Administrations, as a guide, the documents listed in paragraph (12), which set forth the provisional results of the First Session of the Conference;
 - b) to forward the same documents to the I.C.A.O. for its information so that this organization may be able to take any appropriate steps relative thereto and in particular those which are referred to in paragraph (15); and further,

INVITES the Administrations :

12.
 - a) to regard documents Nos. 199 (revised), 206 (revised), 239, 241, 242 (revised), 249, 250, 265, 266, 284 (revised with revised map) as those containing the draft plan based on the principles stated in them. It is to be noted that this draft plan is not binding upon any Administration and that the Conference has provisionally adopted these documents only in order to submit them for examination by the Administrations as they contain the results achieved by the First Session;

- b) to regard documents Nos. 2, 18, 21 (Annex only), 28, 30, 33 and 248 as those containing other principles and other methods which might provide other solutions to the problem but which were not applied in practice as they were not adopted by the First Session of the Conference;
 - c) to regard documents Nos. 1 (accompanied by addendum), 4 (Statement of the French Delegation), 34, 65, 67, 71 (accompanied by Annex 4 of 198), 72, 110, 142, 145, 154, 169, 192, 211, 216, 218, 219 (revised), 226, 240, 243, 258, 259, 273 (corrigendum to paragraph 5 only), 274, 275, 276, 277, 286, 315 (paragraphs 4.1 through 4.4), together with the minutes of all Plenary Sessions subsequent to the Tenth Session, as a general documentation of the ideas which have been or could be taken into consideration in determining the principles and methods for the establishment of a plan;
- 13.
- a) to consider the results of the First Session of the Conference;
 - b) to study the documents listed in paragraph (12) and to deduce from them the fundamental principles, methods of work and numerical standards which could be taken into consideration by the Second Session of the Conference;
 - c) to coordinate, as far as possible, taking into account the various opinions expressed during the First Session of the Conference, the results of their studies with those of other Administrations interested in the same questions on a worldwide, regional or domestic basis, either at conferences held under the aegis of the I.T.U. or I.C.A.O., or at other conferences, or, if necessary, by concluding provisional agreements;
 - d) to take any necessary measures themselves in regard to conferences or other meetings which it might be desirable to convene during the suspension of the work of the Conference. The Conference, in fact, considers that it is unable to pre-determine the possibilities in the matter;
14. to recommend that regional conferences, which may be held in conformity with paragraph 13 (c) and (d), undertake studies with the object of ascertaining and coordinating frequency requirements of regional and domestic services of each of the countries of the region. These conferences shall, for this purpose, limit their activity to the frequency bands adapted to the distances corresponding to these types of services. Moreover, these conferences shall take into account the necessity of fully using the possibilities of the radio spectrum, in particular as provided by in paragraph 373 of the Radio Regulations, 1947;
- INVITES the International Civil Aviation Organization :
- 15.
- a) to study the part of the draft plan which concerns the international routes of its Member States, taking into account all documents listed in paragraph (12);

- b) to try, taking into account the fact that the Regional and Domestic Air Route requirements are heavy, to reduce the requirements of the Major World Air Routes to a minimum by applying the most suitable coordination methods;
- c) to establish, taking into account the above, a draft frequency allotment plan for the international services of its Member States; and,

REQUESTS :

16. that Administrations send to the Secretary General of the Union for the purposes of the work of the Second Session of the Conference :
 - the minimum requirements for frequencies in the bands allocated to the aeronautical mobile R service, reviewed in the light of the difficult situation resulting from the work of the First Session of the Conference, and coordinated wherever useful with those of other Administrations concerned, either at regional conferences or in any other way;
 - all suggested amendments which they deem advisable to incorporate in the draft plan referred to in paragraph (12) (a), or all proposals relating to the principles and methods which would make possible the establishment of a final allotment plan for frequencies in the bands allocated to the aeronautical mobile R service;
 - information requested in the Annex to this Resolution which the Conference considers indispensable in order to deal with Major World Air Routes, Regional and Domestic Air Route requirements on an equal footing;
17. that regional conferences referred to in paragraph (14) send to the Secretary General of the Union the results of their studies and all useful suggestions relative to the amendments which could be incorporated in the draft plan referred to in paragraph (12) (a) or relative to the principles or methods which may be used for the establishment of a new coordinated plan for the allotment of frequencies in the bands allocated to the aeronautical mobile R service;
18. that the I.C.A.O. send to the Secretary General of the Union the results of the work envisaged in paragraph (15); and,
19. that the Administrations, regional conferences, and the I.C.A.O. send to the Secretary General of the Union, at the latest by 30th June 1949, the material referred to in paragraphs (16), (17) and (18).

A N N E X

Information required from Administrations for the Purposes of the Work of the Second Session of the Conference (see paragraphs 16 and 19 of the Resolution)

Certain statistics and information will be required for the purposes of the work of the Second Session of the Conference. Administrations are requested to send this information to the Secretary General of the Union at the latest by 30th June 1949. The information should be submitted on Forms Aer. No. 1, a sample of which is attached, and in conformity with the accompanying instruction sheet.

The information requested is as follows :

1. Air Service Statistics

(It is important to note that any air service which is served solely by M.F. and/or V.H.F. communications should not be included).

- a) Amendments * to Tables I and II of Aer-Document No 71. These should include services in operation on 3rd June 1949 and known major service increases which will be in operation by 3rd September 1949.
- b) The percentage of domestic ** flight mileage which is accommodated on international frequencies (either regional or MWARA).
- c) The domestic air route pattern plan, indicating air routes, terminals and frequency of operations and published time-tables, or coordinated time-tables, if these contain the foregoing information.

2. Aeronautical Station Statistics (Regional and Domestic only)

(It is important to note that this information is required only in respect of air service operations conducted in the H.F. aeronautical mobile R service bands, and should exclude approach and aerodrome control requirements, which are already provided for in the tentative allotment plan).

- a) The station name, location of transmitter, service range and nature of service of each frequency, showing for each frequency the average number of contacts per hour during peak periods, the average duration of such contacts and the class of emission and method of operation (i.e. A3, A1 simplex, A1 adjacent channel simplex *** or any other system).

* The information should be submitted in the form used in Aer.Doc. No 71, which is included in this volume.

** The term "domestic" refers to flights conducted entirely within the territorial limits of the state concerned.

*** Adjacent channel simplex is taken to mean a system in which the ground to air frequency is slightly different from the air to ground frequency, the separation in no case exceeding 5 kc/s.

- b) The power delivered to the antenna for frequencies used :
 - exclusively for present domestic operations;
 - for present regional operations (including regional frequencies serving also the domestic service);
- c) The order of each frequency required ****, indicating whether that frequency is needed :
 - for continuous service,
 - for day service only,
 - for night service only;
- d) Information on ground to air meteorological broadcast frequencies.
This should indicate if the frequency is used in a network and, if so, a copy of the copy of the network pattern should be furnished;
- e) Any additional information considered relevant.

**** The megacycle order should be specified to the first place of decimals,
(Reference should be made to the orders of frequency of the bands allocated
to the aeronautical mobile R service (Radio Regulations, 1947)).

Forms Aer.1 are being sent to administrations under separate cover. The General Secretariat of the ITU, at Geneva, will, on request, send any further copies that may be needed.

INTERNATIONAL ADMINISTRATIVE
AERONAUTICAL RADIO CONFERENCE

GENEVA, 1948

Instructions for filling out Form Aer. 1

I. General instructions

In order to avoid mistakes, it is essential that the information requested be written in block capitals or preferably typed.

The headings of Form Aer. 1 must be filled in by each Administration :

- (1) Name of country;
 - (2) Indication of the page number of the form (numerator)
 - (3) Indication of the total number of pages (denominator)
- For example: Page No. $\frac{2}{6}$
(2) (3)

II. Instructions concerning the information which should appear in each column :

Column	Particulars to be given
1 a	This column will be filled in by the Second Session of the Conference; Administrations are asked to leave it blank.
1 b	<p>Numerical classification in ascending order from 1 to (n) of the various frequencies desired by Administrations for their domestic services (including the regional frequencies which may also be used for domestic services, and including approach and aerodrome control frequencies).</p> <p>A classifying number must be given to each frequency, and when the same frequency is requested for several stations <u>its number</u> shall be repeated as many times as there are stations involved, but followed by a different supplementary (capital) letter.</p> <p>Example :</p> <p>4 A - (denoting the 1st station utilising frequency No. 4) 4 B - { do the 2nd do do No. 4) 4 C - { do the 3rd do do No. 4) 4 D - { do the 4th do do No. 4)</p> <p><u>Order of frequencies desired.</u></p> <p>Indication of the megacycle order of each desired frequency correct to the first decimal place (example : 3.6 Mc/s).</p>

This indication should relate to the megacycle order of the frequencies in the R bands allocated to the Aeronautical Mobile Service (Atlantic City, 1947) and not to that of the frequencies at present in use.

This indication is to be employed:

- 2 a - When the frequency is to be used throughout the 24 hours;
- 2 b - When the frequency is to be used during the day only;
- 2 c - When the frequency is to be used during the night only.

Power in the antenna. (Mean carrier power).

Indication, in kW., of the input power to the antenna:

- 3 a - If the frequency is to be used for domestic service only;
- 3 b - If the frequency is to be used in regional service or in both domestic and regional services.

Station.

- 4 a Name(s) of the airport served by the station which will use the desired frequency.

If the frequency is also to be used by stations in neighbouring countries, this will be recorded in column 9 (if it is known to the administration concerned). Example: Frequency No. (as in column 1b) also used by station at (place and country).

- 4 b Approximate indication in degrees and minutes (Greenwich meridian)
- and of latitude and longitude of the transmitter except for radio-
- 4 c navigation stations whose position will be indicated, if possible, in degrees, minutes and seconds.

Service Range.

- 5. Indication of the service range in kilometers for each station.

Nature of Service.

- 6. To be shown clearly; for example:
 - area control,
 - regional control,
 - meteorological broadcasts, etc.

Class of emission and method of transmission.

7. To be clearly indicated. If any abbreviations are used, their explanation must be given in an annex attached to the set of Forms Aer. 1.

Examples :

A3

A1 Simplex

A1 Adjacent channel Simplex, etc.

N.B.

By the A1 Adjacent Simplex system is taken to mean a system in which the ground to air frequency is slightly different from the air to ground frequency. The separation in no case exceeding 5 kc/s.

Communications.

- 8 a Particulars of the average number of communications handled in one hour during peak periods, i.e., air-ground or ground-air. Particulars should be furnished for the peak period without regard to whether such period occurs during VFR or IFR flight conditions.
- 8 b The figure (in seconds) of the average duration of the communications conducted under the conditions of the period referred to in column 8 a.

Observations.

9. Any additional information should also be given, i.e.:
- Names of stations in neighbouring countries which are expected to use the same frequency (if known);
 - Additional information regarding meteorological services (schedules, etc.), etc.

* AUX HEURES : 2000, 2200, 2400, 0200, 0400, 0600 H.
(voir l'horaire annexé).

** LA FRÉQUENCE 3 EST ÉGALEMENT UTILISÉ
PAR LES STATIONS SUIVANTES : LONDRES-DAKA
(SÉNÉGAL) ET PORT LYAUTEY (MAROC).

*** LA FRÉQUENCE 4 EST ÉGALEMENT UTILISÉE PA
LES STATIONS DE LONDRES ET DE LISBONNE (CTV

* A LAS HORAS SIGUIENTES 2000, 2200, 2400, 0200
0400, 0600 H. (véase el horario adjunto).

** LA FRECUENCIA 3 ES UTILIZADA TAMBIEN PO
LAS ESTACIONES : LONDRES-DAKAR (SENEGAL)
PORT LYAUTEY (MARRUECOS).

*** LA FRECUENCIA 4 ES UTILISADA TAMBIEN PO
LAS ESTACIONES DE LONDRES Y LISBOA (CTV).

This folder contains the following documents mentioned in paragraph 12.a. of the Provisional Report (Volume III) :

Aer-Document N°

- 199 - (revised) - Committee 6 - Description of Regional Boundaries Eastern Hemisphere.
- 206 - (revised) - Committee 6 - Description of the Regional and Domestic Air Route Areas for the Western Hemisphere.
- 239 - Committee 6 - Propagation Group - Report N° 3 - Plan I, Part 1 Sharing between Major World Air Routes etc.
- 241 - Committee 6 - Map "Regional and Domestic Air Route Areas".
- 242 - (revised) - Final Report of Working Group in connection with the finalization of requirements for the MWARA and the Eastern regional and domestic requirements.
- 249 - Committee 6 - Propagation Group - Report N° 4.
- 250 - Committee 6 - Propagation Group - Report N° 5.
- 265 - Committee 6 - Plan I with addition of some limited power sharing.
- 266 - Committee 6 - Ad Hoc Group for the Western Hemisphere - 5th Report of the Ad Hoc Group for the Western Hemisphere - R Frequency Allotment Plan N° 1 (1 kw and 200 w).
- 284 - (revised) - Committee 6 - Major World Air Route Areas.



International Administrative
Aeronautical Radio Conference
G E N E V A, 1948

Aer-Document No.199-E
(Revised)

11 August, 1948

COMMITTEE 6

Description of Regional Boundaries

Eastern Hemisphere

The following sets out the boundaries of the Areas agreed by the
Eastern Hemisphere working group for frequency allotment purposes.



1. AREA 1

From

North Pole to

70° N 10° W
40° N 50° W to
30° N 37° W to
30° N 10° W

then along the North African Coast, through Casablanca, Tangier, Algiers, Tunis, Tripoli, Benghazi, to the coastal border between Libya and Egypt, thence to Cairo, and eastward along the parallel to intersect the 40° E meridian, and north along the 40° E meridian to the South Coast of the Black Sea, thence west along the Black Sea coast of Turkey to intersect the 30° E meridian, then along the 30° E meridian to the border of Rumania and the U.S.S.R., thence along the border between the U.S.S.R. and the following countries: Rumania, Hungary, Czechoslovakia, Poland, along the U.S.S.R. Baltic Sea Coast, to boundary between Finland and the U.S.S.R. and from

70° N 32° E to the North Pole.

DESCRIPTIONS OF BOUNDARIES OF SUB-REGIONS OF EASTERN HEMISPHERE

(Normal)

1.1 Sub-Area 1A

From	65° N	26° W	to
	40° N	50° W	to
	40° N	13° W	to
	60° N	13° W	to
	60° N	26° W	to
	65° N	26° W	

1.2 Sub-Area 1B

From North Pole to

70° N	10° W	to
65° N	26° W	to
60° N	26° W	to
60° N	13° W	to
50° N	13° W	

thence eastward through territorial waters between the Channel Islands and French Coastline and thence following the northeastern boundary of France, touching the following countries: Belgium, Luxembourg, and Germany. Thence along the border between Switzerland and Germany and

from there to the Kiel Canal following the boundary between the Eastern and Western Occupied Zones of Germany and Austria, touching the Western border of Czechoslovakia. From Kiel along the parallel to a point 55° N 4° E, and then to the North Pole.

1.³ Sub-Area 1C

From North Pole to

55° N 4° E to

Kiel Canal then southward along the boundary between Eastern and Western Occupied Germany, then along the western border of Czechoslovakia to the boundary between the eastern and western Occupied Zone of Austria, thence eastward along the southern borders of Austria and Hungary and thence to the junction of the borders of Czechoslovakia, Hungary and Roumania, thence along the border between the U.S.S.R. and the following countries: Czechoslovakia, Poland, along the U.S.S.R. Baltic Sea coast, to boundary between Finland and the U.S.S.R. and from

70° N 32° E to

the North Pole.

1.⁴ Sub-Area 1D

From the junction of the borders of Czechoslovakia, Hungary and Roumania westward along the southern borders of Austria and Hungary to the borders between Switzerland and Italy and the border between France and Italy to the Mediterranean Sea and thence to a point

43° N 10° E to
41° N 10° E to
41° N 7° E

thence along the 7th meridian east to the North African coast then along the North African coast, Tunis, Tripoli, Benghazi, to the coastal border between Libya and Egypt, thence to Cairo, and along Cairo parallel to intersect the 40° E meridian, and north along the 40° E meridian to the South Coast of the Black Sea, thence west along the Black Sea coast of Turkey to intersect the 30° E meridian then along the 30° E meridian to the border of Roumania and the Ukraine, to the junction of the borders of Czechoslovakia, Hungary and Roumania.

1.⁵ Sub-Area 1E

From 50° N 13° W to
40° N 13° W to
40° N 50° W to
30° N 37° W to
30° N 10° W

then along the North African coast through Casablanca, Tangier, Algiers to intersect the 10th East meridian to

43° N 10° E

thence to the border between Italy and France and between Italy and Switzerland, and between France and Germany, and France and Belgium to the Channel coast and westwards along the French coast line to the territorial waters between the Channel Islands and the French coast to

50° N 13° W.

2. AREA 2.

From

North Pole to

70° N 32° E

then along the border between Finland and the U.S.S.R., to the Baltic Coast, and along the territorial waters of the U.S.S.R. Baltic Coast, to the boundary between the U.S.S.R. and Poland, thence along the border between the U.S.S.R. and the following countries: Poland, Czechoslovakia, Hungary and Roumania, to the Black Sea Coast at the meridian 30° E, and along the meridian to the Black Sea Coast of Turkey, along this coastline to the Caucasian border with Turkey and Iran, along the southern political border of the U.S.S.R. to a point 49° N 88° E (at the intersection of the Mongolia-China - U.S.S.R. borders) then along meridian 88° E to

55° N 88° E to

55° N 60° E to

North Pole

2.¹ Sub-Area 2A

From North Pole to

70° N 32° E

then along the border between Finland and the U.S.S.R. to the Baltic Coast, and along the territorial waters of the U.S.S.R. Baltic Coast, to

55° N 20° E

thence along the 55th parallel to

55° N 60° E to

the North Pole.

2.² Sub-Area 2B

From

55° N 88° E to

55° N 60° E to

47° N 53° E to

thence along the Eastern coast of the Caspian Sea to the Iran coast
thence eastwards along the southern political border of the U.S.S.R.
to a point 49° N 88° E (at the intersection of the Mongolia-China
and U.S.S.R. territories) then along meridian 88° E to

55° N 88° E

2.³

Sub-Area 2C

From 55° N 60° E to
 55° N 20° E

thence southwards along the boundary between the U.S.S.R. and Poland,
thence along the border between the U.S.S.R. and the following countries:
Poland, Czechoslovakia, Hungary and Roumania, to the Black Sea Coast at
the meridian 30° E, and along the meridian to the Black Sea Coast of
Turkey, along this coastline to the Caucasian border with Turkey and Iran,
then along the South Caspian Sea Coast, thence northwards along the East
Caspian Sea Coast to

47° N 53° E to
55° N 60° E

3.

AREA 3.

From
North Pole to

55° N 60° E to
55° N 88° E

thence to a point 49° N 88° E (at the intersection of Mongolia-China-
U.S.S.R. borders), then along the border between Mongolia and China,
and U.S.S.R. and China, to the Coast, and then along the territorial
waters between U.S.S.R. and Japan to

43° N 147° E to
50° N 165° E to
65° N 170° W to

North Pole

3.¹

Sub-Area 3A

From
North Pole to

55° N 60° E to
55° N 88° E to
60° N 88° E to
60° N 110° E to

North Pole

3.²

Sub-Area 3B

From

North Pole to

60° N	110° E	to
60° N	147° E	to
43° N	147° E	to
50° N	165° E	to
65° N	170° W	to

North Pole.

3.³

Sub-Area 3C

From

60° N 88° E

thence to a point 49° N 88° E (at the intersection of Mongolia-China U.S.S.R. border then along the border between Mongolia and China, and U.S.S.R. and China, to the Coast, and then along the territorial waters between U.S.S.R. and Japan to

43° N	147° E	to
60° N	147° E	to
60° N	88° E.	

4.

AREA 4.

From

30° N	39° W	to
10° N	20° W	to
05° S	20° W	to
05° S	12° E, thence	

along the northern border of the Belgian Congo, excluding Kabinda Territory, to the border between Anglo-Egyptian Sudan and French Equatorial Africa, thence northwards along the western border of Anglo-Egyptian Sudan, thence along the western border of Egypt, northwards to the Mediterranean and along the North African Mediterranean Coast and Atlantic Coast to a point 30° N 10° W thence due west to close the area at 30° N 39° W.

4.¹

Sub-Area 4A

From

30° N	37° W	to
21° N	31° W	to
12° N	22° E	

to the border between Anglo-Egyptian Sudan and French Equatorial Africa, thence northwards along the western border of Anglo-Egyptian Sudan, thence along the western border of Egypt, northwards to the Mediterranean and along the North African Mediterranean Coast and Atlantic Coast to a point 30° N 10° W thence due west to close the area at 30° N 37° W.

4.²

Sub-Area 4B

From	21° N	31° W	to
	10° N	20° W	to
	05° S	20° W	to
	05° S	12° E	

thence along the northern border of Belgian Congo excluding Kabinda territory to the junction between Belgian Congo, Anglo-Egyptian Sudan and French Equatorial Africa to

12° N	22° E	to
21° N	31° W.	

5.

AREA 5.

From	41° N	40° E	to
	37° N	40° E	

then along the border between Turkey and Syria to the Mediterranean Coast, thence to the common border of Libya and Egypt on the North African Coast, then southwards along the western boundary of Egypt, and Anglo-Egyptian Sudan to the border of the Belgian Congo, thence eastwards along the borders of the following countries: Uganda, Anglo-Egyptian Sudan, Kenya, and Abyssinia, and southwards between the borders of Kenya and Italian Somaliland, to the eastern African Coast, from there to a point

02° S	41° E	to
02° S	73° E	
37° N	73° E	
37° N	75° E	

thence westwards along the southern boundary of the U.S.S.R. to

41° N	40° E
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5.¹

Sub-Area 5A

From	37° N	40° E
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then along the border between Turkey and Syria to the Mediterranean Coast, thence to the common border of Libya and Egypt on the North African Coast, then southwards, along the western boundary of Egypt, thence eastwards along the common border of Egypt and Anglo-Egyptian Sudan to the middle of the Red Sea, then southwards along this middle line to

12° N	44° E	to
12° N	49° E	to
30° N	49° E	

thence along the border between Iran and Irak, and the border between Irak and Turkey to

37° N	40° E
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5.²

Sub-Area 5B

From 41° N 40° E to
 37° N 40° E

thence eastwards along the border between Turkey, Syria and Irak,
thence along the border between Irak and Iran to a point

30° N 49° E

thence along the middle of the Persian Gulf to a point

24° N 60° E to
20° N 73° E to
36° N 73° E to
37° N 75° E

thence westwards along the southern boundary of the U.S.S.R. to

41° N 40° E

5.³

Sub-Area 5C

From 30° N 49° E to
 12° N 49° E to
 12° N 54° E to
 02° S 54° E to
 02° S 73° E to
 20° N 73° E to
 24° N 60° E

thence along the middle of the Persian Gulf to

30° N 49° E

5.⁴

Sub-Area 5D

From the junction point between Egypt, Libya and Anglo-Egyptian Sudan southwards along the western border of the Anglo-Egyptian Sudan to the border of the Belgian Congo; thence eastwards, along the borders of the following countries: Uganda, Anglo-Egyptian Sudan, Kenya, Abyssinia, and southwards between the borders of Kenya and Italian Somaliland, to the eastern African coast, from there to a point

02° S 54° E to
11° N 54° E to
10° N 43° E

thence northwest along the middle of the Red Sea to 24° N 37° E,
thence along the southern border of Egypt to close the area.

6. AREA 6.

From 49° N 88° E

along the common northwestern border between China and the U.S.S.R. to

37° N	72° E	to
02° S	72° E	to
02° S	92° E	to
10° S	92° E	to
10° S	141° E	to
0°	141° E	to
0°	170° W	to
10° N	170° W	to
50° N	165° E	to
43° N	147° E,	

thence eastwards along the territorial waters between Japan and the U.S.S.R. and then along the northeastern and northern boundary between China and the U.S.S.R. and between China and Mongolia to

49° N 88° E

6.¹

Sub-Area 6A

From 37° N 75° E to
36° N 73° E

thence along the western border of Pakistan with Afghanistan and Iran to the Arabian Sea and thence eastwards along the southern coast of Pakistan to Bombay to

25° N 80° E to

Calcutta, thence along the coast of Burma to reach the border between Burma and Siam, thence northwards along such borders and along the border between China and the following countries: Burma, Bhutan, Nepal, India to

37° N 75° E

6.²

Sub-Area 6B

From 49° N 88° E

along the common northwestern border between China and the U.S.S.R. to

37° N 75° E

thence along the border between China and the following countries: India, Nepal, Bhutan, Burma, French Indo-China to the coast of South China Sea, thence along the south territorial waters of Hainan Island to

20° N	113° E	to
20° N	176° W	to
50° N	165° E	to
43° N	147° E	

thence eastwards along the territorial waters between Japan and the U.S.S.R. and then along the northeastern and northern border between China and the U.S.S.R., and along the border between China and Mongolia to

49° N 88° E

6.3

Sub-Area 6C

From	20° N	130° E	to
	04° N	130° E	to
	04° N	117° E	

thence along the border between the British and Netherlands Borneo to

03° N	106° E	to
10° S	106° E	to
10° S	141° E	to
0°	141° E	to
0°	170° W	to
10° N	170° W	to
20° N	176° W	
20° N	130° E	

6.4

Sub-Area 6D

From the junction between China, Burma and Indo-China southward along the border between Burma and Thailand to the coast of the Bay of Bengal, thence to

02° S	92° E	to
10° S	92° E	to
10° S	114° E	to
02° N	114° E	

thence along the border between the British and Netherlands Borneo to

04° N	130° E	to
21° N	130° E	to
21° N	113° E	

thence southward around the island of Hainan, and along the border between China and Indo-China, to close the area at the junction between China, Burma, and Indo-China.

6.5

Sub-Area 6E

From	20° N	73° E	to
	02° S	73° E	to
	02° S	92° E	to
	10° N	97° E	

thence along the coast of Burma to Calcutta to

25° N	80° E	to
20° N	73° E	

7. AREA 7.

From the South Pole to

05° S	20° W	to
05° S	12° E	

thence along the northern border of the Belgian Congo, including Kabinda Territory, to the border between Uganda, Anglo-Egyptian Sudan, and between Kenya and the following countries: Anglo-Egyptian Sudan, Abyssinia, Italian Somaliland to

02° S	42° E	to
02° S	60° E	to

the South Pole

7.¹

Sub-Area 7A

From the South Pole to

05° S	20° W	to
05° S	10° E	to
40° S	10° E	to
40° S	60° E	to

South Pole.

7.²

Sub-Area 7B

From	05° S	10° E	to
	05° S	12° E	

thence along the northern border of the Belgian Congo, including Kabinda territory, to the junction between Uganda, Belgian Congo and Anglo-Egyptian Sudan. Thence southward along the Eastern and Southern border of Belgian Congo and Angola to a point

17° S	10° E	to
05° S	10° E.	

7.³

Sub-Area 7C

From the junction between Uganda, Belgian Congo and Anglo-Egyptian Sudan along the border between Belgian Congo, Uganda and Tanganyika and along the border between Rhodesia and Mozambique to the Eastern Coast of Africa to

11° S	40° E	to
11° S	60° E	to
02° S	60° E	to

the eastern coast of Africa then northward along the border between Kenya and the following countries: Italian Somaliland, Abyssinia and Anglo-Egyptian Sudan to the above mentioned junction.

7.4

Sub-Area 7D

From the border of Tanganyika and Mozambique on the Lake Nyasa Southward along the whole Western Mozambique border to the African Eastern Coast to

27° S	33° E	to
40° S	33° E	to
40° S	60° E	to
11° S	60° E	to
11° S	40° E	

thence along the Northern border of Mozambique to Lake Nyasa.

7.5

Sub-Area 7E

From	17° S	10° E	to
	40° S	10° E	to
	40° S	33° E	to
	27° S	33° E	

thence along the whole Western Mozambique border to Lake Nyasa, thence along the common border between Belgian Congo and Rhodesia and between Angola and Rhodesia and South-West Africa to

17° S 10° E.

8. AREA 8.

From the South Pole to

02° S	60° E	to
02° S	92° E	to
10° S	92° E	to
10° S	110° E	to

the South Pole

8.1

Sub-Area 8A

From the South Pole to

02° S	60° E	to
02° S	92° E	to
10° S	92° E	to
10° S	110° E	to

the South Pole.

9. AREA 9

From the South Pole to

10° S	110° E	to			
10° S	141° E	to	0°	141° E	to
10° N	170° W	to	10° N	120° W	to
					the South Pole

9.1

Sub-Area A

From	10° S	110° E	to
	24° S	110° E	to
	24° S	141° E	to
	10° S	141° E	to
	10° S	110° E.	

9.2

Sub-Area 9B

From	0°	141° E	to
	24° S	141° E	to
	24° S	170° W	to
	0°	170° W	to
	0°	141° E.	

9.3

Sub-Area 9C

From South Pole to

10° N	170° W	to
10° N	120° W	to

the South Pole.

9.4

Sub-Area 9D

From South Pole to

24° S	141° E	to
24° S	170° W	to

the South Pole.

9.5

Sub-Area 9E

From South Pole to

24° S	110° E	
24° S	141° E	to

the South Pole.

GENEVA, 1948

Committee 6

Description of the Regional and Domestic
Air Route Areas for the Western Hemisphere

1. The following sets out the boundaries of the Areas and Sub-Areas agreed by the Western Hemisphere Working Group for frequency allotment purposes.
2. The Western Hemisphere is considered here as incorporating the entire Region 2 of the I.T.U. Radio Regulations, whose boundaries are defined on the Article 5 - pg. 19 - RR - Atlantic City, 1947.
3. The Western Hemisphere was divided into 4 main Areas, each one subdivided into Sub-Areas as described in subsequent paragraphs (5, 6, 7, 8).
4. Almost all the adjacent Sub-Areas overlap to a certain extension and they are precisely described in paragraphs 5, 6, 7 and 8.

However, for the sake of map reading clarity, under reduced scale, the master map in which those Areas and Sub Areas were drawn, does not show any overlapping.

Therefore, it is advisable to consider the master map as an index which gives a fair, but not accurate, representation of the real boundaries of the Sub-Areas.



5. AREA 10

From 50° N., 164° E.
along the I.T.U. Boundary between Regions 2 & 3
to the North Pole
to 70° N., 10° W.
along the I.T.U. Boundary between Regions 1 & 2
to 40° N., 50° W.
to 40° N., 65° W.
to 45° N., 72° W.
to 41° N., 81° W.
to 41° N., 88° W.
to 48° N., 91° W.
to 48° N., 127° W.
to 57° N., 139° W.
to 57° N., 150° W.
to 50° N., 175° W.
to close the Area at 50° N., 164° E.

5.1. Sub-area 10 A

From 50° N, 164° E. along the ITU boundary between Regions 2 & 3
to the North Pole
to 57° N, 130° W.
to 57° N, 150° W.
to 50° N, 173° W.
to close the Sub-area at 50° N, 164° E.

5.2. Sub-area 10 B

From 57° N, 140° W.
to the North Pole
to 48° N, 91° W.
to 48° N, 127° W.
to close the sub-area at 57° N, 140° W.

5.3. Sub-area 10 C

From 57° N, 140° W.
to 60° N, 140° W.
to 60° N, 91° W.
to 48° N, 91° W.
to 48° N, 127° W.
to close the sub-area at 57° N, 140° W.

5.4. Sub-area 10 D

From 48° N, 98° W.
to the North Pole
to 69° N, 45° W.
to 61° N, 70° W.
to 45° N, 72° W.
to 41° N, 81° W.
to 41° N, 88° W.
to 48° N, 90° W.
to close the sub-area at 48° N, 98° W.

5.5. Sub-area 10 E

From 45° N, 74° W.
to 61° N, 72° W.
to 69° N, 47° W.
to the North Pole
then along the I.T.U. boundary between Regions 1 & 2
to 40° N, 50° W.
to 40° N, 65° W.
to close the sub-area at 45° N, 74° W.

6. AREA 11

From 29° N, 180° W.
along the I.T.U. boundary between Regions 2 and 3
to 50° N, 164° E.
to 50° N, 150° W.
to 57° N, 139° W.
to 50° N, 127° W.
to 50° N, 74° W.
to 46° N, 74° W.
to 40° N, 65° W.
to 40° N, 50° W.
along the I.T.U. boundary between Regions 1 and 2
to 25° N, 35° W.
to 25° N, 90° W.
to 33° N, 117° W.
to 33° N, 153° W.
to 29° N, 153° W.
to close the Area at 29° N, 180° W.

6.1. Sub-area 11 A

From 29° N, 180° W.
along the I.T.U. boundary between Regions 2 and 3
to 50° N, 164° E.
to 50° N, 150° W.
to 57° N, 139° W.
to 50° N, 127° W.
to 33° N, 127° W.
to 33° N, 153° W.
to 29° N, 153° W.
to close the sub-area 29° N, 180° W.

6.2. Sub-area 11 B

From 33° N, 127° W.
to 51° N, 127° W.
to 51° N, 104° W.
to 27° N, 104° W.
to 33° N, 119° W.
to close the sub-area at 33° N, 127° W.

6.3. Sub-area 11 C

From 29° N, 106° W.
to 50.5° N, 106° W.

to 50°5' N, 92° W.
to 47° N, 72° W.
to 45° N, 72° W.
to 40° N, 81° W.
to 40° N, 85° W.
to 30° N, 85° W.
to 25° N, 96° W.
to close the sub-area at 29° N, 106° W.

6.4. Sub-area 11 D

From 29° N, 90° W.
to 50° N, 90° W.
to 47° N, 64° W.
to 23° N, 78° W.
to 23° N, 83° W.
to close the sub-area at 29° N, 90° W.

6.5. Sub-area 11 E

From 39° N, 125° W.
to 50° N, 125° W.
to 50° N, 93° W.
to 46° N, 93° W.
to 42° N, 86° W.
to 36° N, 86° W.
to 36° N, 121° W.
to close the sub-area at 39° N, 125° W.

6.6. Sub-area 11 F

From 46° N, 94° W.
to 49° N, 94° W.
to 47° N, 65° W.
to 36° N, 74° W.
to 36° N, 88° W.
to 42° N, 88° W.
to close the sub-area at 46° N, 94° W.

6.7. Sub-area 11 G

From 29° N, 95° W.
to 39° N, 95° W.
to 44° N, 66° W.
to 23° N, 77° W.
to 23° N, 83° W.
to 23° N, 91° W.
to close the sub-area at 29° N, 95° W.

6.8. Sub-area 11 H

From 33° N, 127° W.
to 40° N, 127° W.
to 40° N, 89° W.
to 29° N, 89° W.
to 25° N, 98° W.
to 33° N, 119° W.
to close the Sub-area at 33° N, 127° W.

6.9. Sub area 11 I

From 25° N, 77° W.
to 42° N, 68° W.
to 40° N, 65° W.
to 40° N, 50° W.
along the I.T.U. boundary between Regions 1 and 2
to 25° N, 35° W.
to close the Sub-area at 25° N, 77° W.

7. AREA 12

From 10° N, 170° W.
along the I.T.U. boundary between Regions 2 and 3
to 29° N, 180° W.
to 29° N, 153° W.
to 33° N, 153° W.
to 33° N, 117° W.
to 25° N, 90° W.
to 25° N, 35° W. Along the I.T.U. boundary between Regions 1 & 2
to 0° 20° W.
to 0° 44° W.
to 4° S, 44° W.
to 4° S, 77° W.
to 5° S, 78° W.
to 5° S, 120° W.
along the I.T.U. boundary between Regions 2 and 3 to close the area
at 10° N, 170° W.

7.1. Sub-area 12 A

From 10° N, 170° W.
along the I.T.U. boundary between Regions 2 & 3
to 29° N, 180° W.
to 29° N, 153° W.
to 33° N, 153° W.
to 33° N, 120° W.
to 17° N, 115° W.
to 14° N, 93° W.
to 2° N, 86° W.
to 2° N, 93° W.
to 5° S, 93° W.
to 5° S, 120° W.
along the I.T.U. boundary between Regions 2 & 3 to close the Sub-area
at 10° N, 170° W.

7.2. Sub-area 12 B

From 10° N, 170° W.
along the I.T.U. boundary between Regions 2 & 3
to 29° N, 180° W.
to 29° N, 153° W.
to 10° N, 153° W.
to close the sub-area at 10° N, 180° W.

7.3. Sub-area 12 C

From 33° N, 120° W.
to 35° N, 120° W.
to 32° N, 104° W.
to 25° N, 91° W.
to 23° N, 83° W.
to 22° N, 83° W.
to 13° N, 90° W.
to 16° N, 116° W.
to close the sub-area at 33° N, 120° W.

7.4. Sub-area 12 D

From 20° N, 91° W.
to 26° N, 91° W.
to 26° N, 73° W.
to 17° N, 58° W.
to 10° N, 58° W.
to 10° N, 77° W.
to 18° N, 83° W.
to close the sub-area at 20° N, 91° W.

7.5. Sub-area 12 E

From 15° N, 95° W.
to 23° N, 92° W.
to 23° N, 85° W.
to 19° N, 85° W.
to 9° N, 77° W.
to 2° N, 79° W.
to 2° N, 86° W.
to 14° N, 93° W.
to close the sub-area at 15° N, 95° W.

7.6. Sub-area 12 F

From 4° S, 93° W.
to 2° N, 93° W.
to 2° N, 79° W.
to 9° N, 77° W.
to 13° N, 77° W.
to 13° N, 70° W.
to 8° N, 70° W.
to 6° N, 67° W.
to 1° N, 66° W.
to 4° S, 70° W.
along the southern side of the frontier between Colombia and Peru
to 2° S, 75° W.
along the southern side of the frontier between Peru and Ecuador
to 4° S, 81° W.
to close the Sub-area at 4° S, 93° W.

7.7. Sub-area 12 G

From 7° N, 73° W.
to 14° N, 73° W.
to 14° N, 58° W.
to 1° N, 58° W.
to 1° N, 68° W.
to 5° N, 69° W.
to close the sub-area at 7° N, 73° W.

7.8. Sub-area 12 H

From 4° S, 70° W.
to 5° N, 70° W.
to 5° N, 58° W.
to 8° N, 58° W.
to 8° N, 54° W.
to 0° 44° W.
to 4° S, 44° W.
to close the sub-area at 4° S, 70° W.

7.9. Sub-area 12 I

From 25° N, 70° W.
to 25° N, 35° W.
along the I.T.U. boundary between Regions 1 & 2
to 0° 20° W.
to 0° 44° W.
to 8° N, 54° W.
to 8° N, 58° W.
to 17° N, 58° W.
to close the sub-area at 25° N, 70° W.

8. AREA 13

From 5° S, 120° W.
to 5° S, 78° W.
to 4° S, 77° W.
to 4° S, 44° W.
to 0° 44° W.
to 0° 20° W.
along the I.T.U. boundary between Regions 1 & 2
to the South Pole
to close the Area at 5° S, 120° W.

8.1. Sub-area 13 A

From 5° S, 120° W.
to 5° S, 81° W.
to 19° S, 81° W.
to 19° S, 73° W.
to 25° S, 73° W.
to 25° S, 81° W.
to 57° S, 81° W.
to 57° S, 90° W.
to the South Pole
to close the sub-area at 5° S, 120° W.

8.2. Sub-area 13 B

From 29° S, 111° W.
to 24° S, 111° W.
to 24° S, 104° W.
to 29° S, 104° W.
to close the sub-area at 29° S, 111° W.

8.3. Sub-area 13 C

From 19° S, 81° W.
to 5° S, 81° W.
to 3° S, 80° W.
to then along the Northern frontier between Peru and Ecuador
to 0° 75° W.
to then along the Northern frontier between Peru and Colombia
to 0° 69° W.
to 11° S, 69° W.
to 11° S, 67° W.
to 19° S, 67° W.
to close the sub-area at 19° S, 81° W.

8.4. Sub-area 13 D

From 19° S, 73° W.
to 15° S, 73° W.
to 15° S, 70° W.
to 9° S, 70° W.
to 9° S, 65° W.
to 18° S, 56° W.
to 21° S, 56° W.
to 24° S, 61° W.
to 24° S, 69° W.
to 19° S, 69° W.
to close the sub-area at 19° S, 73° W.

8.5. Sub-area 13 E

From 57° S, 81° W.
to 25° S, 81° W.
to 25° S, 73° W.
to 16° S, 73° W.
to 16° S, 68° W.
to 22° S, 67° W.
to then on the Eastern boundary of the frontier between Chile and Argentina
to 52° S, 67° W.
to 57° S, 67° W.
to 57° S, 40° W.
to the South Pole
to 57° S, 90° W.
to close the Sub-area at 57° S, 81° W.

8.6. Sub-aera 13 F

From 57° S, 81° W.
to 32° S, 81° W.
to 32° S, 69° W.
then along the Eastern side of the frontier between Chile and Argentina
to 52° S, 67° W.
to 57° S, 67° W.
to 57° S, 40° W.
to the South Pole
to 57° S, 90° W.
to close the sub-area at 57° S, 81° W.

8.7. Sub-area 13 G

From 57° S, 90° W.
to 57° S, 70° W.
to 52° S, 70° W.
then along the Western side of the frontier between Argentina and Chile
to 21° S, 68° W.
to 21° S, 62° W.
to 25° S, 56° W.
to 25° S, 53° W.
to 28° S, 53° W.
to 29° S, 56° W.
to 57° S, 56° W.
to 57° S, 40° W.
to the South Pole
to close the sub-aera at 57° S, 90° W.

8.8. Sub-aera 13 H

From 57° S, 90° W.
to 57° S, 70° W.
to 52° S, 70° W.
then along the Western side of the frontier between Argentina and Chile
to 32° S, 70° W.
to 34° S, 56° W.
to 57° S, 56° W.
to 57° S, 40° W.
to the South Pole
to close the Sub-area at 57° S, 90° W.

8.9. Sub-aera 13 I

From 24° S, 63° W.
to 18° S, 63° W.
to 18° S, 56° W.
to 22° S, 56° W.
to 22° S, 53° W.
to 29° S, 53° W.
to 29° S, 47° W.
to 37° S, 56° W.
to 37° S, 59° W.
to 25° S, 59° W.

to close the sub-area at 24° S, 63° W.

8.10. Sub-area 13 J

From 2° S, 70° W.
to 2° S, 50° W.
to 20° S, 50° W.
to 20° S, 58° W.
to 12° S, 66° W.
to 12° S, 70° W.

then along the Western side of the frontier between Brazil and Peru
to close the sub-area at 20° S, 70° W.

8.11. Sub-area 13 K

From 0° 50° W.
to 0° 32° W.
to 4° S, 32° W.
to 20° S, 38° W.
to 20° S, 50° W.
to close the sub-area at 0° , 50° W.

8.12. Sub-area 13 L

From 20° S, 58° W.
to 20° S, 38° W.
to 35° S, 52° W.
to 30° S, 58° W.
to 25° S, 58° W.
to 24° S, 55° W.
to close the sub-area at 20° S, 58° W.

8.13. Sub-area 13 M

From 0° 32° W.
to 0° 20° W.
to the South Pole
to 57° S, 40° W.
to 57° S, 56° W.
to 37° S, 56° W.
to 20° S, 38° W.
to 40° S, 32° W.
to close the sub-area at 0°, 32° W.

16 August, 1948

COMMITTEE 6

PROPAGATION GROUP

Report No. 3.

Plan I, Part I; Sharing between
Major World Air Routes etc.

1. Group members.

Members of the Group who have consistently devoted lengthy time to this particular work are as follows:

G. SEARLE (New Zealand) Chairman
H. COSTA (Brazil)
J. BOCTOR (Egypt)
S. A. SATHAR (Pakistan)
A. SOUTO CRUZ (Portugal)
W. E. WEAVER (U.S.A.)
P. J. GREVEN (I.C.A.O.)
L. M. LAYZELL (I.A.T.A.)

Other delegates have assisted in the particular work as they have been able.

2. Form of report.

As approved by Committee 6 at the meeting on 12th August, the report covering Plan I will be produced in two parts - Part I and Part II. Part I describes the sharing between Major World Air Routes and Part II will describe the sharing between Major World Air Routes to regions and sub-regions and between regions and sub-regions themselves.

3. Previous reports of Propagation Group.

Report No. 1 (Interim Report) Aer-Doc. No. 211 requires amendment in conformity with Committee 6 report Aer-Doc. No. 214, as follows:-

3.1. Par. 3.1. Aer-Doc. 211 to be amended so that 30° N reads 35° N.

3.2. Par. 3.3. to be amended in conformity with par. 13 Aer-Doc. No. 214.

4. Principles adopted for sharing between Major World Air Route Areas.

Two main principles have been adopted as follows:

4.1. To select Major World Air Route Areas which lie as close together as possible, in order that as great a global area as possible is left free for sharing to regions.



- 4.2. To endeavour to keep the number of frequencies for Major World Air Routes to a minimum, thereby reducing the number of frequency changes required by an aircraft traversing the various routes. In many cases it has not been possible to apply fully this principle due to the geographical relationship of the Major World Air Route Areas and the repetition distance of the particular frequency order.

5. Technical Standards.

In formulating the plan standards adopted by Committee 6 have been generally used. These standards appear in the following references:- Aer-Doc. 209, paragraph 4, sub-paragraph 1; Aer-Doc. 214, paragraph 13.

The standards are repeated hereunder:-

Protection distance:- based on protection ratio of 15 db.

Sharing Conditions :- Major World Air Route Area to Major World Air Route Area:-

FREQUENCY Mc/s	CONDITION
3	NIGHT
3.5	NIGHT
4.7	NIGHT
5.6	NIGHT
6.6	NIGHT
9.0	DAY
10.0	DAY
11.3	DAY

These conditions apply to the following frequency orders:- 3, 3.5, 4.7, 5.6, 9, 10, and 11.3 Mc/s. For the frequency orders of 6.6, 13.3 and 18 Mc/s. different methods of approach were considered to be desirable by the Group, and these are described hereunder:-

5.1. Sharing on 6.6 Mc/s.

Sharing on 6.6 Mc/s has been effected using the protection distances given for the 5.6 Mc/s band under night-time conditions. This action was approved by Committee 6 on 11th August 1948.

5.2. Sharing on 13.3 Mc/s.

In view of the fact that the sharing between Major World Air Route Areas based on daytime protection distances for a 15 db protection ratio gives an answer which is not strictly correct, in view of the fact that considerable contrast in path condition is experienced, it was decided that sharing on a time basis was a more realistic approach. Accordingly it was decided that a minimum separation of 80° or 5.1/3 hours should be accepted. It was further decided that in some circumstances where traffic conditions would be exceptionally light a lower time difference could be utilised. The final results as agreed upon by the Group are shown in Table II attached.

5.3. Sharing on 18 Mc/s

It has been accepted by the Propagation Group, that the traffic loading on frequencies in the 18 Mc/s band will be relatively light in view of the propagation characteristics of frequencies of this order. It was accordingly decided that it was not desirable to share these frequencies on a daytime interference range basis. It will be noted in Annexes 2 and 3 to Aer-Doc. 198, page 3, that the previous group shared the 18 Mc/s frequencies by dividing the globe into four approximate quadrants, and dividing the frequencies among these. The present Group has considered the sharing on the basis of obtaining maximum geographical separation between routes having no common operational interest, and the grouping where practicable of routes having a common operational interest. Consideration has also been given to according priority to long transoceanic flights.

6. Suggestions made in Aer-Doc. 219.

The Group has considered the suggestions made in paragraph 2.1. of Aer-Doc. 219, and has reached the following conclusions:-

- 6.1. A 13 Mc/s channel has been shared between NSA2 and ME (2.1a Aer-Doc. 219)
- 6.2. Two 9 Mc/s channels and one 10 Mc/s channel have been provided for NSAM2 (2.1b Aer-Doc. 219).
- 6.3. In connection with the sharing of NSAM1 and 2, and FE2 and SP, the Group has studied the question, and considers this is undesirable from the propagation viewpoint. The plan previously shown on the blackboard has now been amended to provide for sharing between NSA2 and ME, and at the same time to introduce improvements in sharing to the regions. (2.1b and 2.1c Aer. Doc. 219).
- 6.4. From the propagation view it is generally undesirable to share NP frequencies with NA frequencies. Action has however been taken to share one 3 Mc/s frequency between these routes. It will further be seen that in other frequency bands NA frequencies are shared with Pacific Ocean air route frequencies. In consequence the Group considers that there would be no useful saving in channels by adopting the suggestion made in 2.1d (Aer. Doc. 219).
- 6.5. The Group has taken account of the change in shape of the S.A. Major World Air Route Area consequent upon the statement made in 2.1e (Aer. Doc. 219).
- 6.6. As the 10 and 11 Mc/s bands are more lightly loaded by M.W.A. Routes than the 13.3 Mc/s band there is a disadvantage in adopting the suggestion made in 2.1f (Doc. 219) and consequently no action has been taken along the lines suggested.

7. Meteorological Broadcast Frequencies.

In accordance with Aer.Documents 172 and 192 one family of frequency orders of 3, 6 and 9 Mc/s was to be allocated to the Pacific Ocean area, and another family of the same order to the Atlantic Ocean area. The group has, in accordance with the practice of keeping the adjacent frequency ratio in any family less than 2:1, decided on the following orders: 3, 5.6 and 9 Mc/s for meteorological broadcasts.

7.1. Atlantic Broadcasts (sharing)

For the Atlantic Broadcasts, assuming that a family of 3, 5.6 and 9 Mc/s is primarily allocated for use in the Atlantic Ocean Area, the same family could be used in the Middle East Major World Air Route with the following restrictions:-

FREQUENCY	CONDITION	USE
3 Mc/s	Day	Throughout ME M.W.A.R.A.
3 Mc/s	Night	West of Long. 40° E on a secondary basis
5.6 Mc/s	Day	Throughout M.E. M.W.A.R.A.
5.6 Mc/s	Night	West of 50° E on a secondary basis.
9.0 Mc/s	Day	East of 65° E on a primary basis. West of 65° E on a secondary basis.

7.2. Pacific Broadcasts (sharing)

For the Pacific Ocean Broadcasts, and assuming that a family of 3, 5.6, and 9 Mc/s is primarily allocated for use in the Pacific Ocean area, the same family could be used in the European Major World Air Route Area (allowing a protection ratio of 15 db) assuming that 5.6 Mc/s is the highest frequency which will be used in either area for broadcasts during the respective night hours.

8. Description of Tables Attached to Document.

Table I attached, shows the sharing between Major World Air Route Areas for the frequency bands 3, 3.5, 4.7 and 5.6 Mc/s.

Table II attached, shows the sharing between Major World Air Route Areas for the frequency bands 6.6, 9, 10, 11.3, 13.3 and 18 Mc/s.

Table III attached, shows a summary of the channel allocations to Major World Air Routes, aerodrome and approach control, and meteorological broadcasts. Also shown are the channels which can be allocated exclusively to regions.

9. Conclusion.

In drawing up the repetitions contained in this report the Group has taken into consideration certain factors not directly associated with propagation. Such include slight decreases in repetition distances where, for example, terminals are under the control of the one administration, and also in certain cases where strict adherence to the standards would have reduced economic repetition possibilities.

Under such circumstances the Group considers that the plan presented herein is the best possible for the M.W.A.R.A. from the frequency utilisation viewpoint, consistent with safe operation. There are undoubtedly many other combinations which may be used based on the standards adopted, but the Group considers that these will not in general produce a more efficient global distribution of frequencies.

G. Searle

CHAIRMAN

REPETITIONS BETWEEN MAJOR WORLD AIR ROUTE AREAS

ASSIGNATIONS MULTIPLES AUX ZONES DE PASSAGE DES LIGNES AERIENNES
MONDIALES PRINCIPALES

REPETICIONES ENTRE AREAS DE RUTAS AEREAS MAS IMPORTANTES DEL MUNDO

Frequency Order Ordre de grandeur de fréquence Orden de frecuencias	3 Mc/s	3.5 Mc/s	4.7 Mc/s	5.6 Mc/s
Index Number Numéro Numero				
1	NP-FEI-NA	CEP-SA(Ext)	EU	NA-FEI
2	CWP-NSA2(Ext)-NSAM2	CEP-ME(Ext)	EU	NA-FE2
3	SP-NA	CEP-EU	NSAM1	NA-SP
4	FE2-NA	CEP-EU		NA(Ext)
5	EU-NSAM1	NSAM2-ME		CEP-EU
6	EU-NSAM2	NSAI(Ext)		NP-NSA2(Ext)
7	NA (Ext)			CWP-NSA1(Ext)
8	SA			NSAM2
9				NSAM2
10				CEP-ME(Ext)
Total channels Total des voies Total de canales	8	6	3	10

TABLE I

TABEAU I

CUADRO I

REPETITIONS BETWEEN MAJOR WORLD AIR ROUTE AREAS
ASSIGNATIONS MULTIPLES AUX ZONES DE PASSAGES DES LIGNES AERIENNES MONDIALES PRINCIPALES
REPETICIONES ENTRE AREAS DE RUTAS AEREAS MAS IMPORTANTES DEL MUNDO

Aer-Document 239-F-E-S

Frequency order Ordre de grandeur de fréquence Orden de frecuencias	6.6 Mc/s	9 Mc/s	10 Mc/s	11.3 Mc/s	13 Mc/s	18 Mc/s
Index number Numéro Numero						
1	SA-CEP	FE2-EU-NSAM2	CEP-SA(Ext)	CEP	NA	NA-FE1-FE2
2	SA-CEP	FE1-EU-CEP	CEP	CEP-EU	NSAM2-SP	CEP-ME-NSA2
3	SA(Ext)	NSAM2-ME(Ext)-SP	NSAM2-ME(Ext)	NSAM2	NA-FE1	CWP-NP-EU
4	ME(Ext)	NSAM1-NSA1(Ext)			ME(Ext)-NSA2(Ext) CEP	SA-NSA1-SP
5	NSAM2	SA-FE1-CEP			NA(Ext)-CWP	NSAM1-NSAM2
6	NSAM1	SA-NP			NA-FE2	
7	EU	NA-CWP			NSAM1	
8	EU	NA(Ext)			NSA1(Ext)-CEP	
9		NA			SA(Ext)-NP	
10		NA				
11		NSA2(Ext)				
Total channels Total des voies Total de canales	8	11	3	3	9	5

TABLE II

TABLAU II

CUADRO II

SUMMARY OF CHANNEL ALLOCATIONTABLEAU RESUME DE L'ATTRIBUTION DES VOIESCUADRO RESUMEN DE LA DISTRIBUCION DE CANALES

Frequency order (Mc/s) Ordre de grandeur des fréquences(Mc/s) Orden de frecuencias(Mc/s)	3	3.5	4.7	5.6	6.6	9	10	11.3	13.3	18	Totals Totaux Totales
Channels for MWAR and regions Voies pour les lignes aériennes mondiales principales et pour les régions Canales para las MWAR y para las regiones	8	6	3	10	8	11	3	3	9	5	66
Channels for meteorological broadcasts Voies pour les émissions météorologiques Canales para las radiodifusiones meteorológicas	2	-	-	2	-	2	-	-	-	-	6
Channels for aerodrome & approach control Voies pour le contrôle d'aerodrome et de contrôle d'approche Canales para el control de aerodromo y de aproximación	1	1	-	-	-	-	-	-	-	-	2
Total of above Total des nombres ci-dessus Total de canales distribuidos	11	7	3	12	8	13	3	3	9	5	74
Total channels available Nombre total des voies disponibles Total de canales disponibles	24	14	7	26	21	17	10	13	10	7	149
Exclusive channels for regions Voies réservées à un usage régional Canales exclusives para las regiones	13	7	4	14	13	4	7	10	1	2	75

TABLE III

TABLEAU III

CUADRO III

International Administrative
Aeronautical Radio Conference
GENEVA, 1948

Aer-Document No 241-E
17 August, 1948
COMMISSION 6

Conférence internationale administrative
des Radiocommunications aéronautiques
GENEVE 1948

Aér-Document No 241-F
17 août 1948
COMMISSION 6

Conferencia Administrativa Internacional
de Radiocomunicaciones Aeronauticas
GINEBRA, 1948

Aer-Documento No 241-S
17 de Agosto de 1948
COMISION 6

MAP "REGIONAL AND DOMESTIC AIR ROUTE AREAS"

CARTE DES ZONES DES LIGNES AERIENNES REGIONALES
ET NATIONALES

MAPA "ZONAS DE LAS RUTAS AEREAS REGIONALES E INTERNAS"

MAP. "Regional and Domestic Air Route Areas".

1. The attached Map showing the Regional and Domestic Air Route Areas was approved by Committee 6 at its 25th meeting, Doc. 214. The description of the boundaries is contained in the revised versions of Docs. 199 and 206 for the Eastern and Western hemispheres respectively.
2. The designator "Appendix II" has been added by arrangement with the Editorial Committee in order to make provision for the Map to appear as such in the final report of the Conference.

Carte des zones des lignes aériennes régionales et nationales.

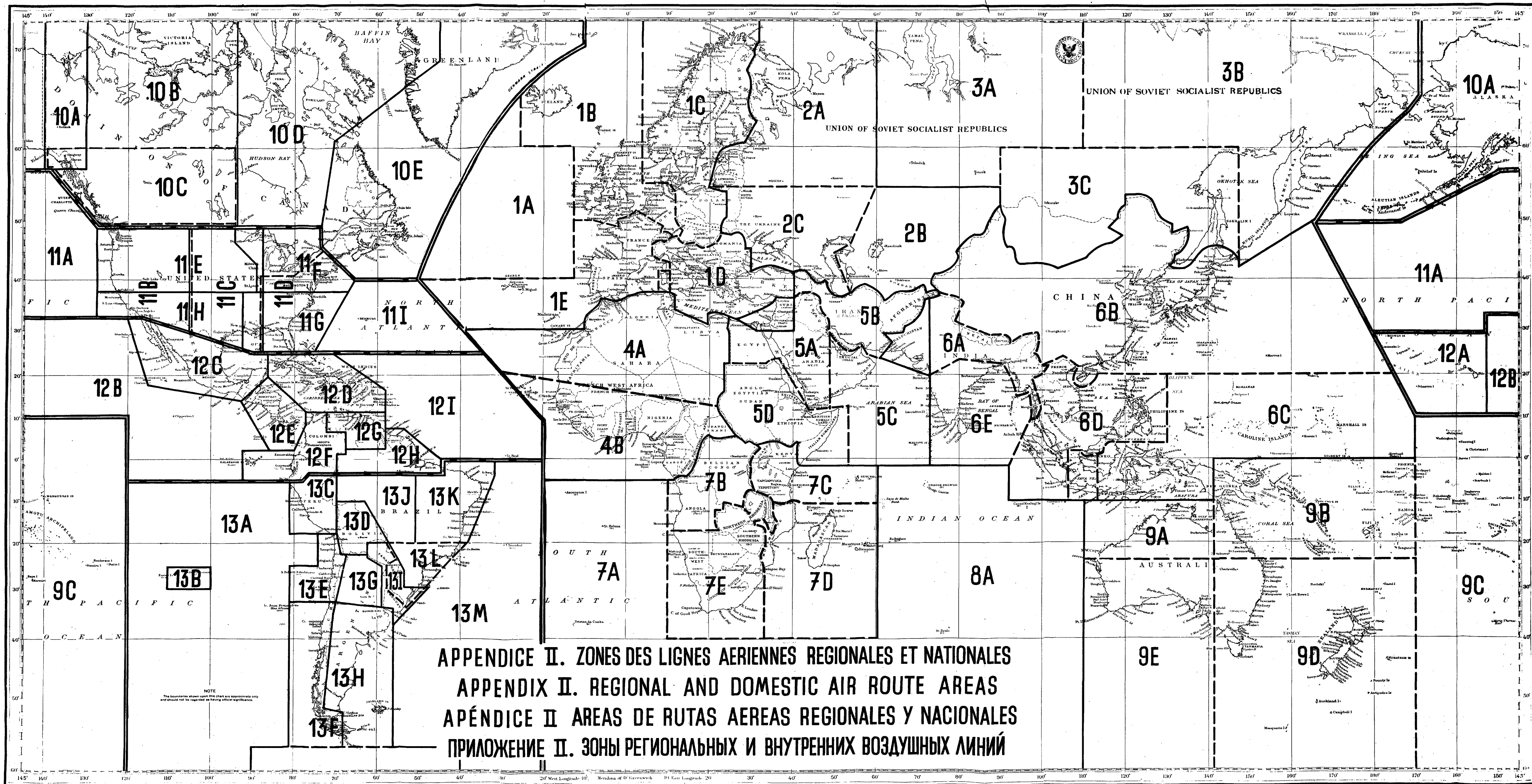
1. La carte des zones des lignes aériennes régionales et nationales a été approuvée par la Commission 6, au cours de sa 25e séance (doc. Aér.No 214). La délimitation des zones est donnée dans les versions révisées des documents Nos 199 et 206, pour les hémisphères Est et Ouest respectivement.
2. La carte a été désignée comme Appendice II à la suite d'un arrangement avec la Commission de rédaction. Elle sera introduite avec cette désignation dans le rapport final de la Conférence.

MAPA. "Zonas de las Rutas Aéreas Regionales e Internas".

1. El mapa adjunto, en que aparecen las Zonas de la Rutas Aéreas Regionales e Internas, ha sido aprobado por la Comisión 6 en su 25a sesión (Doc. Aer. 214). Los Documentos Aer. 199 y 206 (revisados) contienen la descripción de los límites de dichas zonas en los Hemisferios Oriental y occidental respectivamente.
2. El mapa indicador se añade como "Apendice II", según acuerdo con la Comisión de Redacción, a fin de que aparezca como tal en el Informe Final de la Conferencia.

E.G. Betts
Chairman of Committee 6
Président de la Commission 6
Presidente de la Comisión 6





FINAL REPORT OF WORKING GROUP IN CONNECTION WITH THE
FINALISATION OF REQUIREMENTS FOR THE
MWARA AND THE EASTERN HEMISPHERE REGIONAL AND DOMESTIC
REQUIREMENTS.

1. Introduction.

The Working Group was formed with the following terms of reference : -
(See Aer.Doc. No. 205, Para.5.1.)

"To investigate and finalise the frequency requirements of the Major World Air Route Areas and the Regions, in order to ensure that the requirements stated are a minimum consistent with safety. The same assessment to be utilised for arriving at the final requirements for the Major World Air Route Areas and the Regions. All available information, such as Forms 2 and route mileage, to be utilised in endeavouring to arrive at the final conclusions".

2. General.

The Working Group dealt with the problem in two parts, namely : -

- a) Consideration of the Major World Air Route Area requirements and
- b) Consideration of the Eastern Hemisphere Regional and Domestic requirements.

3. Consideration of Major World Air Route Requirements.

The Working Group first examined the requirements of the Major World Air Routes in detail and as a result of this study was successful in achieving economies in the allotment of frequencies to certain of these areas. The results of this investigation are shown in Aer.Doc. No. 219. It should be noted that the Working Group is of the opinion that the requirements now stated for the Major World Air Route Areas represented absolute minimum needs compatible with the safe, expeditious, and regular operation of these long range international air services.

4. Consideration of the Eastern Hemisphere Regional and Domestic Requirements.

Here again the work was undertaken in two parts, namely, the examination of the Regional requirements and those for Domestic services.

4.1. Regional Requirements.

Based upon requirements stated by Regional Conferences and statements by delegates having a local knowledge of the Region under investigation, a table of Regional requirements was produced. In certain Regions, however,



regional meetings have not yet been held, and furthermore delegates from these areas are not present at this Conference, and in such cases, the Working Group endeavoured to assess as accurately as possible the minimum requirements of these Regions, basing them on a comparison with other similar Regions where the requirements were known. Although the information available for the calculation of the Regional needs was not as accurate as that available for the examination of the Major World Air Route Area requirements, it is, nevertheless, the firm belief of the Working Group that the Regional requirements as now stated in the revised Regional and Domestic Requirement Tables are reasonably accurate and represent a fairly realistic appreciation of the communications needs of regional air services.

4.2. Domestic Requirements.

In an attempt to obtain some basis for the assessment of Domestic requirements, the Working Group examined Forms 2 submitted by the various States concerned. Requirements for frequencies which are obviously not of an international or regional character were provisionally listed as domestic requirements. In addition, the domestic requirements sheets submitted by delegates to Working Group 6 G 2 were examined by the Working Group.

4.2.1. Tables were prepared listing the domestic requirements of each country under the heading of the appropriate Sub-Region. Full details of this first method of approach are contained in Aer. Doc. No. 215.

4.2.2. Where it appeared from a scrutiny of these requirements that Regional, Major World Air Route and even Point to Point requirements had been included in the Domestic requirements, delegates representing countries concerned were interviewed wherever possible in an endeavour to clarify such points. In several cases a considerable reduction in domestic frequency requirements was achieved as a result of this investigation.

4.2.3. After the completion of this phase of the work it became clear that the method of presentation outlined in para. 4.2.1. above was creating an extremely pessimistic impression. Furthermore this did not provide a realistic appreciation of the Domestic requirements since it was felt that in a number of cases the requested channels would not be fully loaded, although in a table, showing Domestic requirements, all frequencies had to be listed as **separate and distinct channels**. It was felt by the Working Group that a better indication would be provided by combining the Domestic requirements within each Sub-Region and reducing the total overall number of channels where this could be done without doing an injustice.

Accordingly, tables were prepared by the Working Group outlining the Regional and Sub-Regional requirements.

4.2.4. On an examination of these tables it was considered that by adequate Sub-Regional coordination these requirements could be still further reduced. The Working Group felt, however, that it was unable at this stage to effect such reductions without having a detailed knowledge of channel loading, number of aeronautical stations, local communication procedures and systems, terrain and other peculiarities.

4.2.5. In light of the above, and in a further endeavour to obtain a means of applying a common yardstick, a calculation was made to determine the number of miles flown per week in domestic services for each channel required. It should be noted that the Working Group regarded this only as a very rough comparison and not in all cases entirely realistic.

4.2.6. The results obtained are reproduced below, shown against Major World Air Route Areas and Regional requirements :

Major World Air Route Areas.

North Atlantic	-	50,000 miles per channel
Central East Pacific	-	47,000 miles per channel
NSAM 1	-	74,000 miles per channel

Regional.

European	-	50,000 miles per channel
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Sub-Regional.

Ranging between 23,000 miles and 1,800 miles per channel.

4.2.7. The Working Group felt, however, that despite whatever allowance is made for local conditions such great differences should, nevertheless, not exist.

4.2.8. It is further believed that the repotition of frequencies within a particular subregion is possible under certain conditions. However, before this factor can be taken into account it is necessary to have details regarding the purpose for which the frequency will be required, e.g. physical distribution of aeronautical stations within the sub-region, day or night protection needed, power output, type of emission, in a more precise manner that is at present available.

5. Conclusions.

5.1. After having studied the Regional and Domestic frequency requirements thoroughly from all angles, the Working Group is convinced that it is impossible to accurately assess these requirements with the information at present available.

5.2. It is felt that the information submitted to the Propagation Group regarding Regional and in particular the Domestic requirements should only be regarded by them as a guide as to relative orders and numbers of frequencies required in each region and sub-region.

5.3. In order to assure an equitable allotment of frequencies to the Regions and Sub-Regions, it is therefore recommended that, before any new attempt be made either at this Conference or subsequent Regional Conferences to assess these requirements, the following information, which is considered essential to the development of a satisfactory plan, be provided by all Member States : -

6.1. Air Services Statistics.

6.1.1. Total weekly Regional International and Domestic weekly scheduled route mileage. (Totals to be shown separately).

6.1.2. Total weekly Regional International and Domestic weekly non-scheduled route mileage. (Totals to be shown separately).

6.1.3. Regional International and Domestic Air Route pattern plan indicating airlines and frequency of operation.

6.2. Aeronautical Station Statistics.

6.2.1. Name and location of each Aeronautical Station.

6.2.2. Purpose for which each channel is employed, stating whether for on route communication, area control, approach or aerodrome control or similar functions.

6.2.3. Type of emission.

6.2.4. Radiated Power Output.

6.2.5. Number of aeronautical stations operating on the same frequency.

6.2.6. Average number of contacts for each station under I.F.R. conditions over a period of 24 hours and at the peak hour.

6.2.7. Average duration of air/ground contacts under I.F.R. conditions.

6.2.8. Distribution of channel loading spread over a 24-hour period for each aeronautical station.

6.3. Communication Systems and Procedures.

6.3.1. General layout of air/ground communication and Air Traffic Control organisation. The information provided should contain a statement as to whether communication with aircraft engaged in Regional International and Domestic air services is carried out on the same or separate frequency channels. (Where appropriate it is sufficient to mention that I.C.A.O. procedures are in force).

6.3.2. Percentage of total air/ground communication handled by M.F., H.F. and V.H.F. for each category of air traffic mentioned in paras 6.1.1. and 6.1.2.

6.3.3. Whether due to special temporary circumstances fixed traffic has to be passed over the aeronautical mobile service channels and the proportion of this traffic.

6.3.4. Whether networks exist for special purposes such as H.F. D/F for which the use of separate frequency channels is contemplated.

7. General.

7.1. Any additional information which is considered pertinent to this study.

8. Recommendations for future action.

8.1. The Working Group considers that if the subsequent Conferences are to achieve the maximum economy in the utilization of the available frequencies, it will be necessary to examine the following suggestions :

8.1.1. To restrict the radiated power in the case of domestic requirements in certain congested sub-regions.

8.1.2. In order to achieve maximum repetition of frequencies in congested areas, it will be necessary to assign frequencies to stations individually and to consider the interference range in each case.

8.1.3. Considerable economy can probably be achieved if, for certain services where only a limited service range is required, careful attention be paid to the radiation angle of the aerial system employed.

A. de Haas
Convenor of the Group.

REGIONAL AND DOMESTIC AIR ROUTE AREA (R.D.A.R.A.) REQUIREMENTS.

AREA 1	Mc/s 3.0	Mc/s 3.5	Mc/s 4.7	Mc/s 5.6	Mc/s 6.6	Mc/s 9.0	Mc/s 10	Mc/s 11	Mc/s 13	Mc/s 18
SUB AREA A	-	-	-	-	-	-	-	-	-	-
SUB AREA B ¹⁾										
BELGIUM IRELAND UNITED KINGDOM NETHERLANDS W.GERMANY ICELAND	8	6	3	3						
SUB AREA C ²⁾										
SWEDEN NORWAY FINLAND POLAND E.GERMANY CZECHOSLOVAKIA AUSTRIA DENMARK HUNGARY	5	5	5	9	4					
SUB AREA D ³⁾										
RUMANIA BULGARIA JUGOSLAVIA GREECE ALBANIA TURKEY ITALY MALTA CYPRUS	7	16	7	12	7					
SUB AREA E ⁴⁾										
FRANCE SWITZERLAND SPAIN PORTUGAL GIBRALTAR	1	3	4	3	1					
REGIONAL	6	4	-	5		3	1	1		

REGIONAL AND DOMESTIC AIR ROUTE AREA (R.D.A.R.A.) REQUIREMENTS.

	Mc/s 3.0	Mc/s 3.5	Mc/s 4.7	Mc/s 5.6	Mc/s 6.6	Mc/s 9.0	Mc/s 10	Mc/s 11	Mc/s 13	Mc/s 18
AREA 2 *										
SUB AREA A	3	1	1	3	2	1				
SUB AREA B	3	2	1	2	2	1				
SUB AREA C	4	2	1	4	3	1				
COMMON A, B & C	3	2	1	3	2	2	2	2	2	1
AREA 3 *										
SUB AREA A	4	2	1	3	1					
SUB AREA B	4	2	1	3	2					
SUB AREA C	4	2	1	3	2					
COMMON A, B & C	3	2	1	3	2	3	2	2	1	
COMMON FOR 2 & 3 AREAS	5	3	1	4	5	4	3	4	2	3

TOTAL LENGTH OF AIRROUTES IN AREAS 2 AND 3 = 175.000 km.

* "The requirements submitted by the U.S.S.R. delegation have been stated in the understanding that some of these standard A3 - channels will be split into two A1 - channels".

REGIONAL AND DOMESTIC AIR ROUTE AREA (R.D.A.R.A.) REQUIREMENTS.

AREA 4	Mc/s 3.0	Mc/s 3.5	Mc/s 4.7	Mc/s 5.6	Mc/s 6.6	Mc/s 9.0	Mc/s 10	Mc/s 11	Mc/s 13	Mc/s 18
SUB AREA A 5)										
MOROCCO TANGIER ALGERIA TUNISIA LIBYA TRIPOLITANIA	3		3			2				
SUB AREA B 6)										
FR. EQ. AFRICA FR. W. AFRICA GAMBIA GOLD COAST SIERRA LEONE NIGERIA PORT. CAPE VERDE E.T.C. LIBERIA	1	5	1	5	6	2		2		
REGIONAL		2	2	1	2	1				

REGIONAL AND DOMESTIC AIR ROUTE AREA (R.D.A.R.A.) REQUIREMENTS.

AREA 5	Mc/s 3.0	Mc/s 3.5	Mc/s 4.7	Mc/s 5.6	Mc/s 6.6	Mc/s 9.0	Mc/s 10	Mc/s 11	Mc/s 13	Mc/s 18
SUB AREA A 7)										
ADEN SYRIA LEBANON PALESTINE TRANSJORDAN SAUDI ARABIA YEMEN HADRAMAUT EGYPT IRAQ	> 3	5	2	4	8	2				
SUB AREA B 8)										
IRAN PAKISTAN AFGHANISTAN EASTERN TURKEY	>	4	2	2	4	2				
SUB AREA C										
OMAN PERSIAN GULF AREA	>	2			2					
SUB AREA D 9)										
ANGLO EGYPTIAN SUDAN ETHIOPIA ERITREA FR. SOMALILAND IT. SOMALILAND BR. SOMALILAND	> 1	4	1	1	5					
REGIONAL		4		4	4	2				

REGIONAL AND DOMESTIC AIR ROUTE AREA (R.D.A.R.A.) REQUIREMENTS.

	Mc/s 3.0	Mc/s 3.5	Mc/s 4.7	Mc/s 5.6	Mc/s 6.6	Mc/s 9.0	Mc/s 10	Mc/s 11	Mc/s 13	Mc/s 18
AREA 6										
SUB AREA A/E 10)	2	7	6	3	6	3	-	1	-	-
SUB AREA B 11)	5	6	5	6	6	4	-	1	-	-
SUB AREA C 12)	1	4	1	2	3	1 *	-	1 *		
SUB AREA D 13)	2	8	3	3	11	5 *	2	1 *		
REGIONAL		1			1	1		1		
AREA 7										
SUB AREA 7 A	-	-	-	-	-	-	-	-	-	-
SUB AREA 7 B 14)		2	1	-	3	2				
SUB AREA 7 C 15)		3			3	1				
SUB AREA 7 D 16)	1	2	1	1	2	1	-			
SUB AREA 7 E 17)	2	2	-	2	2	2	3	1	-	-
REGIONAL	1	1	-	1	2	2		2	1	1
AREA 9										
SUB AREA A 18)	1	1	-	-	1	1				
SUB AREA B 18)	1	2	1		2	1		2		
SUB AREA C	-	-								
SUB AREA D 19)	4	15 ^x	1	1	1	1		1		
SUB AREA E 18)	1	1			1	1				
REGIONAL		1			1	1		1		

*) 1-9 Mc/s and 1-11 Mc/s channel common to sub areas 6 C and 6 D
 x) Only 6-3.5 Mc/s frequencies are required for night use.

NOTE :

The number of miles per channel calculation is based entirely upon the requirements of countries for which route mileage figures are available. In some cases therefore, the total number of frequencies required in a **particular sub area** does not correspond with the figure used in the calculation.

- 1) 419800 miles per week at 18 channels = 23320 miles per channel
- 2) 220800 miles per week at 25 channels = 8832 miles per channel
- 3) 257700 miles per week at 38 channels = 6965 miles per channel
- 4) 149200 miles per week at 11 channels = 13600 miles per channel
- 5) 146524 miles per week at 8 channels = 18315 miles per channel
- 6) 65750 miles per week at 13 channels = 5058 miles per channel
- 7) 64900 miles per week at 20 channels = 3245 miles per channel
- 8) 84000 miles per week at 9 channels = 9333 miles per channel
- 9) 10800 miles per week at 6 channels = 1800 miles per channel
- 10) 244000 miles per week at 28 channels = 8700 miles per channel
- 11) 1000000 miles per week at 33 channels = 30303 miles per channel
- 12) 160000 miles per week at 12 channels = 13300 miles per channel
- 13) 244000 miles per week at 35 channels = 7000 miles per channel
- 14) 31000 miles per week at 8 channels = 3875 miles per channel
- 15) 48000 miles per week at 7 channels = 6857 miles per channel
- 16) 27500 miles per week at 8 channels = 3437 miles per channel
- 17) 128000 miles per week at 14 channels = 9145 miles per channel
- 18) Sub areas 9 A, 9 B and 9 E combined :
634266 miles per week at 17 channels = 37300 miles per channel
- 19) Sub area 9 D :
73000 miles per week at 27 channels = 3040 miles per channel

International Administrative
Aeronautical Radio Conference
GENEVA, 1948

ANNEX II to
Aer-Document No. 242-E
28 September, 1948

REGIONAL AND DOMESTIC AIR ROUTE AREA (R.D.A.R.A.) REQUIREMENTS.

AREA 1	Mc/s 3.0	Mc/s 3.5	Mc/s 4.7	Mc/s 5.6	Mc/s 6.6	Mc/s 9.0	Mc/s 10	Mc/s 11	Mc/s 13	Mc/s 18	Flight miles weekly
SUB AREA A	-	-	-	-	-	-	-	-	-	-	
<u>SUB AREA B</u>											
BELGIUM	1	1									not known
IRELAND	1			1							5,500
UNITED KINGDOM	4	5	1	1							365,000
NETHERLANDS	1		1								21,300
W.GERMANY	-										-
ICELAND	1		1	1							28,000
TOTAL	8	6	3	3							
<u>SUB AREA C</u>											
SWEDEN	2		2								41,000
NORWAY		2	1								27,600
FINLAND		1	1		1						18,800
POLAND	2	1	1	3	3						96,000
E.GERMANY											
CZECHOSLOVAKIA				2							27,900
AUSTRIA				1							
DENMARK	1			2							9,500
HUNGARY		1									
TOTAL	5	5	5	8	4						
<u>SUB AREA D</u>											
ROUMANIA	1	2	1	2	1						30,000
BULGARIA	2	2	1	2	1						5,900
YUGOSLAVIA	1	4	1	3	2						92,000
GREECE			2	2							14,800
ALBANIA		3	2	1							
TURKEY	1			1	2						
ITALY	2	3		1	1						85,000
MALTA		1									
CYPRUS		1			1						
TOTAL	7	16	7	12	8						
<u>SUB AREA E</u>											
FRANCE		2	3	3							114,000
SWITZERLAND											
SPAIN											
PORTUGAL	1		1		1						4,700
GIBRALTAR		1									
TOTAL	1	3	4	3	1						
REGIONAL	6	4	-	5	-	3	1	1			

REGIONAL AND DOMESTIC AIR ROUTE AREA (R.D.A.R.A.) REQUIREMENTS.

AREA 2	Mc/s 3.0	Mc/s 3.5	Mc/s 4.7	Mc/s 5.6	Mc/s 6.6	Mc/s 9.0	Mc/s 10	Mc/s 11	Mc/s 13	Mc/s 18
SUB AREA A	3	1	1	3	2	1				
SUB AREA B	3	2	1	2	2	1				
SUB AREA C	4	2	1	4	3	1				
COMMON A, B & C	3	2	1	3	2	2	2	2	1	
AREA 3										
SUB AREA A	4	2	1	3	1					
SUB AREA B	4	2	1	3	2					
SUB AREA C	4	2	1	3	2					
COMMON A, B & C	3	2	1	3	2	3	2	2	1	
COMMON FOR 2 & 3 AREAS	5	3	1	4	5	4	3	4	2	3

REGIONAL AND DOMESTIC AIR ROUTE AREA (R.D.A.R.A.) REQUIREMENTS.

AREA 4	Mo/s 3.0	Mo/s 3.5	Mo/s 4.7	Mo/s 5.6	Mo/s 6.6	Mo/s 9.0	Mo/s 10	Mo/s 11	Mo/s 13	Mo/s 18	Flight miles weekly
SUB AREA A											
MOROCCO			4			1					79.850
ALGERIA			2			1					55.070
TUNISIA											11.150
LIBYA											
TRIPCLITANIA											
TOTAL			6			2					
SUB AREA B											
FR. EQ. AFRICA		1		1	2			1			17.050
FR. W. AFRICA		2		2	3			1			48.700
GAMBIA											
GOLD COAST				2		2					
SIERRA LEONE		2									not known
NIGERIA											
PORT. CAPE		1	1		1						
VERDE E.T.U.											
LIBERIA											
TOTAL		6	1	5	6	2		2			
REGIONAL											

REGIONAL AND DOMESTIC AIR ROUTE AREA (R.D.A.R.A.) REQUIREMENTS.

AREA 5	Mc/s 3.0	Mc/s 3.5	Mc/s 4.7	Mc/s 5.6	Mc/s 6.6	Mc/s 9.0	Mc/s 10	Mc/s 11	Mc/s 13	Mc/s 18	Flight miles weekly
<u>SUB AREA A</u>											
ADEN		1		1	1						12.000
SYRIA		2			2						1.000
PALESTINE		2		2							34.000
EGYPT		3	2	3	2	2					12.000
IRAQ	2	2		1	3	1					5.400
ARABIA (1/2)		1			1						
TOTAL	2	11	2	7	9	3					
<u>SUB AREA B</u>											
IRAN			2		2						22.500
PAKISTAN		2	2	2	2	2					61.500
AFGHANISTAN			2		2						
BALUTCHISTAN											
TOTAL		2	6	2	6	2					
<u>SUB AREA C</u>											
ARABIA (1/2)		1		1							see Subarea 5A
<u>SUB AREA D</u>											
ANGLO EGYPTIAN		2		2	1	1					7.500
SUDAN											
ETHIOPIA		2			2						3.300
ERITREA	1				2						
FR. SOMALILAND											
IT. SOMALILAND			1		1						
BR. SOMALILAND		1		1	1						
TOTAL	1	5	1	3	7	1					
REGIONAL	1	2			3	3		1			

REGIONAL AND DOMESTIC AIR ROUTE AREA (R.D.A.R.A.) REQUIREMENTS.

AREA 6	Mc/s 3.0	Mc/s 3.5	Mc/s 4.7	Mc/s 5.6	Mc/s 6.6	Mc/s 9.0	Mc/s 10	Mc/s 11	Mc/s 13	Mc/s 18	Flight miles weekly
SUB AREA A/E	2	8	6	3	8	3	-	1	-	-	222.000
SUB AREA B	5	6	5	6	6	4	-	1	-	-	1.000.000
SUB AREA C	1	6	-	2	5	1	-	1	-	-	160.000
SUB AREA D	3	9	4	3	8	3	2	-	-	-	244.000
REGIONAL		1			1	1		1			
<u>AREA 7</u>											
SUB AREA 7 A	-	-	-	-	-	-	-	-	-	-	
SUB AREA 7 B	-	2	1	1	8	4	-	4	1	-	31.000
SUB AREA 7 C	-	4	1	1	4	2	1	-	-	-	48.000
SUB AREA 7 D	1	2	1	1	2	1	-	1	1	-	27.500
SUB AREA 7 E	2	3	-	3	2	4	3	1	-	-	128.000
REGIONAL	1	-	-	1	-	1	-	-	-	-	
<u>AREA 9</u>											
SUB AREA A	1	1			1	1					*
SUB AREA B	1	2	1		2	1		2			3.500 *
SUB AREA C											
SUB AREA D	5	15	1	1	2	2		1			73.000
SUB AREA E	1	1			1	1					*
REGIONAL		1			1	1		1			

*) Australia 630.766

COMMITTEE 6

PROPAGATION GROUP

Report No 4

Plan I, Part II - sharing from Major World Air Routes Area (MWARA) to Regional and Domestic Air Route areas (RDARA) and between RDARA and sub-areas on the basis of 1 KW of radiated power.

1. GROUP MEMBERS

Members of the Group who have consistently devoted time to this particular work are as follows :

G. SEARLE (New Zealand) (Chairman)
J. BOCTOR (Egypt) (now absent)
S.A. SATHAR (Pakistan) (now absent)
A. SOUTO CRUZ (Portugal)
F.E. SPERRING (United Kingdom)
W.E. WEAVER (U.S.A.)
P.J. GREVEN (I.C.A.O.)
L.M. LAYZELL (I.A.T.A.)

Other delegates, including A. Alvendia (Philippines) E.V. Shores (U.S.A.) have assisted in this work as they have been able.

2. FORM OF REPORT

As approved by Committee 6 at the meeting on the 12th of August, the report covering Plan I has been produced in two parts. Part I is described in Aer-Document 239 and concerns the sharing between MWARA's. The present report Part II concerns the sharing from Major World Air Route Areas to RDARA and sub-areas and between RDARA and sub-areas themselves.

3. PREVIOUS REPORTS OF PROPAGATION GROUP

This report requires to be read in conjunction with Group reports 1, 2 and 3 Aer-Documents 211, 216 and 239 respectively.

4. PRINCIPLES ADOPTED FOR SHARING BETWEEN AREAS AND SUB-AREAS

4.1. General: It should be noted that purely from the frequency sharing view-point, the task of allotting frequencies to areas and sub-areas is a much more formidable one than sharing between MWARA's. For example, in the 3 Mc/s band, there are 16 channels required by eleven major world air routes. In the areas and sub-areas, however, there are 89 channels required by 29 areas and sub-areas.

Therefore, whereas for the major world air route system, there are 120 different combinations taken two at a time which require to be checked, for the RDARA system there are over 20.000 combinations taken four at a time which require to be checked. This is of course a task which has not been undertaken nor, in fact, is it desirable that it be done, for the reason that even by so doing it would not be possible to meet requests as they stand at present.

Under the circumstances, therefore, the group has acted in what it considers to be a reasonable way by sharing channels in as impartial a manner as possible. The principles adopted are as follows :

- 4.1.1. It being known in advance that complete requirements of RDARA's could not be met, it was decided to share frequencies out by commencing at a complete area where the demand was very heavy, and to repeat that particular frequency in areas and sub-areas lying as close as possible to the area which was used as a starting point.
- 4.1.2. The principle stated in 4.1.1. above was modified to the extent that an endeavour was also made to share the frequency used in the area accepted as a starting point, with as many areas and sub-areas as possible having a high demand.

5. TECHNICAL STANDARDS:

In formulating the plan, technical standards adopted by Committee 6 have been used. These standards appear in the following references: Aer-Doc-209, paragraphs 4 and 5. Aer-Doc-214, paragraph 13 and Aer-Doc-236, paragraph 22.

The standards are repeated hereunder:

5.1. Protection distance: based on protection ratio of 15 db at the air-craft.

5.2. Sharing conditions.

FREQUENCY Mc/s	C O N D I T I O N	
	MWARA to RDARA	Between RDARA
3	Night	Night
3.5	Night	Night
4.7	Night	Night/Day (1)
5.6	Night	Day
6.6	Day	Day (2)
9	Day	Day
10	Day	Day
11.3	Day	Day

Notes

- (1) Night between 40° N and 40° S; Day in other latitudes. For Europe day above 35° N.
- (2) Based on protection distance for 5.6 Mc/s.

As will be noted, these conditions apply to the following frequency orders: 3, 3.5, 4.7, 5.6, 6.6, 9, 10 and 11.3 Mc/s. For the frequency orders of 13.3 and 18 Mc/s different methods of approach were utilised as follows:

5.3. Sharing on 13.3 Mc/s

On a time basis, 80° longitudinal separation being the target, this being decreased where it has been considered reasonable.

5.4. Sharing on 18 Mc/s.

With this frequency order it has been possible to share on a basis consistent with demand as the requests are low. In one case it has been necessary to apply time separation.

6. POWER

It is important to remember that the plan for allotment herein described is based on the assumption that there is radiated from the aeronautical station one KW of mean carrier power. As mentioned in the second report of the propagation group, Aer-Document 216, paragraph 7, however, it would seem that for RDARA allotments in the Eastern Hemisphere this is too high a figure to use and a lower figure would be more realistic. The group is accordingly publishing another plan based on the assumption that a radiated power of 200 watts is a more common figure for RDARA services.

7. SHARING PLAN

The sharing plan shown in Tables IV to XIII (inclusive) portrays the possible repetitions classified according to a designator. Such designators may readily be associated with any specific frequency channel in any of the relative bands.

8. DESCRIPTION OF ATTACHED TABLES

8.1. Tables I and II show the extent to which requests for frequencies for the different areas and sub-areas have been met for the specific frequency orders. It is important to note that the control frequencies of 3 and 3.5 Mc/s are included in each total for sub-areas.

8.2. Table III is an extreme summary neglecting frequency order showing the extent to which channel requirements have been met. This Table does of course, for obvious reasons, require to be used with great caution.

8.3. Tables IV to XIII (inclusive) show a specimen allotment plan for the sharing possibilities shown in Tables I and II.

9. CONCLUSIONS

9.1. General: The Group is of the opinion that the plan produced in this document is one which is sound technically. There may, however, be some minor errors which have been introduced due to the conditions under which the Group has been required to work. Also there is room for round table discussions in an endeavour to obtain a few more channels based on practical operating knowledge. Certain instances will quickly come to mind in perusing the attached tables which have been prepared for the convenience of delegates.

9.2. SPECIFIC

9.2.1. - The plan does not fulfill requests insofar as the Eastern Hemisphere in particular is concerned, and it is on this hemisphere that the group was required to pay particular attention.

In certain bands, however, the plan goes a long way to meeting requests, subject to agreement between Eastern and Western Hemispheres. Results are as follows :

- 18 Mc/s requests met except in the combined requirement of areas 2 and 3 which is one short. One frequency may, however, be used in sub-areas 3A and 3C which has not been requested.
- 13 Mc/s requests met in all areas and sub-areas, except combined areas 2 and 3.
- 11.3 Mc/s requests met in all areas - not met in sub-areas 4B, 6A/E, 6B, 6D, and 7E.
- 10 Mc/s requests met in all areas and sub-areas.
- 9 Mc/s requests met in area 6 and all areas and sub-areas of 7 and 9. Elsewhere requests not met.
- 5.6 Mc/s requests met in all areas except 2 and 3 combined. Requests in many sub-areas not met.
- 4.7 Mc/s requests met for all areas. Requests not met for many sub-areas.
- 3.5 Mc/s very few requests met in areas or sub-areas.
- 3.0 Mc/s requests met for RDARA's 1, 3, 7. Some requests for sub-areas met

The group considers that while the above conclusion is not good, it is likewise not extremely bad for a first complete trial using the approach adopted, i.e., the application of a method based on propagation data. The group is of the opinion that while the outcome of its work cannot be termed successful inasmuch as the requests for frequencies cannot be met by immediate application of the principles adopted, nevertheless the outcome does show in what direction attention needs to be directed in the furtherance of the distribution and allotment of aeronautical mobile frequencies based on an engineering method. It is for this reason that the Group has formulated and proceeded with a plan based on a power radiated of 200 watts.

The results of this work will, it is hoped, be published almost simultaneously with this report.

G. SEARLE (New Zealand)
Chairman.

(Aer-Doc-249)

SUMMARY OF REQUESTS AND EXTENT TO WHICH THEY HAVE BEEN MET

POWER RADIATED : 1 kW

RESUME DES DEMANDES ET MESURE DANS LAQUELLE ELLES ONT ETE SATISFAITES

PUISSANCE RAYONNEE : 1 kW

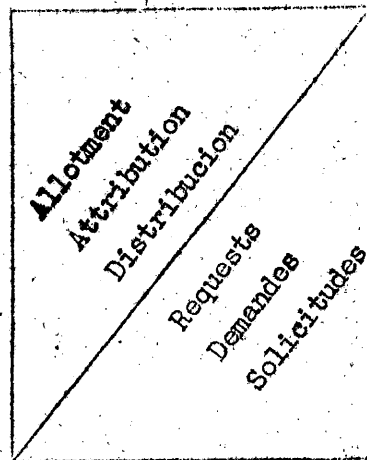
RESUMEN DE SOLICITUDES FORMULADAS Y MEDIDA EN QUE SE HAN PODIDO SATISFACER

POTENCIA RADIADA : 1 kW

KEY

LEGENDE

CLAVE



TABLES I AND II

TABLEAUX I ET II

CUADROS I Y II

FREQUENCY ORDER Mc/s ORDRE DE GRANDEUR DE FREQUENCE Mc/s ORDEN DE FRECUENCIA en Mc/s	3	3.5	4.7	5.6	6.6	9	10	11	13	18
RDARA ZLARN RDARA										
1	6 6	3 4	-	5 5	-	1 3	1 1	1 1	-	-
1 A	1	1	-	-	-	-	-	-	-	-
1 B	3 8	1 6	-	-	-	-	-	-	-	-
1 C	1 5	1 5	-	2 9	-	4	-	-	-	-
1 D	1 7	1 16	-	-	3 12	7	-	-	-	-
1 E	1 1	1 3	-	-	1 3	1	-	-	-	-
2	2 3	-	1 2	3 1	2 3	-	2 2	2 2	2 2	1 1
2 A	1 3	1 1	-	-	2 3	-	-	-	-	-
2 B	1 3	1 2	-	-	1 2	-	-	-	-	-
2 C	1 4	1 2	-	-	-	-	-	-	-	-
3	3 3	-	1 2	3 1	1 3	-	2 3	2 2	2 2	1 1
3 A	1 4	1 2	-	-	2 3	-	-	-	1*	1*
3 B	4 4	1 2	1 1	2 3	5 2	1 2	-	-	-	-
3 C	4 4	1 2	-	-	2 3	2 2	-	-	-	-
2 and 3	3 5	2 3	1 1	3 4	2 5	2 4	3 3	4 4	1 2	2 3
4	-	1 2	2 2	1 1	2 2	-	-	-	-	-
4 A	1 3	1 -	-	-	-	-	-	-	-	-
4 B	2 1	1 5	-	5 5	6 6	-	-	-	2	-
5	-	1 4	-	4 4	4 4	1 4	2	-	-	-
5 A	1 3	1 5	-	-	1 4	-	-	-	-	-
5 B	1 -	1 4	-	-	1 2	-	-	-	-	-

*Shared
frequency
*Fréquence
partagée
*Frecuencia
compartida

TABLE I
TABLEAU I
CUADRO I

FREQUENCY ORDER Mc/s ORDRE DE GRANDEUR DE FREQUENCE Mc/s ORDEN DE FRECUENCIA EN Mc/s	3	3.5	4.7	5.6	6.6	9	10	11	13	18
RDARA ZLARN RDARA										
5 C	3	1	-	-	-	-	-	-	-	-
5 D	1	1	4	1	1	5	-	-	-	-
6	-	1	-	2	1	1	-	1	-	-
6 A/E	2	2	-	-	2	-	-	-	-	-
6 B	4	3	-	3	3	1	-	-	-	-
6C	3	1	2	1	4	2	3	1*	-	-
6 D	1	2	4	1	4	9	2(18)	2	-	-
6 E										
7	3	1	1	-	3	2	2	-	2	1
7 A	1	1	-	-	-	-	-	-	-	-
7 B	2	2	1	1	2	3	2	-	-	-
7 C	1	1	-	-	1	1	-	-	-	-
7 D	4	3	-	4	1	3	-	-	-	-
7 E	5	2	4	-	1	2	2	3	-	-
9	1	1	2	4	2	1	-	1	-	-
9 A	2	1	1	-	1	1	-	-	-	-
9 B	2	1	1	2	2	1	-	2	-	-
9 C	1	1	1	-	-	-	-	-	-	-
9 D	7	8	3	5	6	1	-	2	-	-
9 E	3	1	1	-	-	2	2	-	-	-

*Common to
6C and D
*Commune à
6C et D
*Comun a
6 C y D

TABLE II
TABLEAU II
CUADRO II

RDARA	TOTAL CHANNELS REQUESTED	CHANNELS ALLOTTED	PERCENTAGE SATISFACTION	RDARA	TOTAL CHANNELS REQUESTED	CHANNELS ALLOTTED	PERCENTAGE SATISFACTION
ZIARN	TOTAL DES VOIES DEMANDEES	VOIES ATTRIBUEES	POURCENT DES DEMANDES SATISFAITES	ZIARN	TOTAL DES VOIES DEMANDEES	VOIES ATTRIBUEES	POURCENT DES DEMANDES SATISFAITES
RDARA	TOTAL DE CANALES SOLICITADOS	CANALES DISTRIBUIDOS	PORCENTAJE DE NECESIDADES SATISFECHAS	RDARA	TOTAL DE CANALES SOLICITADOS	CANALES DISTRIBUIDOS	PORCENTAJE DE NECESIDADES SATISFECHAS
1	20	17	85	5	14	10	71.5
1A	-	2	-	5A	24	3	12.5
1B	20	4	20	5B	14	3	21.4
1C	28	4	14.3	5C	14	4	100
1D	49	5	10.2	5D	12	3	25
1E	12	3	25	6	4	6	150
2	18	14	77	6A/E	28	6	21.4
2A	11	4	36.4	6B	33	14	42.4
2B	11	3	27.3	6C	13	13	100
2C	15	2	13.3	6D	35	23	65.8
3	19	13	68.4	7	10	12	120
3A	11	6	55	7A	-	2	-
3B	12	14	116.7	7B	8	10	125
3C	12	10	83	7C	7	4	57.2
2+3	34	23	67.6	7D	8	15	187.5
4	8	6	75	7E	14	17	121.3
4A	8	2	25	9	4	12	300
4B	22	14	63.6	9A	4	6	150
				9B	9	11	122.2
				9C	-	4	-
				9D	24	32	133
				9E	4	8	200

NOTE: The "requested" figures are those as reduced to the considered minimum by delegates present at the Conference.

NOTE: Les chiffres des voies "demandées" représentent les minima indiqués par les délégués présents à la Conférence.

NOTA: Las cifras de la columna "total de canales solicitados" representan el número mínimo de canales indicado por los delegados que asisten a la conferencia.

TABLE III
TABLEAU III
CUADRO III

(Aer-Doc-249-F)

SHARING PLAN FOR MAJOR WORLD AIR ROUTE AREAS, REGIONAL DOMESTIC
AIR ROUTE AREAS AND SUB-AREAS

- - -

PLAN DE PARTAGE ENTRE LES ZONES DE PASSAGE DES LIGNES AERIENNES
MONDIALES PRINCIPALES ET LES ZONES ET SOUS ZONES DES LIGNES AE-
RIENNES REGIONALES ET NATIONALES

- - -

PLAN DE PARTICIPACION ENTRE LAS AREAS DE RUTAS AEREAS MAS IMPOR-
TANTES DEL MUNDO Y LAS AREAS Y SUBAREAS DE RUTAS AEREAS REGIO-
NALES Y NACIONALES

- - -

POWER RADIATED : 1 kW

PUISSANCE RAYONNEE : 1 kW

POTENCIA RADIADA : 1 kW

- - -

TABLES IV TO WIII (Inclusive)

TABLEAUX IV A WIII (Inclus)

CUADROS IV A XIII (Ambos inclusive)

- - -

REPETITIONS
FREQUENCY BAND: 3 Mc/s

ASSIGNATIONS MULTIPLES
BANDE DE FREQUENCES: 3 Mc/s

REPETICIONES
BANDA DE FRECUENCIAS: 3 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES				
A1	NP	FEL	NA	7B	
A2	CWP	NSA2 (Ext)	NSAM2	9E	
A3	SP	NA	6B		
A4	FE2	NA	7		
A5	EU	NSAM1	6B		
A6	EU	NSAM2	6B		
A7	NA (Ext)	6 A/E			
A8	SA	3	5C	9D	
A9	Pacific MET				
A10	Atlantic MET				
A11	CONTROL				
A12	1	3B	9D		
A13	1	3C	7E	9D	
A14	2	6C	7D		
A15	2	6C	7E		
A16	1	3B	7D	9A	
A17	1B	3	4B	9B	
A18	1B	3	5C	9D	
A19	1	3C	7E	9D	
A20	1	3C	7E	9E	
A21	1	3B	7D	9D	
A22	2 & 3	7			
A23	2 & 3	9			
A24	2 & 3	7			

TABLE IV

TABLEAU IV

CUADRO IV

FREQUENCY BAND: 3.5 Mc/s BANDE DE FREQUENCES: 3,5 Mc/s BANDA DE FRECUENCIAS: 3.5 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES				
B1	CEP	SA (Ext)	6 A/E	7 E	9 D
B2	CEP	ME (Ext)	9 D		
B3	CEP	EU	6 D	9 D	
B4	CEP	EU	6 B		
B5	NSAM 2	ME	9		
B6	NSA 1 (Ext)	6			
B7	CONTROL				
B8	1	6 D	7 E		
B9	1	6 D	7 E		
B10	1	6 C	7 D		
B11	2 & 3	7 B	9 D		
B12	2 & 3	7 D	9 D		
B13	4	6 B	9 D		
B14	5	9 D			

TABLE V

TABLEAU V

CUADRO V

FREQUENCY BAND: 4.7 Mc/s BANDE DE FREQUENCES: 4,7 Mc/s BANDA DE FRECUENCIAS: 4.7 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES				
C1	EU	9			
C2	EU	9			
C3	NSAM 1	2	9 D		
C4	4	3 B	9 D		
C5	4	3 B	6 D	9 B	
C6	3	7 B	9 C		
C7	2 & 3	9 D			

TABLE VI

TABLEAU VI

CUADRO VI

FREQUENCY BAND: 5.6 Mc/s . BANDE DE FREQUENCES: 5,6 Mc/s . BANDA DE FRECUENCIAS: 5.6 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES				
D1	NA	FE 1			
D2	NA	FE 2			
D3	NA	SP			
D4	NA (Ext)	9 B			
D5	CEP	EU	9 D		
D6	NP	NSA 2(Ext)			
D7	CWP	NSA 1(Ext)			
D8	NSAM 2	3	5	6 C	
D9	NSAM 2	3	5	6 C	
D10	CEP	ME (Ext)			
D11	PAC MET	7			
D12	AT MET				
D13	1	3	6 D	7 D	
D14	1	7	6 B	9 A	
D15	1	7	6 B	9 B	
D16	5	1 C	3 B	6 D	9 D
D17	5	1 C	3 B	6 D	9 D
D18	1	6	7 B		
D19	1	6	7 E		
D20	2	5 D	6 C		
D21	2	4 B	6 D	9 D	
D22	2	4 B	6 C	9 D	
D23	2 & 3	9	4 B	7 D	
D24	2 & 3	9	4 B	7 D	
D25	2 & 3	9	4 B	7 D	
D26	4	9	6 B		

TABLE VII

TABLEAU VII

CUADRO VII

(Aer-Doc-249)

FREQUENCY BAND: 6.6 Mc/s

BANDE DE FREQUENCES: 6,6 Mc/s

BANDA DE FRECUENCIAS: 6.6 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES					
E1	SA	CEP	5	3B	6D	
E2	SA	CEP	5	9	3B	
E3	SA (Ext)	7	2B	6C		
E4	ME (Ext)	9	3C	7B		
E5	NSAM 2	4	3A	6D		
E6	NSAM 1	4	6B	9E		
E7	EU	3C	6D	7D		
E8	EU	6	7E			
E9	2	4B	6D	9D		
E10	2	4B	6D	9D		
E11	3	1E	5B	6C	7B	
E12	7	1D	6 A/E			
E13	5	3B	9B			
E14	5	3B	6C			
E15	1D	3A	6D	7C	9D	
E16	1D	3B	6 A/E	9B		
E17	5A	6D	7E	9D		
E18	2A	4B	6B	9A		
E19	2 & 3	4 B	6D	9D		
E20	2 & 3	4B	6D	9D		
E21	2A	4B	6B	9E		

TABLE VIII

TABLEAU VIII

CUADRO VIII

FREQUENCY BAND: 9 Mc/s BANDE DE FREQUENCES: 9 Mc/s BANDA DE FRECUENCIAS: 9 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES				
F1	FE 2	EU	NS/M 2	7 D	
F2	FE 1	EU	CEP	7 E	
F3	NSAM 2	ME (Ext)	SP	3 D	
F4	NSAM 1	NSA 1 (Ext)	6 C*	6 D *	
F5	SA	FE 1	CEP	7 E	
F6	SA	NP	7 C	9 A	
F7	NA	CWP	7		
F8	NA (Ext)	7	9 D		
F9	NA	3 C	7 B	9 B	
F10	NA	6	7 B		
F11	NSA 2 (Ext)	6 B			
F12	PAC MET				
F13	ATL MET				
F14	5	9			
F15	1	6 D			
F16	2 & 3	7 D	9 E		
F17	2 & 3	7 D	9 E		

*Common channel

*Voie commune

*Canal común

TABLE IX

TABEAU IX

CUADRO IX

(Aer-Doc-249)

FREQUENCY BAND: 10 Mc/s BANDE DE FREQUENCES: 10 Mc/s BANDA DE FRECUENCIAS: 10 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES			
G1	CEP	7A (Ext)	6 D	
G2	CEP	1	6 D	
G3	NSAM 2	ME (Ext)	9 C	
G4	2			
G5	2			
G6	3			
G7	3			
G8	2 & 3	7 E		
G9	2 & 3	7 E		
G10	2 & 3	7 E		

TABLE X

TABLEAUX X

CUADRO X

(Aer-Doc-249)

FREQUENCY BAND: 11,3 Mc/s BANDE DE FREQUENCES: 11,3 Mc/s BANDA DE FRECUENCIAS: 11,3 Mc/s

DESIGNATOR INDICATIF DISTINTIVO		COMBINATIONS COMBINAISONS COMBINACIONES		
H1	CEP	7		
H2	CEP	EU		
H3	NSAM 2	6		
H4	1	9		
H5	2	9 B		
H6	3	9 D		
H7	2 & 3			
H8	2 & 3			
H9	2 & 3			
H10	2 & 3			
H11	7			
H12	2	9 B		
H13	3	9 D		

TABLE XI

TABEAU XI

CUADRO XI

FREQUENCY BAND: 13.3 Mc/s BANDE DE FREQUENCES: 13,3 Mc/s BANDA DE FRECUENCIAS: 13.3 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES			
J1	NA	3		
J2	NS/M 2	SP	2	
J3	NA	FE 1		
J4	ME (Ext)	NSA 2 (Ext)	CEP	
J5	NA (Ext)	CWP		
J6	NA	FE 2		
J7 (2)	NS/M 1			
J8	NSA 1 (Ext)	CEP		
J9	SA (Ext)	NP		
J10	2 & 3	7 (1)		

TABLE XII

TABLEAU XII

CUADRO XII

- (1) On reduced power - à puissance réduite - de potencia reducida
 (2) Designator J 7 shares also with 2, 3A and 3C. This is a common channel.
 (2) Indicatif J7, peut se répéter également avec 2, 3A et 3C; il s'agit d'une voie commune
 (2) El indicativo J7 se comparte también con 2, 3A y 3C; Es un canal común.

FREQUENCY BAND: 18,0 Mc/s BANDE DE FREQUENCES: 18,0 Mc/s BANDA DE FRECUENCIAS: 18,0 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES				
K1	NA	FE 1	FE 2		
K2	CEP	ME	NSA 2		
K3	CWP	NP	EU		
K4	SA	NSA 1	SP		
K5	NS/M 1	NS/M 2	3 A	3 C	
K6 *	2 & 3				
K7 *	2 & 3				

TABLE XIII

TABLEAU XIII

CUADRO XIII

- *By arrangement with Western Hemisphere
 *Après entente avec l'hémisphère Ouest
 *De acuerdo con el hemisferio occidental

PROPAGATION GROUP

Report N° 5

Sharing from Major World Air Route Areas (MWARA) to Regional and Domestic Air Route Areas (RDARA) on the basis of 1 kW of radiated power, and between areas and sub-areas on the basis of 200 W of radiated power. Comparisons with Report N° 4 and conclusions.

1. Group members.

Members of the Group who have consistently devoted time to this particular work are as follows :

G. Searle	New Zealand
E.G. Betts	Australia
A.Souto Cruz	Portugal
F.E. Sperring	United Kingdom
W.E. Weaver	U.S.A.
P.J. Greven	I.C.A.O.
L.M. Layzell	I.A.T.A.

Mr. Chef (Morocco and Tunisia), Mr. A. Alvendia (Philippines), and Mr. E.V. Shores (U.S.A.) have also devoted time to the Group as their other duties have permitted.

2. Introduction.

Although not in the terms of reference of the Propagation Group it has been deemed desirable, arising out of the work performed by the Group on the assumption of 1 kW radiated power, to consider a plan based on the use of a radiated power of 200 watts. Reference to this matter has been made in previous reports of the Group, i.e. Report N° 2, Aer-Document N° 216 and Report N° 4, Aer-Document N° 249.

3. Procedure.

The procedure adopted is the same as that described in the Fourth Report of the Propagation Group, taken in conjunction with the method of sharing described in the First Report of the Group, Aer-Document N° 211. Briefly there is protection based on one kilowatt of radiated power between MWARA and RDARA and sub-areas and protection based on 200 watts of radiated power between areas and sub-areas themselves.

4. Protection Distance.

Included in Aer-Document N° 211 are tables showing the service and interference ranges for the various orders of frequencies. Also shown are

the protection distances converted to degrees for the various latitudes. All this data is for a radiated power of one kilowatt. It has been necessary for the production of a plan based on a radiated power of 200 W to prepare figures giving the reduced protection distances. These are shown in table I attached to this document. The table has been compiled on the reduction figures described in Aer-Document N° 216, section 7, second paragraph.

5. Technical standards.

In formulating the plan, technical standards adopted by Committee 6 have been generally used, with the exception of a modification in power radiated. These standards appear in the following references : Aer-Document 209, para. 4 and 5 , Aer-Document 214, para. 13, and Aer-Document 236, para. 22. The standards are repeated hereunder :

5.1. Protection distance : based on protection ratio of 15 db at the aircraft.

5.2. Sharing conditions.

Frequency Mc/s	C O N D I T I O N	
	MWARA to RDARA	Between RDARA
3	Night	Night
3.5	Night	Night
4.7	Night	Night/day (1)
5.6	Night	Day
6.6	Day	Day (2)
9	Day	Day
10	Day	Day
11.3	Day	Day

Notes : (1) Night between 40° N and 40° S; day in other latitudes.
For Europe, day above 35° N.

(2) Based on protection distances for 5.6 Mc/s.

These standards have not been applied to frequency orders of 13.3 and 28 Mc/s for which the methods of approach described in sections 5.3 and 5.4 of Report N° 4 (Aer-Doc. N° 249) were used.

Also as requirements were generally met for frequency orders of 10, 13, 18 Mc/s for a power radiated of 1 kW these figures have remained unaltered. Hence for such frequency orders, a radiated power of 1 kW may be used.

6. Principles adopted for sharing between RDARA and sub-areas.

The same remarks as made in section 4 of Propagation Group Report N° 4 (Aer-Document N° 249) apply in this Report with the exception that there has in the work described for 200 W, been also an attempt to share to a greater extent into the sub-areas.

7. Sharing Plan.

The same remarks in respect of the sharing plan made in Propagation Group Report N° 4, section N° 7 (Aer-Document N° 249) apply in this Report.

8. Description of attached Tables.

- 8.1 - Table I shows the protection distances in degrees based on a power radiated of 200 watts for the propagation standards adopted.
- 8.2 - Tables II and III show the extent to which requests for channels for the different areas and sub-areas have been met for each of the specific frequency orders. It is important to note that the control frequencies of 3 and 3.5 Mc/s are included in each total for sub-areas.
- 8.3 - Tables IV to XIII (inclusive) show a sharing plan for the sharing possibilities shown in tables II and III.
- 8.4 - Table XIV is an extreme summary neglecting frequency, showing the extent to which channel requirements have been met. This table does of course require to be used with great caution.
- 8.5 - Table XV shows a summary of the complete data for areas 1 - 9 inclusive. This shows for each frequency order the total channels available, the channels exclusively available to areas and sub-areas, the total channels allocated to areas and sub-areas (1 kW and 200 watts), the total channels requested by areas and sub-areas, the average repetition ratio required, and the average repetition ratio achieved, (for a power of 200 watts radiated). For the calculation of the repetition ratio, the number of frequencies exclusively available to RDARA has been used as the denominator as a matter of convenience.
- 8.6 - Table XVI shows the same general data as table XV, except in this case, the table applies to the summation of areas 1 - 6 inclusive instead of 1 - 9 inclusive. Also there is a difference in this table in that whereas table XV showed the total channels allotted, table XVI shows the total channels allotted which fall into areas and sub-areas where they have been requested. This may not give an exactly correct picture, as channels allotted which have not been requested may assist materially in meeting a shortage of frequencies for the same area in an adjacent band.

8.7 - Table XVII shows a summary of data for area I and its sub-areas. It shows for each frequency order, the channels requested, the total frequencies available to MWARA and RDARA, the frequencies available to RDARA exclusively and the total channels allotted to area I for a power radiated of 200 watts.

9. Conclusions.

9.1 - 200 watts radiated plan. The Group is again of the opinion that the plan produced is sound technically. There may however be some minor errors which have been introduced due to the conditions under which the Group has been required to work. Also there is room for round table discussions in an endeavour to obtain a few more sharing possibilities based on practical operating knowledge. Certain instances will quickly come to mind in perusing the attached tables which have been prepared for the convenience of delegates.

9.1.1.- Allotments compared with requests.

The plan does not fulfil requests for frequencies insofar as the Eastern Hemisphere is concerned and it is to this hemisphere that the Group was required to pay particular attention. In certain cases, however, the plan goes a long way to meeting requests, subject in certain cases to agreements between Eastern and Western hemispheres.

Results are as follows :

- 18 Mc/s Requests met, except for the combined requirements of areas 2 and 3 which is one short. One frequency may, however, be used in sub-areas 3A and 3C which has not been requested.
- 13 Mc/s Requests met in all areas and sub-areas, except combined areas 2 and 3.
- 11.3 Mc/s Requests met in all areas and sub-areas except 9B and 6C which are one short.
- 10 Mc/s Requests met in all areas and sub-areas.
- 9 Mc/s Requests only partially met.
- 6.6 Mc/s Requests almost met.
- 5.6 Mc/s Shortages particularly in areas 1 and 2.
- 4.7 Mc/s Shortages in areas 1, 2, 3, 4, 5 and 6, and also in sub-areas.
- 3.5 Mc/s Shortages in all areas - particularly 1, 2, 3, 4, 5 and 6. Shortages in all sub-areas.
- 3.0 Mc/s Shortages in all areas - particularly 1, 2, and 3. Also shortages in sub-areas.

9.2. Comparison of allotments made with 200 watts and 1 kW of power respectively.

It is apparent that by reducing the power radiated from 1 kW to 200 watts many more allotments may be made. This is illustrated by the remarks made under 9.1 above when compared with previous remarks made in the Conclusion of Report N° 4 of the Group.

This is also clear from a study of tables XV and XVI attached to this document. Therefore the work undertaken in the preparation of the 200 watts plan has been well worthwhile as it contributes to the availability of channels.

9.3. Inequality between allotments and requests.

The greatest discrepancies between requests and allotments appear in areas 1 to 6 in frequency orders of 3, 3.5, 4.7, 5.6 and 6.6 Mc/s. This is in spite of sharing on the latter three frequency orders being made on a day time basis. For instance in the 4.7 Mc/s band, a repetition factor of 14 for the territory covered by these areas, is required. This is not considered possible. For the 200 watts plan a repetition factor of 5 has been achieved, and this would seem to be in line with practical operating feasibility (see table XVI).

9.3.1. Recommendation.

That considerable further attention should be paid to the reduction in requests for frequencies in the orders of 3, 3.5, 4.7, 5.6 and 6.6 in areas 1 to 6 inclusive (sub-areas included).

9.4. Inequalities in requests in the different bands.

Reference to table XVI indicates that for areas 1 - 6 (inclusive) there is in the 3 Mc/s band a demand for 78 channels when there is a total of 24 clear frequencies (13 for RDARA exclusively). However in the 3.5 Mc/s band, there is a demand for 104 channels when there is a total of only 14 clear frequencies (7 for RDARA exclusively). This means that there is a complete unbalance between requirements and availability in the two bands.

9.4.1. Recommendation.

That the requirement in the 3.5 Mc/s band should be less than in the 3 Mc/s band, and that both requirements should be reduced considerably.

9.5. The matter of allotments and requests in area 1 and sub-areas.

Table XVII shows an extract of the position insofar as it applies to area 1 and its sub-areas.

Perusal of this table will show that whereas there is a total of 24 frequencies in the 3 Mc/s band, 13 of which are for the exclusive use of areas, there is a demand for 27 channels. Also whereas there is a total of 14 frequencies in the 3.5 Mc/s band, 7 of which are for the exclusive use of RDARA, there is a demand for 34 channels. These requests are impossible to meet on the present basis, as in general these frequencies cannot be shared in area 1 without interfering with each other at night time. The same applies to the frequency orders of 4.7 and 5.6 Mc/s.

9.5.1. Recommendation.

Under the circumstances therefore there should be a considerable reduction in requests in sub-areas of area 1 for the frequency orders of 3, 3.5, 4.7 and 5.6 Mc/s.

At the same time, there should be a greater request for frequencies of the order of 3 Mc/s than for frequencies of the order of 3.5 Mc/s. The reverse is the case at present.

9.6. - Complexity of the problem.

The Group wishes to draw the attention of delegates to the fact that the preparation of the frequency repetition and allotment plan to this stage has entailed the expenditure of approximately 3,000 man hours. This of course does not include time expended by the Western Hemisphere Group, but merely by the present Propagation Group and by the previous Propagation Group which prepared basic data and an appreciation for Working Group 6 C.

9.6.1. Recommendation.

That as the work performed has been considerable, it should be made use of to the full. In furtherance of this objective the Group recommends the printing of the various tracings used, for filing with the Secretariat, and also the proper filing of all its papers and records. Certain action has already been initiated along these lines.

10. - NOTE.

It will be observed that in the above discussion the Group recommends under various headings the further reduction in requests for frequencies in the RDARA and sub-areas. Such recommendations are based on the principles already adopted by Committee 6.

G. SEARLE (New Zealand)

Chairman

ANGULAR PROTECTION DISTANCES BASED ON 200 W RADIATED POWER

DISTANCES DE PROTECTION MESUREES EN ARC DE MERIDIEN ET DE PARALLELE POUR UNE PUISSANCE RAYONNEE DE 200 W

DISTANCIAS DE PROTECCION ANGULAR BASADAS EN UNA POTENCIA RADIADA DE 200 W

CONDITION : NIGHT

CONDITION DE NUIT

CONDICION : NOCHE

PROTECTION RATIO = 15 DB

RAPPORT DE PROTECTION = 15 DB

COEFICIENTE DE PROTECCION = 15 DB

FREQUENCY FREQUENCE FRECUENCIA Mc/s	3		3.5		4.7	
LATITUDE LATITUDE LATITUD	N - S	E - O W	N - S	E - O W	N - S	E - O W
0°	21.6°	21.6°	26°	26°	37.5°	37.5°
10°	21.6°	22°	26°	26°	37.5°	37.5°
20°	21.6°	23°	26°	27°	37.5°	40°
30°	21.6°	25°	26°	30°	37.5°	43°
40°	21.6°	27.6°	26°	33°	37.5°	49°
50°	21.6°	33.6°	26°	40°	37.5°	57°

CONDITION : DAY

CONDITION DE JOUR

CONDICION : DIA

PROTECTION RATIO = 15 DB

RAPPORT DE PROTECTION = 15 DB

COEFICIENTE DE PROTECCION = 15 DB

FREQUENCY FREQUENCE FRECUENCIA Mc/s	4.7		5.6		9		10		11.3	
LATITUDE LATITUDE LATITUD	N - S	E - O W	N - S	E - O W	N - S	E - O W	N - S	E - O W	N - S	E - O W
0°					32.5°	32.5°	46°	46°	50.5°	50.5°
10°					32.5°	33°	46°	46°	50.5°	50.5°
20°					32.5°	34.5°	46°	49°	50.5°	54°
30°					32.5°	36.4°	46°	53°	50.5°	59°
40°	10.5°	14°	13°	17°	32.5°	42.5°	46°	59.5°	50.5°	66.5°
50°	10.5°	16.5°	13°	20.5°	32.5°	50.5°	46°	72°	50.5°	79.5°
60°	10.5°	21.4°	13°	26°	32.5°	61°	46°	91.5°	50.5°	102°

TABLE I

TABLEAU I

CUADRO I

(Aer-Doc-250)

(Aer-Doc-250)

SUMMARY OF REQUESTS AND EXTENT TO WHICH THEY HAVE BEEN MET

POWER RADIATED : 200 W.

RESUME DES DEMANDES ET MESURE DANS LAQUELLE ELLES ONT ETE SATISFAITES

PUISSANCE RAYONNEE : 200 W

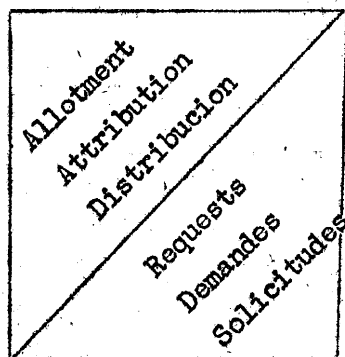
RESUMEN DE SOLICITUDES FORMULADAS Y MEDIDA EN QUE SE HAN PODIDO SATISFACER

POTENCIA RADIADA : 200 W

KEY

LEGENDE

CLAVE



TABLES II AND III

TABLEAUX II ET III

CUADROS II Y III

(Aer-Doc-250)

FREQUENCY ORDER Mc/s											
ORDRE DE GRANDEUR DE FREQUENCE Mc/s											
ORDEN DE FRECUENCIA EN Mc/s	3	3.5	4.7	5.6	6.6	9	10	11	13	18	
RDARA ZLARN REARA											
1	6 6	2 4	- -	2 5	- -	1 3	1 1	1 1	- -	- -	-
1 A	1 -	1 -	- -	- -	- -	- -	- -	- -	- -	- -	-
1 B	2 8	3 6	1 3	3 3	- -	- -	- -	- -	- -	- -	-
1 C	1 5	1 5	2 5	3 9	4 4	- -	- -	- -	- -	- -	-
1 D	1 7	2 16	1 7	3 12	5 7	- -	- -	- -	- -	- -	-
1 E	1 1	1 3	1 4	2 3	2 1	- -	- -	- -	- -	- -	-
2	3 3	1 2	1 1	1 3	1 2	- 2	2 2	2 2	1* 1	-	-
2 A	1 3	1 1	- 1	1 3	2 2	- 1	- -	- -	- -	- -	-
2 B	1 3	1 2	1 1	- 2	2 2	- 1	- -	- -	- -	- -	-
2 C	1 4	1 2	- 1	2 4	- 3	- 1	- -	- -	- -	- -	-
3	6 3	2 2	1 1	4 3	5 2	- 3	2 2	2 2	1 1	-	-
3 A	2 4	2 2	1 1	5 3	1 1	- -	- -	1 -	1* -	1* -	-
3 B	5 4	4 2	3 1	3 3	3 2	3 -	- -	- -	- -	- -	-
3 C	1 4	3 2	- 1	3 3	4 2	1 -	- -	- -	1* -	1* -	-
2 & 3	3 5	- 3	- 1	1 4	4 5	2 4	3 3	4 4	1 2	2 3	-
4	- -	- 2	2 2	2 1	2 2	- 1	- -	- -	- -	- -	-
4 A	4 3	1 -	1 3	- -	- -	- 2	- -	- -	- -	- -	-
4 B	6 1	3 5	1 1	6 5	4 6	2 2	- -	2 2	- -	- -	-
5	- -	2 4	- -	3 4	3 4	1 2	- -	- -	- -	- -	-
5 A	2 3	1 5	- 2	2 4	4 8	- 2	- -	- -	- -	- -	-
5 B	2 -	1 4	- 2	1 2	- 4	- 2	- -	- -	- -	- -	-

*Shared frequency

*Fréquence partagée

*Frecuencia compartida

TABLE II
TABLEAU II
CUADRO II

FREQUENCY ORDER Mc/s											
ORDRE DE GRANDEUR DE FREQUEN- CE Mc/s											
ORDEN DE FRECUENCIA EN Mc/s	3	3.5	4.7	5.6	6.6	9	10	11	13	18	
RDARA ZLARN RDARA											
5 C	2 -	2 2	- -	- -	4 2	- -	- -	- -	- -	- -	- -
5 D	4 1	2 4	- 1	1 1	1 5	- -	- -	- -	- -	- -	- -
6	1 -	- 1	- -	- -	2 1	1 1	- -	1 1	- -	- -	- -
6 A/E	6 2	3 7	3 6	6 3	4 6	1 3	- -	1 1	- -	- -	- -
6 B	6 5	4 6	- 5	5 6	4 6	3 4	- -	1 1	- -	- -	- -
6 C	1 1	2 4	1 1	4 2	3 3	2 1	- -	1 1*	- -	- -	- -
6 D	7 2	5 8	3 3	5 3	10 11	2 5	2 2	1 1*	- -	- -	- -
6 E	-	-	-	-	-	-	-	-	-	-	-
7	4 1	1 1	- -	3 1	2 2	2 2	- -	2 2	1 1	- -	- -
7 A	1 -	1 -	- -	- -	- -	- -	- -	- -	- -	- -	- -
7 B	2 -	1 2	1 1	- -	3 3	- 2	- -	- -	- -	- -	- -
7 C	1 -	2 3	- -	- -	2 3	1 1	- -	- -	- -	- -	- -
7 D	7 1	3 2	1 1	3 1	8 2	2 1	- -	- -	- -	- -	- -
7 E	7 2	4 2	1 -	6 2	4 2	2 2	3 3	1 1	- -	- -	- -
9	10 -	1 1	1 -	8 -	5 1	3 1	- -	1 1	- -	- -	- -
9 A	1 1	1 1	- -	- -	- 1	1 1	- -	- -	- -	- -	- -
9 B	1 1	2 2	2 1	2 -	2 2	- 1	- -	1 2	- -	- -	- -
9 C	1 -	1 -	- -	1 -	- -	1 -	1 -	- -	- -	- -	- -
9 D	8 4	10 15	2 1	4 1	9 1	2 1	- -	6 1	- -	- -	- -
9 E	1 1	2 1	- -	2 -	5 1	- 1	- -	1 -	- -	- -	- -

*Shared
frequency
*Fréquence
partagée
*Frecuencia
compartida

TABLE III

TABLEAU III

CUADRO III

(Aer-Doc-250)

SHARING PLAN FOR MAJOR WORLD AIR ROUTE AREAS, REGIONAL
DOMESTIC AIR ROUTE AREAS AND SUB-AREAS

POWER RADIATED : 200 WATTS

PLAN DE PARTAGE ENTRE LES ZONES DE PASSAGE DES LIGNES
AERIENNES MONDIALES PRINCIPALES ET LES ZONES ET SOUS-
ZONES DES LIGNES AERIENNES REGIONALES ET NATIONALES

PUISSANCE RAYONNEE : 200 WATTS

PLAN DE COMPARTICION ENTRE LAS AREAS DE RUTAS AEREAS
MAS IMPORTANTES DEL MUNDO Y LAS AREAS Y SUB-AREAS DE
RUTAS AEREAS REGIONALES Y NACIONALES

POTENCIA RADIADA : 200 WATTS

TABLES	IV - XIII	(INCLUSIVE)
TABLEAUX	IV - XIII	(COMPRIS)
CUADROS	IV - XIII	(AMBOS INCLUSIVE)

(Aer-Doc-250)

REPETITIONS ASSIGNATIONS MULTIPLES REPETICIONES
 FREQUENCY BAND 3 Mc/s BANDE DE FREQUENCES : 3 Mc/s BANDA DE FRECUENCIAS : 3 Mc/s

DESIGNATOR
 INDICATIF
 DISTINTIVO

COMBINATIONS
 COMBINAISONS
 COMBINACIONES

A1	NP	FEL	NA	7B				
A2	CWP	NSA2 (EXT)	NSAM2	9D				
A3	SP	NA	3B	5B	6B ¹⁾	7		
A4	FE2	NA	7					
A5	EU	NSAM1	3B	6D	7E	9D		
A6	EU	NSAM2	3B	6D	7D	9D		
A7	NA(EXT)	6	7					
A8	SA	3	5C	6D	7E	9D		
A9	MET							
A10	MET							
A11	CONTROL							
A12	1	3 ²⁾	4B	6A/E	7D	9		
A13	1	3 ²⁾	4B	6A/E	7D	9		
A14	1	3 ²⁾	4B	6A/E	7D	9		
A15	2	4A ³⁾	6B ⁴⁾	7E	9			
A16	2	4A ³⁾	6B ⁴⁾	7E	9			
A17	1	3 ²⁾	4B	6A/E	7D	9		
A18	2 & 3	5D	6D	9D				
A19	2 & 3	5D	6D	9D				
A20	1	3A	6B ⁵⁾	7	9			
A21	1B	3B	5A	7E	9			
A22	2 & 3	5D	6D	9D				
A23	2	4A ³⁾	6B ⁴⁾	7E	9			
A24	1	3 ²⁾	4B	6A/E	7D	9		

Notes :

- 1) E of 95°E.
- 2) N of 47°N in 3C only.
- 3) W of 10°E.
- 4) E of 110°E.
- 5) S of 40°N.

- 1) A l'est du 95°E.
- 2) Au nord du 47°N dans la sous-zone 3C seulement
- 3) A l'ouest du 10°E.
- 4) A l'est du 110°E.
- 5) Au sud du 40°N.

- 1) A1 Este de 95°E.
- 2) A1 Norte de 47°N en 3C solamente.
- 3) A1 Oeste de 10°E.
- 4) A1 Este de 110°E.
- 5) A1 Sur de 40°N.

TABLE IV

TABLEAU IV

CUADRO IV

(Aer-Doc-250)

FREQUENCY BAND: 3.5 Mc/s BANDE DE FREQUENCES : 3,5 Mc/s BANDA DE FRECUENCIA : 3.5 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES							
B1	CEP	SA(EXT)	3C	5C	6D	7E	9D	
B2	CEP	ME(EXT)	7E	9D				
B3	CEP	EU	6B	7D	9D			
B4	CEP	EU	6D	7D	9D			
B5	NSAM2	ME	3B	7E	9D			
B6	NSA1 (EXT)	3C	6A/E	9D				
B7	1	3	4B	6D	9D			
B8	2	3B	4B	6C				
B9	1	3	6D	7	9D			
B10	1B	3A	5D	6A/E	9			
B11		5	6B ²⁾	9B				
B12	1D	6B	7C	9E				
B13	1B ¹⁾	3B	5	6D	9D			
B14	C O N T R O L							

TABLE V

TABEAU V

CUADRO V

NOTES :

- 1) United Kingdom only.
2) E of 100° E.

NOTES :

- 1) Royaume-Uni seulement.
2) A l'est du 100° E.

NOTAS :

- 1) Reino Unido solamente.
2) Al Este de 100° E.

(Aer-Doc-250)

FREQUENCY BAND: 4.7 Mc/s BANDE DE FREQUENCES: 4,7 Mc/s BANDA DE FRECUENCIAS: 4.7 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES						
C1	EU	6D	9D ¹⁾				
C2	EU	6D	9D ¹⁾				
C3	NSAML	1D	3A	6C	7B		
C4	1C	3B	4	6A/E	9B		
C5	1C	2B	3B	4A	6D	7D	
C6	1B	3	4	6A/E	9		
C7	1E	2	3B	4B	6A/E ²⁾	7E	9B

TABLE VI

TABLEAU VI

CUADRO VI

NOTES :

- 1) New Zealand only
- 2) 6 E only

NOTES :

- 1) Nouvelle-Zélande
seulement
- 2) 6 E seulement

NOTAS :

- 1) Nueva Zelandia
solamente
- 2) 6 E solamente

FREQUENCY BAND: 5.6 Mc/s - BANDE DE FREQUENCES: 5,6 Mc/s - BANDA DE FRECUENCIAS: 5.6 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES							
D1	NA	FE1						
D2	NA	FE2						
D3	NA	SP						
D4	NA(EXT)	6C	9D					
D5	CEP	EU	9E					
D6	NP	NSA2(EXT)						
D7	CWP	NSA1(EXT)						
D8	NSAM2	3	5	6D	9D			
D9	NSAM2	3	5	6D	9B			
D10	CEP	ME(EXT)						
D11	MET							
D12	MET							
D13	1E	2 ⁽⁴⁾	3B	5D	6D	7E	9E	
D14	1E	2 & 3 ⁽⁴⁾	6D	7				
D15	1	3	4B	6A/E	6C	7D	9D	
D16	1	3A	4B	6B ⁽³⁾	7D	9		
D17	1C	3	4B	5E	6D	7D	9B	
D18	1D	3A	6B	9				
D19	1B	3B	5A	6A/E	7	9		
D20	1C	3B	5A	6A/E	7	9		
D21	1C	3A	5	6B ⁽²⁾	7E	9		
D22	1B	2C ⁽¹⁾	3C	4	6A/E	6C	9D	
D23	1B	2C ⁽¹⁾	3C	4	6A/E	6C	7E	9C
D24	2A	3C	4B	6A/E	7E	9		
D25	1D	3A	4B	6B	7E	9		
D26	1D	3A	4B	6B	7E	9		

TABLE VII

TABLEAU VII

CUADRO VII

NOTES:

- 1) E of 30°E only
- 2) E of 90°E only
- 3) Except Chinese Turkistan
- 4) E of 30°E only

NOTES:

- 1) A l'est du 30°E seulement
- 2) A l'est du 90°E seulement
- 3) A l'exception du Turkestan chinois
- 4) A l'est du 30°E seulement

NOTAS:

- 1) Al Este de 30°E solamente
- 2) Al Este de 90°E solamente
- 3) Con excepcion del Turkistan Chino
- 4) Al Este de 30°E solamente

(Aer-Doc-250)

FREQUENCY BAND : 6.6 Mc/s BANDE DE FREQUENCE : 6,6 Mc/s BANDA DE FRECUENCIA : 6.6 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES							
E1	SA	CEP	2A	3C	5A	6D	7B	9B
E2	SA	CEP	2A	3C	5A	6D	7B	9B
E3	SA(EXT)	2B	3B	5D	6D	9D		
E4	ME(EXT)	3B	6C	7E	9E			
E5	NSAM2	2 & 3	5C	6D	7B	9D		
E6	NSAM1	2 & 3	4	5C	6D	7D	9E	
E7	EU	6	7	9D				
E8	EU	6	7	9E				
E9	1E	2 & 3 ¹	4B	5C	6D	7D	9D	
E10	1E	2(1)	3B	4B	6A/E	6C	7D	9D
E11	1D	3C	4B	6A/E	6C	7E	9D	
E12	1D	4B	6B	7E	9			
E13	1C	3	5A	6A/E	7D	9		
E14	1C	3	5	6D	7D	9E		
E15	1C	3	5	6D	7D	9D		
E16	1D	2B	6B ²	7C	9			
E17	1D	3A	6B	7C	9			
E18	2 & 3	4	5C	6D	7D	9D		
E19	1C	3	5A	6A/E	7D	9D		
E20	1D	3C	6B	9				
E21	3	5	6D	7E	9E			

TABLE VIII

TABLEAU VIII

CUADRO VIII

NOTES :

- 1) East of 30° E
- 2) East of 100° E

NOTES :

- 1) A l'est du 30° E
- 2) A l'est du 100° E

NOTAS :

- 1) Al Este de 30° E
- 2) Al Este de 100° E

(Aer-Doc-250)

FREQUENCY BAND: 9 Mc/s BANDE DE FREQUENCE : 9 Mc/s BANDA DE FRECUENCIA : 9 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES					
F1	FE2	EU	NSAM2			
F2	FE1	EU	CEP			
F3	NSAM2	ME(EXT)	SP	3B	7E	
F4	NSAM1	NSA1(EXT)	6			
F5	SA	FE1	CEP			
F6	SA	NP	7	9A	9C	
F7	NA	CWP	7			
F8	NA(EXT)	3B	6A/E	7	9D	
F9	NA	6B	7E	9		
F10	NA	6B	7D	9		
F11	NSA2(EXT)	6B	9			
F12	MET					
F13	MET					
F14	4B	6D	2 & 3			
F15	1	3C	6C	7D		
F16	4B	6D	9D	2 & 3		
F17	3B	5	6C			

TABLE IX

TABEAU IX

CUADRO IX

(Aer-Doc-250)

FREQUENCY BAND : 10 Mc/s BANDE DE FREQUENCE : 10 Mc/s BANDA DE FRECUENCIA : 10 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES			
G1	CEP	SA(EXT)	6D	
G2	CEP	1	6D	
G3	NSAM2	ME(EXT)	9C	
G4	2			
G5	2			
G6	3			
G7	3			
G8	2 & 3	7E		
G9	2 & 3	7E		
G10	2 & 3	7E		

TABLE X

TABLEAU X

CUADRO X

(Aer-Doc-250)

FREQUENCY BAND: 11.3 Mc/s BANDE DE FREQUENCE : 11,3 Mc/s BANDA DE FRECUENCIA : 11.3 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES				
H1	CEP	2	7E	9E	
H2	CEP	EU			
H3	NSAM2	6			
H4	1	6C & D			
H5	2	6A/E	9D		
H6	3	7	9D		
H7	3	4B	9D		
H8	2 & 3	9D			
H9	2 & 3	9D			
H10	2 & 3	9D			
H11	2 & 3	9B			
H12	3A	7	9		
H13	4B	6B			

TABLE XI

TABEAU XI

CUADRO XI

(Aer-Doc-250)

FREQUENCY BAND : 13.3 Mc/s BANDE DE FREQUENCE : 13,3 Mc/s BANDA DE FRECUENCIA : 13.3Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES				
J1	NA	3			
J2	NSAM2	SP	2		
J3	NA	FEI			
J4	ME(EXT)	NSA2(EXT)	CEP		
J5	NA(EXT)	CWP			
J6	NA	FE2			
J7 1)	NSAM1				
J8	NSA1(EXT)	CEP			
J9	SA(EXT)	NP			
J10	2 & 3	7			

1) Designator J7, shares also with 2, 3A and 3C.
This is a common channel.

1) Indicatif J7, peut également se répéter avec 2, 3A, 3C.
C'est une voie commune.

1) Indicativo J7 comparte también con 2, 3A y 3C.
Este es un canal comun.

TABLE XII

TABLEAU XII

CUADRO XII

FREQUENCY BAND: 18.0 Mc/s BANDE DE FREQUENCES : 18,0 Mc/s BANDA DE FRECUENCIA : 18.0Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES				
K1	NA	FEI	FE2		
K2	CEP	ME	NSA2		
K3	CWP	NP	EU		
K4	SA	NSA1	SP		
K5	NSAM1	NSAM2	3A	3C	
K6*	2 & 3				
K7*	2 & 3				

* by arrangement with Western Hemisphere.

* après entente avec l'hémisphère Ouest.

* mediante acuerdo con el Hemisferio Occidental

TABLE XIII

TABLEAU XIII

CUADRO XIII

RDARA	TOTAL CHANNELS REQUESTED	CHANNELS ALLOTTED	PERCENTAGE SATISFACTION	RDARA	TOTAL CHANNELS REQUESTED	CHANNELS ALLOTTED	PERCENTAGE SATISFACTION
ZLARN	TOTAL DES VOIES DEMANDEES	VOIES ATTRIBUEES	POURCENT DES DEMANDES SATISFAITES	ZLARN	TOTAL DES VOIES DEMANDEES	VOIES ATTRIBUEES	POURCENT DES DEMANDES SATISFAITES
RDARA	TOTAL DE CANALES SOLICITADOS	CANALES DISTRIBUIDOS	PORCENTAJE DE NECESIDADES SATISFECHOS	RDARA	TOTAL DE CANALES SOLICITADOS	CANALES DISTRIBUIDOS	PORCENTAJE DE NECESIDADES SATISFECHOS
1	20	13	65	5	14	9	64
1 A	-	2	-	5 A	24	9	37
1 B	20	9	45	5 B	14	4	28
1 C	28	11	39	5 C	4	8	200
1 D	49	12	24	5 D	12	8	68
1 E	12	7	60	6	4	5	125
2	18	13	72	6 A/E	28	24	86
2 A	11	5	45	6 B	33	23	70
2 B	11	5	45	6 C	12	14	117
2 C	15	4	27	6 D	35	36	103
3	19	23	121	7	10	14	140
3 A	11	14	127	7 A	-	2	-
3 B	12	21	175	7 B	8	7	88
3 C	12	14	117	7 C	7	6	86
2 & 3	34	20	59	7 D	8	24	300
4	8	6	75	7 E	14	28	200
4 A	8	6	75	9	4	29	725
4 B	22	24	109	9 A	4	3	75
				9 B	9	10	111
				9 C	-	5	-
				9 D	24	41	170
				9 E	4	11	275

TABLE XIV

TABLEAU XIV

CUADRO XIV

The "Requested figures are those as reduced to the considered minimum by delegates present at the Conference.

Le chiffre donné pour les demandes est un minimum indiqué par les délégués présents à la Conférence.

Las cifras de la columna "Total de canales solicitados" representan el número mínimo de canales indicado por los delegados que asisten a la conferencia.

FREQUENCY ORDER (Mc/s)	CHANNELS RE- QUESTED BY RDARA	TOTAL FRE- QUENCIES MWAR AND RDARA	FREQUEN- CIES AVAI- LABLE TO RDARA EX- CLUSIVELY	TOTAL CHAN- NELS ALLOT- TED TO RDARA (1kW)	TOTAL CHAN- NELS ALLOT- TED TO RDARA (200W)	AVERAGE REPETI- TION RA- TIO RE- QUIRED	AVERAGE REPETI- TION RA- TIO RE- QUIRED
ORDRE DE GRANDEUR DE FRE- QUENCES (Mc/s)	VOIES DE- MANDEES PAR LES ZLARN	TOTAL DES FREQUEN- CES ZLAMP ET ZLARN	FREQUENCES A DISPOS- TION DES ZLARN SEU- LEMENT	TOTAL DES VOIES AT- TRIBUEES AUX ZLARN (1 kW)	TOTAL DES VOIES AT- TRIBUEES AUX ZLARN (200 W)	COEFFI- CIENT MOYEN D'ASSI- GNATION MULTI- PLE DE- MANDE	COEFFI- CIENT MOYEN D'ASSI- GNATION MULTI- PLE AT- TEINT (200W)
ORDER DE RECUE- NCIA EN Mc/s	CANALES SO- LICITADOS POR RDARA	TOTAL DE FRECUEN- CIAS MWAR Y RDARA	FRECUEN- CIAS PARA- USO EXCLU- SIVO DE LAS RDARA	TOTAL DE CANALES DISTRIBU- IDOS A RDARA (1 kW)	TOTAL DE CANALES DISTRIBU- IDOS A RDARA (200W)	COEFI- CIENTE MEDIO DE RE- PETI- CION SOLI- CITADO	COEFI- CIENTE MEDIO DE RE- PETI- CION SATIS- FECHO (200W)
3	89	24	13	84	121	6.85	9.30
3.5	134	14	7	60	80	19.15	11.43
4.7	58	7	4	15	31	14.5	7.75
5.6	96	26	14	63	97	6.86	6.93
6.6	109	21	13	73	114	8.38	8.87
9	53	17	4	27	33	13.25	8.25
10	13	10	7	14	14	1.85	2.00
11.3	22	13	10	17	29	2.2	2.90
13.3	5	10	1	5	5	5.0	5.0
18	3	7	2	3	3	1.5	1.5

TABLE XV

TABLEAU XV

CUADRO XV

Summary of position for RDARA's 1 to 9 inclusive and Sub-Areas (Eastern Hemisphere)

Résumé de la situation en ce qui concerne les ZLARN 1 a 9 comprises, ainsi que les subdivisions (Hémisphère Est)

Resumen de la situacion relativa a las RDARA's 1 a 9 inclusive asi como a las Sub-areas. (Hemisferio Oriental).

Note : Also see text. Note : Voir aussi le texte. Nota : Vease tambien el texto.

FREQUENCY ORDER (Mc/s)	CHANNELS REQUESTED BY RDARA	TOTAL FREQUENCIES MWAR AND RDARA	FREQUENCIES AVAILABLE TO RDARA EXCLUSIVELY	TOTAL CHANNELS ALLOTTED TO RDARA (1kw) AGAINST REQUIREMENTS	TOTAL CHANNELS ALLOTTED TO RDARA (200w) AGAINST REQUIREMENTS	AVERAGE REPETITION RATIO REQUIRED	AVERAGE REPETITION RATIO MET (200 w)
ORDRE DE GRANDEUR DE FREQUENCES (Mc/s)	VOIES DEMANDEES PAR LES ZLARN	TOTAL DES FREQUENCES ZLAMP ET ZLARN	FREQUENCES A DISPOSITION DES ZLARN SEULEMENT	TOTAL DES VOIES ATTRIBUEES AUX ZLARN EN REGARD DES DEMANDES (1 kw)	TOTAL DES VOIES ATTRIBUEES AUX ZLARN EN REGARD DES DEMANDES (200 w)	COEFFICIENT MOYEN D'ASSIGNATION MULTIPLE DEMANDE	COEFFICIENT MOYEN D'ASSIGNATION MULTIPLE ATTEINT (200 w)
ORDER DE FRECUENCIA EN Mc/s	CANALES SOLICITADOS POR RDARA	TOTAL DE FRECUENCIAS MWAR Y RDARA	FRECUENCIAS PARA USO EXCLUSIVO DE LAS RDARA	TOTAL DE CANALES DISTRIBUIDOS A RDARA EN VISTA DE LAS NECESIDADES (1 kw)	TOTAL DE CANALES DISTRIBUIDOS A RDARA EN VISTA DE LAS NECESIDADES (200 w)	COEFICIENTE MEDIO DE REPETICION SOLICITADO	COEFICIENTE MEDIO DE REPETICION SATISFECHO (200 w)
3	78	24	13	44	47	6	3.6
3.5	104	14	7	34	47	14.9	6.7
4.7	54	7	4	7	21	13.5	5.25
5.6	91	26	14	37	56	6.5	4.0
6.6	91	21	13	49	64	7	4.9
9	40	17	4	9	14	10	3.5
10	10	10	7	10	10	1.43	1.43
11.3	15	13	10	10	17	1.50	1.70
13.3	4	10	1	4	4	4.0	4.0
18	3	7	2	2	2	1.5	1.0

TABLE XVITABLAU XVICUADRO XVI

Summary of position for RDARA's 1 to 6 inclusive and Sub-Areas.

Résumé de la situation en ce qui concerne les ZLARN 1 à 6 comprises, ainsi que les subdivisions.

Resumen de la situacion relativa a las RDARA's 1 a 6 inclusive asi como a las Subareas.

FREQUENCY ORDER (Mc/s)	CHANNELS RE- QUESTED BY RDARA 1. A to E	TOTAL FREQUEN- CIES MWARA's AND RDARA's	FREQUENCIES AVAILABLE TO RDARA EXCLU- SIVELY	TOTAL CHANNELS ALLOTTED AGAINST REQUI- REMENTS TO RDARA 1. AND SUB-AREAS (200 W)
ORDRE DE GRANDEUR DE FREQUENCE (Mc/s)	VOIES DEMAN- DEES PAR LA ZLARN 1 A à E	TOTAL DES FRE- QUENCES ZLARN ET ZLARN	FREQUENCES A DISPOSITION DES ZLARN EX- CLUSIVEMENT	TOTAL DES VOIES ATTRIBUEES A LA ZLARN 1 ET A SES SUBDIVISIONS EN REGARD DES DE- MANDES (200 W)
ORDEN DE FRECUENCIAS EN Mc/s	CANALES SOLI- CIDADOS POR LAS RDARA 1. A a E	TOTAL DE FRE- QUENCIAS MWARA's Y RDARA's	FRECUENCIAS PARA LAS RDARA EXCLUSIVO DE LAS RDARA	TOTAL DE CANA- LES DISTRIBUI- DOS EN VISTA DE LAS NECESIDADES A LAS RDARA 1. Y A LAS SUB- AREAS (200 W)
3	27	24	13	11
3.5	34	14	7	9
4.7	19	7	4	5
5.6	32	26	14	13
6.6	13	21	13	10
9	3	17	4	1
10	1	10	7	1
11.3	1	13	10	1
13.3	-	10	1	-
18	-	7	2	-

TABLE XVIITABEAU XVIICUADRO XVII

Summary of position for RDARA 1. and Sub-Areas A to E (Eastern Hemisphere)

Résumé de la situation en ce qui concerne la ZLARN 1 et ses subdivisions A à E (Hémisphère Est)

Resumen de la situacion relativa a las RDARA 1. asi como a las Sub-Areas A a E (Hemisferio Oriental)

1st September, 1948

COMMITTEE 6

PLAN 1

WITH ADDITION OF SOME LIMITED POWER SHARING

1. The Western Hemisphere Working Group of Committee 6, at its meeting on August 30, established a sub-group composed of all members of the main group who were free to take part, to examine Plan 1 and add to it any additional allotments in the Western Hemisphere which could be made if a reasonable power limitation were imposed upon the new allotments, and without interfering with the allotments in the original Plan 1, as a new effort to improve the satisfaction of the requirements.
2. The following pages are a reproduction of Plan 1 with the addition of those further allotments which were found feasible, mainly by limiting the power of the additional allotments, and in some cases by limiting the additional use of the frequency to part of a sub-area, and in a few cases by a transposition of frequencies.
3. Protection distances were all measured on the large globe, and the power reduction calculated to maintain the same protection standards for the original allotments as were used in the preparation of Plan 1, with the exception of a few exclusively regional 4.7 megacycle frequencies, where a night service range of 500 km was protected, by agreement between the countries concerned.
4. To obtain maximum utilization of certain of these additional allotments it would be necessary to use directional antennas on the NA and CEP routes.
5. The power limitations in the tables apply only during night-time use, except in the case of 9 megacycles. The permissible power, in the limited cases, is shown in kilowatts; i.e., .500 signifies a radiated power of one-half kilowatt, unmodulated carrier.

L. E. COFFEY

Chairman, Sub-Group



REPETITIONS ASSIGNATIONS MULTIPLES REPETICIONES
FREQUENCY BAND: 3 Mc/s BANDE DE FREQUENCES: 3 Mc/s BANDA DE FRECUENCIAS: 3 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES				
A1	NP	FE1	NA	7 B 12 E .400	13 I
A2	CWP	NSA2(Ext)	NSAM2	9 E	10 B W. of 120°
A3	SP	NA	6 B	10 B .225 watts	12 C .400 13 E
A4	FE2	NA	7	10 A 12 C .400	13 G
A5	EU	NSAM1	6 B	10 D .150	
A6	EU	NSAM2	6 B	10 A	
A7	NA(Ext)	6 A/E		10 A 13 I	
A8	SA	3	5 C	9 D 10 D .275	12 C
A9	W.PAC MET	10 C	12 G	13 F	
A10	AT. & E.PAC. MET				
A11	CONTROL	10 B	13 F	13 H	
A12	1	3 B	9 D	11 C	13 D
A13	1	3 C	7 E	9 D 11 B	13 C
A14	2	6 C	7 D	10 D 12 G .800	
A15	2	6 C	7 E	10 E 13 C	
A16	1	3 B	7 D	9 A 11 H	13 L
A17	1 B	3	4 E	9 B 12 C	13 G 13 L
A18	1 B	3	5 C	9 D 10 E .750	12 E 13 H
A19	1	3 C	7 E	9 D	11 E 12 H
A20	1	3 C	7 E	9 E 10 B	12 F 13 H
A21	1	3 B	7 D	9 D 10 C .500	12 D 13 F 13 H
A22	2 & 3	7	11 D 13 E		
A23	2 & 3	9	11 F 13 J		
A24	2 & 3	7	11 G 13 K		

TABLE I

TABLÉAU I

CUADRO I

- 2 -
(Aer-Doc-265)

FREQUENCY BAND: 3.5 Mc/s - BANDE DE FREQUENCES: 3.5 Mc/s - BANDA DE FRECUENCIAS: 3.5 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES					
B1	CEP	SA(Ext)	6 A/E	7 E 9 D	10 E .425	12 E .350
B2	CEP	ME(Ext)	9 D	10 E 12 D .215 .315		13 I
B3	CEP	EU	6 D	9 D	10 E, S. of 60° .425	12 G 13 H
B4	CEP	EU	6 B	10 E, S. of 60° .425	12 F	13 F
B5	NSAM2	ME	9	10 A		
B6	NSA1(Ext)	6	10 E .350	12 C	12 H .500	13 I
B7	CONTROL	11 E	13 J			
B8	1	6 D	7 E	11 F 13 K		
B9	1	6 D	7 E	12 C 13 L		
B10	1	6 C	7 D	11 H 13 G		
B11	2 & 3	7 B	9 D	10 D 13 C		
B12	2 & 3	7 D	9 D	10 E 13 D		
B13	4	6 B	9 D	11 G 13 E		
B14	5	9 D	10 B .400	12 D 13 H		

TABLE II

TABEAU II

CUADRO II

FREQUENCY BAND: 4.7 Mc/s - BANDE DE FREQUENCES: 4.7 Mc/s - BANDA DE FRECUENCIAS: 4.7 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES					
C1	EU	9	10 B .160	12 C	13 K 1.000	
C2	EU	9	10 B .160	12 C	13 L 1.000	
C3	NSAM1	2	9 D	10 A .250		
C4	4	3 B	9 D	10 C .500	13 I 12 F .630	
C5	4	3 B	9 D	9 B	12 C	10 E .400 13 G
C6	3	7 B	9 C	10 D .200	13 F 12 H .800	
C7	2 & 3	9 D		10 C .500	12 F	

TABLE III

TABEAU III

CUADRO III

FREQUENCY BAND: 5.6 Mc/s - BANDE DE FREQUENCES: 5.6 Mc/s - BANDA DE FRECUENCIAS: 5.6 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES					
D1	NA	FE1	12 E .065	13 I .500		
D2	NA	FE2	12 E .065	13 I		
D3	NA	SP	12 C .065	13 H		
D4	NA(Ext)	9 B	13 F			
D5	CEP	EU	9 D	10E,S. of 60° .100	12 D .100	13 H
D6	NP	NSA2(Ext)	12 D .200	13 E		
D7	CWP	NSA1(Ext)	10D,S. of line .300	from Churchill	to L.Mistassini	13 C .500
D8	NSAM2	3	5	6 C	10D,W. of 120° .160	
D9	NSAM2	3	5	6 C	10B,W. of 120° .160	
D10	CEP	ME(Ext)	10E,S. of 60° .100	12 G .500	13 H	
D11	W.PAC MET	7	10 D	12 F		
D12	AT & E.PAC MET					
D13	1	3	6 D	7 D	10 E 12 C	13 J
D14	1	7	6 B	9 A	10 E 12 C	13 L
D15	1	7	6 B	9 B	11/B 12 F	13 G
D16	5	1 C	3 B	6 D	9 D 11 C	12 G 13 I
D17	5	1 C	3 B	6 D	9 D 11 E	12 F 13 G
D18	1	6	7 B		10 A 11 D	13 C
D19	1	6	7 E	10 A	11 F 12 G	13 E
D20	2	5 D	6 C	10 A	11 G	13 D
D21	2	4 B	6 D	9 D	10 A 11 H	13 C
D22	2	4 B	6 C	9 D	10 B 12 C	12 H
D23	2 & 3	9	4 B	7 D	10 C 12 C	12 H
D24	2 & 3	9	4 B	7 D	10 B 12 D	13 D
D25	2 & 3	9	4 B	7 D	10 C 12 D	13 K
D26	4	9	6 B		10 D 12 E	13 E

TABLE IV

TABEAU IV

CUADRO IV

FREQUENCY BAND: 6.6 Mc/s - BANDE DE FREQUENCES: 6.6 Mc/s - BANDA DE FRECUENCIAS: 6.6 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES					
E1	SA	CEP	5	3 B 6 D	10 E 12 E	13 L
E2	SA	CEP	3 B 5	9	10 E 12 F	13 I
E3	SA(Ext)	7	2 B	6 C	10 B 12 D	13 E
E4	ME(Ext)	9	3 C	7 B	10 C 12 C	13 E
E5	NSAM2	4	3 A	6 D	10 A	
E6	NSAM1	4	6 B	9 E	10 C	
E7	EU	3 C	6 D	7 D	10 D 12 C	13 G
E8	EU	6	7 E		10 D 12 C	13 I
E9	2	4 B	6 D	9 D	10 C 12 D	13 L
E10	2	4 B	6 D	9 D	10 D 12 E	13 K
E11	3	1 E	5 B	6 C 7 B	11 B 12 G	13 G
E12	7	1 D	6 A/E		11 E 12 F	13 H
E13	5	3 B	9 B		11 F 12 F	13 F
E14	5	3 B	6 C		11 B 12 G	13 G
E15	1 D	3 A	6 D	7 C 9 D	11 C 13 C	
E16	1 D	3 B	6 A/E	9 B	11 D 13 D	
E17	5 A	6 D	7 E	9 D	10 A 11 H	12 H
E18	2 A	4 B	6 B	9 A	10 A 11 D	12 H
E19	2 & 3	4 B	6 D	9 D	11 G 13 C	
E20	2 & 3	4 B	6 D	9 D	11 H 13 J	
E21	2 A	4 B	6 B	9 E	10 E 12 C	13 K

TABLE V

TABLEAU V

CUADRO V

FREQUENCY BAND: 9 Mc/s - BANDE DE FREQUENCES: 9 Mc/s - BANDA DE FRECUENCIAS: 9 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES				
F1	FE2	EU	NSAM2	7 D	10 A
F2	FE1	EU	CEP	7 E	10E, S. of 60° .500 12 H
F3	NSAM2	ME(Ext)	SP	3 B	
F4	NSAM1	NSA1(Ext)	6 C *	6 D *	
F5	SA	FE1	CEP	7 E	
F6	SA	NP	7 C	9 A	12 E
F7	NA	CWP	7		13 G
F8	NA(Ext)	7	9 D	10 A	13 H
F9	NA	3 C	7 B	9 B	13 E
F10	NA	6	7 B		13 G
F11	NSA2(Ext)	6 B		11 B	13 J
F12	PAC MET			11 H	13 D
F13	ATL MET				
F14	5	9		10 B	13 C
F15	1	6 D		10 A 12 D	13 F
F16	2 & 3	7 D	9 E	12 C 13 G	13 L
F17	2 & 3	7 D	9 E	11 D	13 K

* Common channel
* Voie commune
* Canal comun

TABLE VI

TABEAU VI

CUADRO VI

FREQUENCY BAND: 10 Mc/s - BANDE DE FREQUENCES: 10 Mc/s - BANDA DE FRECUENCIAS: 10 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES			
G1	CEP	SA(Ext)	6 D	
G2	CEP	1	6 D	12 H
G3	NSAM2	ME(Ext)	9 C	
G4	2		10 C	12 G
G5	2		11 F	13 K
G6	3		11 E	13 L
G7	3		12 E	13 H
G8	2 & 3	7 E	10 D	12 F
G9	2 & 3	7 E	11 G	13 G
G10	2 & 3	7 E	11 C	13 E

TABLE VII

TABEAU VII

CUADRO VII

FREQUENCY BAND: 11.3 Mc/s - BANDE DE FREQUENCES: 11.3 Mc/s - BANDA DE FRECUENCIAS: 11.3 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES		
H1	CEP	7	13 G
H2	CEP	EU	13 G
H3	NSAM2	6	
H4	1	9	11 H 13 G
H5	2	9B	11 B 13 K
H6	3	9 D	11 C 13 E
H7	2 & 3		11 E 13 C
H8	2 & 3	10 E .800	12 H
H9	2 & 3	10 D .800	12 H
H10	2 & 3		12 H
H11	7	11 D	13 G
H12	2	9 B	11 F 13 K
H13	3	9 D	11 G 13 E

TABLE VIII

TABLEAU VIII

CUADRO VIII

FREQUENCY BAND: 13.3 Mc/s - BANDE DE FREQUENCES: 13.3 Mc/s - BANDA DE FRECUENCIAS: 13.3 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES			
J1	NA	3		
J2	NSAM2	SP	2	
J3	NA	FE1		
J4	ME(Ext)	NSA2(Ext)	CEP	
J5	NA(Ext)	CWP		
J6	NA	FE2		
J7	NSAM1			
J8	NSA1(Ext)	CEP		
J9	SA(Ext)	NP		
J10	2 & 3 7	10, 11, 12, 13		

TABLE IX

TABLEAU IX

CUADRO IX

FREQUENCY BAND: 18.0 Mc/s - BANDE DE FREQUENCES: 18.0 Mc/s - BANDA DE FRECUENCIAS: 18.0 Mc/s

DESIGNATOR INDICATIF DISTINTIVO	COMBINATIONS COMBINAISONS COMBINACIONES			
K1	NA	FE1	FE2	
K2	CEP	ME	NSA2	
K3	CWP	NP	EU	
K4	SA	NSA1	SP	
K5	NSAM1	NSAM2	SA	30
K6	2 & 3	10, 11, 12, 13		
K7	2 & 3	10, 11, 12, 13		

TABLE IX

TABLEAU IX

CUADRO IX

COMMITTEE 6

Ad Hoc Group for the
Western Hemisphere

5th REPORT OF THE AD HOC GROUP
FOR THE WESTERN HEMISPHERE

R Frequency Allotment Plan N° 1
(1 kW and 200 W)

1. Chairman : Lt. Col. Helio Costa
2. Representatives : The following nations were represented at this Ad Hoc Group :

Argentina	Colombia
Brazil	Cuba
Canada	Mexico
Chile	U.S.A.

3. Introduction

In its 4th and 5th Reports (Aer-Doc. Nos 249 & 250) the Propagation Group described the general features and the technical principles and standards used to develop the so-called Plan N° 1 (1 kW and 200 W radiated power) for the allotment of the R frequencies on a world-wide basis.

The Propagation Group applied those technical principles and standards in preparing the frequency allotment tables for the Eastern Hemisphere. This Ad Hoc Group was assigned a similar task, for the Western Hemisphere.

This Report presents the results obtained and in this sense, it can be considered as an extension of Aer-Doc. Nos. 249 and 250.

4. Description of the attached tables

There are six different types of tables attached to this Report.

- 4.1. Table N° 1 - which contains the stated requirements of different sub-areas as amended by the delegates during the meeting of 30th of August (Refer to 4th Report - Aer-Doc. N° 268). The estimated requirements are those agreed upon by the Ad Hoc Group at that same meeting.
- 4.2. Table N° 2 - which contains the frequency allotment tables for 1 kW radiated power. There are 10 tables in this category, i.e., Tables 2A, 2B, 2C, 2D, 2E, 2F, 2G, 2H, 2J, 2K, each one corresponding to a frequency band. At the bottom of each table there is a comparison between number of allotments obtained against number of frequencies requested, per sub-area.



- 4.3. Table N° 3 - which shows in one page the allotments of tables 2, per sub-area, per frequency band. Furthermore, this table compares the total allotments obtained in all frequency bands with the total number of frequencies requested.
- 4.4. Table N° 4 - are the frequency allotment tables for 200 W radiated power. They correspond to tables N° 2 in the 1 kW plan. There are also 10 tables in this category, i.e., 4A, 4B, 4C, 4D, 4E, 4F, 4G, 4H, 4J, 4K.
- 4.5. Table N° 5 - is also relative to the 200 W plan; it summarizes in one page the allotments per frequency band shown in tables N° 4. It compares the results obtained under the 1 kW and the 200 W conditions, against stated or estimated requirements.

In tables N° 2 and N° 4 three different types of marks were used to call attention to the special conditions under which the allotments were made.

The mark of "slight interference" was used in all cases where a frequency already allotted to a sub-area had been duplicated into another sub-area which was partially within the zone of interference of transmitters using that frequency in the first sub-area.

The mark of "reduced power" was used in all cases where the overlap was very great, meaning that the frequency had to be used under reduced power conditions.

The mark "common use" was employed in all cases where the same frequency was allotted to adjacent sub-areas to take care of regional traffic.

5. Cases of interference

Special consideration was given to the frequencies assigned to the areas and/or sub-areas 1B, 1C, 1E, 3B, 3C, 4A, 4B, of the Eastern Hemisphere, in order to avoid interference with the areas and/or sub-areas of the Western Hemisphere using the same frequencies.

Through joint action of this Group and of the Propagation Group, almost all cases of interference between Eastern and Western Hemispheres were avoided, with the following exceptions :

5.1.- In Tables N° 2 (1 kW)

- a) Frequency G2 in 10.0 Mc/s band is used with slight interference in 1B, 1E and 13J.
- b) Frequencies G8, G9, G10 in the 10.0 Mc/s band are used with interference in 3B, 3C, and 10D, 11C, 11G.

- c) Frequency H4 in 11.3 Mc/s band is used with slight interference in 1B, 1E and 11H.
- d) Frequencies H6 and H7 in 11.3 Mc/s bands are used with interference in 3B, 3C, and 11C, 11E respectively.

5.2. - In Tables N° 2 (1 kW) and N° 4 (200 W)

- a) in the 13.3 Mc/s band, the frequency J10 is advocated by the Western Hemisphere Group, for general use throughout the Hemisphere. This frequency is also assigned to Areas N° 2 and N° 3, (Siberia).
- b) in the 18.0 Mc/s band, the frequencies K6 and K7 are also advocated by the Western Hemisphere Group for general use throughout the Hemisphere. These frequencies are used in Areas N° 2 and N° 3.

6. Special remark

The stated requirements as contained in Table I were accepted by the Group, as they were expressed by the delegates during the meeting of the 30th of August.

The Group did not examine those statements in order to ascertain their accuracy, nor did the Group correct or approve them.

In some cases, where the new stated requirements were raised to figures much higher than the previous ones, which appear in Aer-Documents 234 revised, some delegates strongly expressed their disagreement.

The Group feels that for future planning a complete revision of requirements shall be undertaken in order to produce a new table of requirements more representative of the actual traffic conditions existing in each area.

7. Conclusion.

The Group does not recommend the resulting allotment plan as shown in Tables N° 2 and N° 4 as the most acceptable for the Western Hemisphere.

The Group recognized that there is a critical region including areas 10, 11 and 12 (with exclusion of 10A) where demands for frequencies are high and the possibilities of duplication are few, specially under 1 kW radiated power conditions.

A small Working Group was formed under the chairmanship of Mr. COFFEY (Canada) to further explore the possibilities of the 1 kW plan in an effort to obtain more channels duplication (either by reducing power or by any other reasonable compromise), in order to more nearly satisfy the requirements of the above-mentioned areas and sub-areas. This Working Group comprises the delegates of Canada, Colombia, Cuba and Mexico.

TABLE 1 (Stated or estimated demands
TABLEAU 1 (Demandes de fréquences - formulées ou estimées
CUADRO 1 (Solicitudes de frecuencias - declaradas o calculadas

RDARA ZLARN RDARA	Stated or estimated Formulée ou estimée Declaradas o calculadas	Frequency Order Mc/s Ordre de grandeur de fréquence Mc/s Orden de frecuencia en Mc/s										TOTAL
		3.0	3.5	4.7	5.6	6.6	9.0	10.0	11.3	13.3	18.0	
10 A	S	2	1	0	2	1	1	0	0	0	0	7
B	S	2	1	0	2	1	1	1	0	0	0	8
C	S	2	1	0	2	1	1	0	0	0	0	7
D	S	1	1	0	1	1	1	0	0	0	0	5
E	S	2	1	0	2	1	1	1	0	0	0	8
Area 10 Zone 10	-	9	5	0	9	5	5	2	0	2*	1*	38
11 B	S	1	2	0	1	2	1	2	0	0	0	9
C	S	1	1	0	1	1	1	1	0	0	0	6
D	S	2	1	0	2	1	2	1	0	0	0	9
E	S	1	1	0	1	1	1	1	0	0	0	6
F	S	1	1	0	1	1	1	1	0	0	0	6
G	S	1	1	0	1	1	1	1	0	0	0	6
H	S	1	1	0	1	1	1	1	0	0	0	6
I	S	1	0	0	0	1	0	0	0	0	0	2
Area 11 Zone 11	-	9	8	0	8	9	8	8	0	2*	1*	53
12 A	S	2	1	0	2	1	2	1	0	0	0	9
C	S	6	5	4	7	3	2	2	0	0	0	29
D	S	3	3	0	3	3	1	1	0	0	0	14
E	E	2	2	1	2	2	1	0	0	0	0	10
F	S	4	1	2	4	4	2	1	0	0	0	18
G	E	2	2	1	2	2	1	0	0	0	0	10
H	S	1	1	0	1	1	1	0	1	0	0	6
Area 12 Zone 12		20	15	8	21	16	10	5	1	2*	1*	99
13 C	E	2	2	1	2	2	1	0	0	0	0	10
D	E	2	1	1	2	1	1	0	0	0	0	8
E)	S)	3	3	3	3	2	2	2	2	0	0	20
F)	S)											
G)	S)	5	4	3	5	4	3	2	2	0	0	28
H)	S)											
I	S	2	2	0	2	2	1	0	0	0	0	9
J	S	2	2	1	2	3	2	1	2	0	0	15
K	S	1	1	1	1	2	1	1	1	0	0	9
L	S	2	1	1	2	2	2	1	1	0	0	12
Area 13 Zone 13	-	19	16	11	19	18	13	7	8	2*	1*	114

S = Stated Requirements-Demandes formulées-Necesidades declaradas
E = Estimated Requirements - Demandes estimées - Necesidades calculadas
* = Frequencies allotted for general use throughout the Western Hemisphere
Fréquences attribuées pour l'usage général dans tout l'hémisphère occidental
Frecuencias asignadas para uso general en todo el Hemisferio occidental

PLAN
N°

TABLE
TABLEAU
CUADRO

N° 2A - 5.0 M^c/s - 1kW - 15db.

NIGHT S A R I N G
ASSIGNATION MULTIPLE DE NUIT
COMPARTICIÓN NOCTURNA

AER.-DOC.
N° 266

FREQUENCIES - FRÉQUENCES - FRECUENCIAS			AREA - ZONE 10					AREA - ZONE 11							AREA - ZONE 12							AREA - ZONE 13											
Nº	Mc/s	USE - UTILISAT. ^N UTILIZACION	A	B	C	D	E	B	C	D	E	F	G	H	I	A	C	D	E	F	G	H	C	D	E	F	G	H	I	J	K	L	
A 1		NP - FE1 - NA																															
A 2		CWP - NSA2 - NSAM 2																															
A 3		SP - NA ext.																															
A 4		FE2 - NA																															
A 5		EU - NSAM 2																															
A 6		EU - NSAM 2																															
A 7		NA ext.																															
A 8		SA																															
A 9		MET - PACIFIC																															
A 10		MET - ATLANTIC																															
A 11		AERODR. CONT.																															
A 12																																	
A 13																																	
A 14																																	
A 15																																	
A 16																																	
A 17																																	
A 18																																	
A 19																																	
A 20																																	
A 21																																	
A 22																																	
A 23																																	
A 24																																	
TOTAL CHANNELS ALLOTTED TOTAL DES VOIES ATTRIBUÉES TOTAL DE CANALES DISTRIBUIDOS			3	2	0	1	1	1	1	1	1	1	1	1	1	2	2	1	1	2	1	1	2	1	1	2	2	4	2	2	2	2	
TOTAL CHANNELS REQUESTS TOTAL DES VOIES REQUISES TOTAL DE CANALES SOLICITADOS			2	2	2	1	2	1	1	2	1	1	1	1	1	2	6	3	2	4	2	1	2	2	3		5		2	2	1	2	
PERCENT ALLOTTED POURCENT ATTRIBUÉ PORCENTAJE DISTRIBUIDO			150		0		50			50						33	33	50	50	50			50			120				200			

⊗ { SLIGHT INTERFERENCE
BROUILLAGE LÉGER
INTERFERENCIA LIGERA

○ { REDUCED POWER
PUISSANCE RÉDUITE
POTENCIA REDUCIDA

△ { COMMON FREQUENCIES
FREQUENCES COMMUNES
FRECUENCIAS COMUNES

PLAN
Nº

TABLE)
TABLEAU) Nº 2B - 3.5 Mc/s - 7kW - 15db
CUADRO)

(NIGHT SHARING
(ASSIGNATION MULTIPLE DE NUIT
(COMPARTICIÓN NOCTURNA

AER-DOC.
Nº266

FREQUENCIES - FREQUENCES - FRECUENCIAS			AREA - ZONE 10					AREA - ZONE 11							AREA - ZONE 12							AREA - ZONE 13											
Nº	Kc/s	USE - UTILISAT. UTILIZACION	A	B	C	D	E	B	C	D	E	F	G	H	I	A	C	D	E	F	G	H	C	D	E	F	G	H	I	J	K	L	
B 1		CEP-SA ext.																															
B 2		CEP-ME ext.																															
B 3		CEP-EU																															
B 4		CEP-EU																															
B 5		NSAM2-ME																															
B 6		NSA 1 ext.																															
B 7		AERODR-CONT.																															
B 8																																	
B 9																																	
B 10																																	
B 11																																	
B 12																																	
B 13																																	
B 14																																	
TOTAL CHANNELS ALLOTTED TOTAL DES VOIES ATTRIBUEES TOTAL DE CANALES PISTRIBUIDOS			1	0	0	1	1	0	0	0	1	1	1	1	0	1	2	1	0	1	1	1	1	1	1	1	1	1	2	1	1	1	1
TOTAL CHANNELS REQUESTS TOTAL DES VOIES REQUISES TOTAL DE CANALES SOLICITADOS			1	1	1	1	1	2	1	1	1	1	1	1	0	1	5	3	2	1	2	1	2	1	2	1	3	4	2	2	1	1	
PERCENT ALLOTTED POURCENT ATTRIBUE PORCENTAGE DISTRIBUIDO				0	0			0	0	0							40	33	0		50		50		67	75	50	50					

⊗ { SLIGHT INTERFERENCE
BROUILLAGE LEGER
INTERFERENCIA LIGERA

○ { REDUCED POWER
PUISSANCE REDUITE
POTENCIA REDUCIDA

△ { COMMON FREQUENCIES
FREQUENCES COMMUNES
FRECUENCIAS COMUNES

AER.-DOC.
N° 266

FREQUENCIES - FREQUENCES - FRECUENCIAS			AREA_ZONE 10					AREA_ZONE 11							AREA_ZONE 12							AREA_ZONE 13											
Nº	MC/s	USE - UTILISAT. ⁿ UTILIZACION	A	B	C	D	E	B	C	D	E	F	G	H	I	A	C	D	E	F	G	H	C	D	E	F	G	H	I	J	K	L	
C 1		EU																															
C 2		EU																															
C 3		NSAM-1																															
C 4																																	
C 5																																	
C 6																																	
C 7																																	
																													</				

**Δ { COMMON FREQUENCIES
FREQUENCES COMMUNES
FRECUENCIAS COMUNES**

PLAN
N°.

TABLE
TABLEAU
CUADRO

N° 2D - 5.6 Mc/s - 1kW - 15db

DAY SHARING
ASSIGNATION MULTIPLE DE JOUR
COMPARTICIÓN DIURNA

AER.-DOC.
N° 266

FREQUENCIES - FREQUENCES - FRECUENCIAS			AREA - ZONE 10					AREA - ZONE 11							AREA - ZONE 12							AREA - ZONE 13											
N°	MC/S	USE - UTILISAT. UTILIZACION	A	B	C	D	E	B	C	D	E	F	G	H	I	A	C	D	E	F	G	H	C	D	E	F	G	H	I	J	K	L	
D 1		NA - FE1																															
D 2		NA - FE2																															
D 3		NA - SP																															
D 4		NA_ext.																															
D 5		CEP - EU																															
D 6		NP - NSA2 ext.																															
D 7		CWP - NSA1 ext.																															
D 8/9		NSAM2																															
D 10		CEP - ME ext.																															
D 11		MET - PACIFIC																															
D 12		MET - ATLANTIC																															
D 13																																	
D 14																																	
D 15																																	
D 16																																	
D 17																																	
D 18																																	
D 19																																	
D 20																																	
D 21																																	
D 22																																	
D 23																																	
D 24																																	
D 25																																	
D 26																																	
TOTAL CHANNELS ALLOTTED TOTAL DES VOIES ATTRIBUÉES TOTAL DE CANALES DISTRIBUIDOS			4	2	2	1	2	1	1	1	1	1	1	1	0	2	4	2	1	2	2	1	2	2	2	1	2	2	1	2	1	1	
TOTAL CHANNELS REQUESTS TOTAL DES VOIES REQUISES TOTAL DE CANALES SOLICITADOS			2	2	2	1	2	1	1	2	1	1	1	1	0	2	7	3	2	4	2	1	2	2	3		5		2	2	1	2	
PERCENT ALLOTTED POURCENT ATTRIBUÉ PORCENTAJE DISTRIBUIDO			200							50						57	67	50	50							80	50					50	

⊗ { SLIGHT INTERFERENCE
BROUILLAGE LÉGER
INTERFERENCIA LIGERA

○ { REDUCED POWER
PUISSANCE RÉDUITE
POTENCIA REDUCIDA

△ { COMMON FREQUENCIES
FREQUENCES COMMUNES
FRECUENCIAS COMUNES

PLAN
Nº

TABLE } N° 2E - 6.6 M%_s - 1kW - 15db { DAY IARING
TABLEAU } { ASSIGNATION MULTIPLE DE JOUR
CUADRO } { COMPARTICIÓN DIURNA

AER.DOC.
N°266

[illegible]

{ SLIGHT INTERFERENCE
BROUILLAGE LÉGER
INTERFERENCIA LIGERA

REDUCED POWER
PUISSANCE RÉDUITE
POTENCIA REDUCIDA

COMMON FREQUENCIES
FREQUENCES COMMUNES
FRECUENCIAS COMUNES

PLAN
N°

TABLE
TABLEAU
CUADRO

N° 2G - 3.0 Mc/s - 1kW - 15db -

DAY SHARING
ASSIGN. ON MULTIPLE DE JOUR
COMPARTICIÓN DIURNA

AER.-DOC.
N° 266

FREQUENCIES - FRÉQUENCES FRECUENCIAS			AREA - ZONE 10					AREA - ZONE 11							AREA - ZONE 12							AREA - ZONE 13											
Nº	Kc/s	USE-UTILISAT ^N UTILIZACION	A	B	C	D	E	B	C	D	E	F	G	H	I	A	C	D	E	F	G	H	C	D	E	F	G	H	I	J	K	L	
G 1		CEP- SA																															
G 2		CEP																															
G 3		NSAM2-ME ext.																															
G 4																																	
G 5																																	
G 6																																	
G 7																																	
G 8																																	
G 9																																	
G 10																																	
TOTAL CHANNELS ALLOTTED TOTAL DES VOIES ATTRIBUÉES TOTAL DE CANALES DISTRIBUIDOS			0	0	1	1	0	0	1	0	1	1	1	0	0	1	0	0	1	1	1	0	0	0	1	0	1	1	0	1	1	1	
TOTAL CHANNELS REQUESTS TOTAL DES VOIES REQUISES TOTAL DE CANALES SOLICITADOS			0	1	0	0	1	2	1	1	1	1	1	1	0	1	2	1	0	1	0	0	0	0	2	2		0	1	1	1		
PERCENT ALLOTTED POURCENT ATTRIBUÉ PORCENTAJE DISTRIBUIDO				0	+	+	0	0		0			0			0	0	0	+		+			50							+		

⊗ { SLIGHT INTERFERENCE
BROUILLAGE LÉGER
INTERFERENCIA LIGERA

○ { REDUCED POWER
PUISSANCE RÉDUITE
POTENCIA REDUCIDA

△ { COMMON FREQUENCIES
FRÉQUENCES COMMUNES
FRECUENCIAS COMUNES

AER-DOC.
N° 266

FREQUENCIES - FRÉQUENCES - FRECUENCIAS			AREA - ZONE 10					AREA - ZONE 11								AREA - ZONE 12								AREA - ZONE 13											
Nº	Mq/s	USE - UTILISAT. ^N UTILIZACION	A	B	C	D	E	B	C	D	E	F	G	H	I	A	C	D	E	F	G	H	C	D	E	F	G	H	I	J	K	L			
H 1		CEP																																	
H 2		CEP - EU																																	
H 3		NSAM 2																																	
H 4																																			
H 5																																			
H 6																																			
H 7																																			
H 8																																			
H 9																																			
H 10																																			
H 11																																			
H 12																																			
H 13																																			

**Δ { COMMON
FRÉQUENCES
FRECUENCIAS**

TABLE	}
TABLEAU	
CUADRO	

- 1 kW ALLOTMENT PLAN - PLAN DE DISTRIBUTION POUR 1 kW - PLANO DE DESTRIBUCION PARA 1 kW -

TABLE 3 ALLOTMENT TABLE PER SUBAREA PER FREQUENCY BAND

TABLEAU 3 TABLEAU DE DISTRIBUTION DE FREQUENCES PAR SUBDIVISION DE ZONE PAR ORDRE DE GRANDEUR DE FREQUENCE

CUADRO 3 CUADRO DE ASIGNACION DE FRECUENCIAS POR SUBAREA POR ORDEN DE FRECUENCIAS

Frequency Mc/s Fréquence Mc/s Frecuencia Mc/s	AREA/ZONE 10					AREA/ZONE 11								AREA/ZONE 12								AREA/ZONE 13											
	A	B	C	D	E	B	C	D	E	F	G	H	I	A	C	D	E	F	G	H	C	D	E	F	G	H	I	J	K	L			
3.0	3	2	0	1	1	1	1	1	1	1	1	1	1	2	2	1	1	2	1	1	2	1	1	2	2	4	2	2	2	2			
3.5	1	0	0	1	1	0	0	0	1	1	1	1	0	1	2	1	0	1	1	1	1	1	1	1	1	2	1	1	1	1			
4.7	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	0	1	0			
5.6	4	2	2	1	2	1	1	1	1	1	1	1	0	2	4	2	1	2	2	1	2	2	2	1	2	2	1	2	1	1			
6.6	3	1	2	2	2	2	1	2	1	1	1	1	1	1	4	3	2	3	2	1	2	1	1	1	3	1	1	2	2	1			
9.0	3	0	0	0	2	1	0	1	0	0	0	0	0	1	1	1	0	0	0	1	1	0	1	1	2	1	0	1	1	2			
10.0	0	0	1	1	0	0	1	0	1	1	1	0	0	1	0	0	1	1	1	0	0	0	1	0	1	1	0	1	1	1			
11.3	0	0	0	0	0	1	1	1	1	1	1	1	0	1	0	0	0	0	0	1	1	0	2	0	4	0	0	2	2	1			
T _{TA} Allotted Attribuée Asignada	14	5	6	6	8	6	5	6	6	6	6	5	2	9	15	8	5	11	7	6	9	5	9	6	16	11	11	11	9				
T _{TA} Requested Demandée Solicitada	7	8	7	5	8	9	6	9	6	6	6	6	2	9	29	14	10	13	10	6	10	8	20		28	9	15	9	12				

PLAN
N°

TABLE
TABLEAU
CUADRO

N°4A - 3.0 M^c/s - 200W-15db

NIG SHARING
ASSIGNATION MULTIPLE DE NUIT
COMPARTICIÓN NOCTURNA

AER-DOC.
N°266

FREQUENCIES - FRÉQUENCES - FRECUENCIAS			AREA - ZONE 10					AREA - ZONE 11							AREA - ZONE 12							AREA - ZONE 13											
Nº	Kc/s	USE - UTILISAT. UTILIZACION	A	B	C	D	E	B	C	D	E	F	G	H	I	A	C	D	E	F	G	H	C	D	E	F	G	H	I	J	K	L	
A 1		NP.																															
A 2		CWP.NSAM2..NSA2ext																															
A 3		SP-NA																															
A 4		FE2-NA																															
A 5		EU-NSAM1																															
A 6		EU-NSAM2																															
A 7		NA ext.																															
A 8		SA																															
A 9		MET-PACIFIC																															
A 10		MET. ATLANTIC																															
A 11		AERODR. CONTROL																															
A 12																																	
A 13																																	
A 14																																	
A 15																																	
A 16																																	
A 17																																	
A 18																																	
A 19																																	
A 20																																	
A 21																																	
A 22																																	
A 23																																	
A 24																																	
TOTAL CHANNELS ALLOTTED TOTAL DES VOIES ATTRIBUÉES TOTAL DE CANALES DISTRIBUIDOS			2	1	1	1	2	2	1	1	1	1	1	1	1	2	3	2	1	2	2	1	2	2	2	2	3	3	2	2	1	2	
TOTAL CHANNELS REQUESTS TOTAL DES VOIES REQUISES TOTAL DE CANALES SOLICITADOS			2	2	2	1	2	1	1	2	1	1	1	1	1	2	6	3	2	4	2	1	2	2	3	5	2	2	1	2			
PERCENT ALLOTTED POURCENT ATTRIBUÉ PORCENTAJE DISTRIBUIDO				50	50			200		50						50	67	50	50					133	120								

⊗ { SLIGHT INTERFERENCE
BROUILLAGE LÉGER
INTERFERENCIA LIGERA

○ { REDUCED POWER
PUISSANCE RÉDUITE
POTENCIA REDUCIDA

△ { COMMON FREQUENCIES
FRÉQUENCES COMMUNES
FRECUENCIAS COMUNES

PLAN
Nº

TABLE
TABLEAU
CUADRO

TABLE }
TABLEAU } N°4B_ 3.5 M%_s_ 200 W_ 15 db
CUADRO }

{ HIGH SHARING
ASSIGNATION MULTIPLE DE NUIT
COMPARTICIÓN NOCTURNA

AER.-DOC.
Nº266

FREQUENCIES_ FRÉQUENCES_ FRECUENCIAS			AREA_ZONE 10					AREA_ZONE 11							AREA_ZONE 12							AREA_ZONE 13											
Nº	K/s	USE-UTILISAT. ^N UTILIZACION	A	B	C	D	E	B	C	D	E	F	G	H	I	A	C	D	E	F	G	H	C	D	E	F	G	H	I	J	K	L	
B 1		CEP-SA ext.																															
B 2		CEP-ME ext.																															
B 3		CEP-EU																															
B 4		CEP-EU-																															
B 5		NSAM-2 - ME																															
B 6		NSA-1 ext.																															
B 7																																	
B 8																																	
B 9																																	
B 10																																	
B 11																																	
B 12																																	
B 13																																	
B 14		CONTROL																															

⊗ { SLIGHT INTERFERENCE
BROUILLAGE LÉGER
INTERFERENCIA LIGERA

○ { REDUCED POWER
PUISSANCE RÉDUITE
POTENCIA REDUCIDA

△ { COMMON FREQUENCIES
FRÉQUENCES COMMUNES
FRECUENCIAS COMUNES

PLAN
Nº

TABLE
TABLEAU
CUADRO

Nº4C-4.7 M/s-200W-15db

NIGHT SHARING
ASSIGNATION MULTIPLE DE NUIT
COMPARTICIÓN NOCTURNA

AER-DOC.
Nº266

FREQUENCIES - FRÉQUENCES - FRECUENCIAS			AREA - ZONE 10					AREA - ZONE 11							AREA - ZONE 12						AREA - ZONE 13											
Nº	Kc/s	USE-UTILISAT. UTILIZACION	A	B	C	D	E	B	C	D	E	F	G	H	I	A	C	D	E	F	G	H	C	D	E	F	G	H	I	J	K	L
C 1		EU						■																						■		
C 2		EU															■														■	
C 3		NSAM 1																														
C 4						■															■					■						
C 5				■																	■						△					△
C 6																	■								■							
C 7			■														■										■					

⊗ { SLIGHT INTERFERENCE
BROUILLAGE LÉGER
INTERFERENCIA LIGERA

○ { REDUCED POWER
PUISSANCE RÉDUITE
POTENCIA REDUCIDA

△ { COMMON FREQUENCIES
FRÉQUENCES COMMUNES
FRECUENCIAS COMUNES

PLAN
N°

TABLE
TABLEAU
CUADRO

N°4D_5.6 M°s_200 W_15 db

NIGHT SHARING
ASSIGNATION MULTIPLE DE NUIT
COMPARTICIÓN NOCTURNA

AER.-DOC.
N°266

FREQUENCIES - FRÉQUENCES - FRECUENCIAS			AREA_ZONE 10					AREA_ZONE 11							AREA_ZONE 12							AREA_ZONE 13											
Nº	K/s	USE - UTILISAT. UTILIZACION	A	B	C	D	E	B	C	D	E	F	G	H	I	A	C	D	E	F	G	H	C	D	E	F	G	H	I	J	K	L	
D 1		NA-FE1																															
D 2		NA-FE2																															
D 3		NA-SP																															
D 4		NA-ext.																															
D 5		CEP-EU																															
D 6		NP.NSA2 ext.																															
D 7		CWP.NSA1 ext.																															
D 8/9		NSAM2																															
D 10		CEP-ME ext.																															
D 11		MET.PAC.																															
D 12		MET.ATL.																															
D 13																																	
D 14																																	
D 15																																	
D 16																																	
D 17																																	
D 18																																	
D 19																																	
D 20																																	
D 21																																	
D 22																																	
D 23																																	
D 24																																	
D 25																																	
D 26																																	
TOTAL CHANNELS ALLOTTED TOTAL DES VOIES ATTRIBUÉES TOTAL DE CANALES DISTRIBUIDOS			3	2	1	1	2	1	1	2	1	1	1	1	0	2	3	2	1	3	2	1	2	2	3	0	3	2	2	2	1	2	
TOTAL CHANNELS REQUESTS TOTAL DES VOIES REQUISES TOTAL DE CANALES SOLICITADOS			2	2	2	1	2	1	1	2	1	1	1	1	0	2	7	3	2	4	2	1	2	2	3		5	2	2	1	2		
PERCENT ALLOTTED POURCENT ATTRIBUÉ PORCENTAJE DISTRIBUIDO			150		50												43	67	50	75													

⊗ { SLIGHT INTERFERENCE
BROUILLAGE LÉGER
INTERFERENCIA LIGERA

○ { REDUCED POWER
PUISSANCE RÉDUITE
POTENCIA REDUCIDA

△ { COMMON FREQUENCIES
FRÉQUENCES COMMUNES
FRECUENCIAS COMUNES

1 { INTERFERENCE WITH
BROUILLAGE AVEC
INTERFERENCIA CON } 3B, 3C

PLAN
N°

TABLE
TABLEAU
CUADRO

N°4E - 0.6 M°s - 200W - 15 db

{ DAY SHARING
ASSIGNATION MULTIPLE DE JOUR
COMPARTICIÓN DIURNA

AER-DOC.
N°266

FREQUENCIES.- FRÉQUENCES FRECUENCIAS			AREA_ZONE 10					AREA_ZONE 11							AREA_ZONE 12						AREA_ZONE 13												
Nº	Kc/s	USE-UTILISAT. UTILIZACION	A	B	C	D	E	B	C	D	E	F	G	H	I	A	C	D	E	F	G	H	C	D	E	F	G	H	I	J	K	L	
E 1		SA_CEP																															
E 2		SA_CEP																															
E 3		SA ext.																															
E 4		ME_ext.																															
E 5		NSAM 2																															
E 6		NSAM 1																															
E 7		EU																															
E 8		EU																															
E 9																																	
E 10																																	
E 11																																	
E 12																																	
E 13																																	
E 14																																	
E 15																																	
E 16																																	
E 17																																	
E 18																																	
E 19																																	
E 20																																	
E 21																																	
TOTAL CHANNELS ALLOTTED TOTAL DES VOIES ATTRIBUEES TOTAL DE CANALES DISTRIBUIDOS			3	2	2	2	3	2	1	1	1	1	1	1	1	1	1	5	2	3	3	2	1	2	1	2	1	3	1	2	2	2	2
TOTAL CHANNELS REQUESTS TOTAL DES VOIES REQUISES TOTAL DE CANALES SOLICITADOS			1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	3	3	2	4	2	1	2	1	2	4	2	3	2	2	2	
PERCENT ALLOTTED POURCENT ATTRIBUE PORCENTAJE DISTRIBUIDO			300	200	200	200	300											167	67	150	75					150			67				

⊗ { SLIGHT INTERFERENCE
BROUILLAGE LÉGER
INTERFERENCIA LIGERA

○ { REDUCED POWER
PUISSANCE RÉDUITE
POTENCIA REDUCIDA

△ { COMMON FREQUENCIES
FRÉQUENCES COMMUNES
FRECUENCIAS COMUNES

PLAN
N°

TABLE
TABLEAU
CUADRO

N°4F- 1.0 Mc/s- 200W-15db

DAY SHARING
ASSIGNATION MULTIPLE DE JOUR
COMPARTICIÓN DIURNA

AER-DOC.
N°266

FREQUENCIES- FRÉQUENCES- FRECUENCIAS			AREA_ZONE 10					AREA_ZONE 11							AREA_ZONE 12							AREA_ZONE 13											
Nº	Kc/s	USE-UTILISAT ^N UTILIZACION	A	B	C	D	E	B	C	D	E	F	G	H	I	A	C	D	E	F	G	H	C	D	E	F	G	H	I	J	K	L	
F 1		FE2-EU-NSAM2	■																														
F 2		FE1-EU-CEP																			■							■					
F 3		NSAM2-SP-MEext.																															
F 4		NSAM1-NSA1ext.																															
F 5		FE1-CEP-SA					■																										
F 6		SA-NP							■																								
F 7		NA-CWP																												■			
F 8		NA ext.																										■					
F 9		NA	■																							■							
F 10		NA														■															■		
F 11		NSA2 ext.							■															■									
F 12		MET-PAC.																			■												
F 13		MET-ATLANT.																															
F 14																										■							
F 15																	■															■	
F 16				■																													
F 17																																	
																															</		

⊗ { SLIGHT INTERFERENCE
BROUILLAGE LEGER
INTERFERENCIA LIGERA

○ { REDUCED POWER
PUISSANCE RÉDUITE
POTENCIA REDUCIDA

△ { COMMON FREQUENCIES
FRÉQUENCES COMMUNES
FRECUENCIAS COMUNES

PLAN
N°

TABLE
TABLEAU
CUADRO

N°4G-10.3M/s-200W-15db

{ DAY SHARING
ASSIGNATION MULTIPLE DE JOUR
COMPARTICIÓN DIURNA

AER-DOC.
N°266

FREQUENCIES - FRÉQUENCES - FRECUENCIAS			AREA_ZONE 10					AREA_ZONE 11							AREA_ZONE 12							AREA_ZONE 13											
Nº	Kc/s	USE-UTILISAT ^N UTILIZACION	A	B	C	D	E	B	C	D	E	F	G	H	I	A	C	D	E	F	G	H	C	D	E	F	G	H	I	J	K	L	
G1		CEP-SA ext.																															
G2		CEP																															
G3		NSAM-2-ME ext.																															
G4																																	
G5																																	
G6																																	
G7																																	
G8																																	
G9																																	
G10																																	
TOTAL CHANNELS ALLOTTED TOTAL DES VOIES ATTRIBUÉES TOTAL DE CANALES DISTRIBUIDOS			0	1	0	0	1	1	0	0	0	1	1	1	0	1	1	0	0	1	0	0	0	0	1	1	2	0	0	1	1	2	
TOTAL CHANNELS REQUESTS TOTAL DES VOIES REQUISES TOTAL DE CANALES SOLICITADOS			0	1	0	0	1	2	1	1	1	1	1	1	0	1	2	1	0	1	0	0	0	0	2	2	0	1	1	1			
PERCENT ALLOTTED POURCENT ATTRIBUÉ PORCENTAJE DISTRIBUIDO								50	0	0	0					50	0															200	

⊗ { SLIGHT INTERFERENCE
BROUILLAGE LÉGER
INTERFERENCIA LIGERA

○ { REDUCED POWER
PUISSANCE RÉDUITE
POTENCIA REDUCIDA

△ { COMMON FREQUENCIES
FRÉQUENCES COMMUNES
FRECUENCIAS COMUNES

PLAN
Nº

TABLE
TABLEAU
CUADRO

Nº4H_11.3 Mc/s_200W_15db

DAY SHARING
ASSIGNATION MULTIPLE DE JOUR
COMPARTICIÓN DIURNA

AER.-DOC.
Nº266

FREQUENCIES - FRÉQUENCES - FRECUENCIAS			AREA_ZONE 10					AREA_ZONE 11							AREA_ZONE 12							AREA_ZONE 13											
Nº	Kc/s	USE UTILISAT ^N UTILIZACION	A	B	C	D	E	B	C	D	E	F	G	H	I	A	C	D	E	F	G	H	C	D	E	F	G	H	I	J	K	L	
H 1		CEP																															
H 2		CEP - EU																															
H 3		NSAM-2																															
H 4																																	
H 5																																	
H 6																																	
H 7																																	
H 8																																	
H 9																																	
H 10																																	
H 11																																	
H 12																																	
H 13																																	
TOTAL CHANNELS ALLOTTED TOTAL DES VOIES ATTRIBUÉES TOTAL DE CANALES DISTRIBUIDOS			1	0	0	0	1	1	1	2	1	1	1	1	0	1	0	1	0	0	0	0	0	0	0	1	2	2	2	0	2	1	2
TOTAL CHANNELS REQUESTS TOTAL DES VOIES REQUISES TOTAL DE CANALES SOLICITADOS			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	2	0	2	1	1		
PERCENT ALLOTTED POURCENT ATTRIBUÉ PORCENTAJE DISTRIBUIDO			+				+	+	+	+	+	+	+		+		+				0				150	200					200		

○ { SLIGHT INTERFERENCE
BROUILLAGE LÉGER
INTERFERENCIA LIGERA

○ { REDUCED POWER
PUISSANCE RÉDUITE
POTENCIA REDUCIDA

△ { COMMON FREQUENCIES
FRÉQUENCES COMMUNES
FRECUENCIAS COMUNES

PLAN
Nº

TABLE
TABLEAU
CUADRO

Nº4J-1.3 M%_s-200W-15db

DAY SHARING
ASSIGN ION MULTIPLE DE JOUR
COMPARTICIÓN DIURNA

AER-DOC.
Nº266

FREQUENCIES - FRÉQUENCES - FRECUENCIAS			AREA_ZONE 10					AREA_ZONE 11							AREA_ZONE 12							AREA_ZONE 13											
Nº	M C/s	USE-UTILISAT ^N UTILIZACION	A	B	C	D	E	B	C	D	E	F	G	H	I	A	C	D	E	F	G	H	C	D	E	F	G	H	I	J	K	L	
J1																																	
J2																																	
J3																																	
J4																																	
J5																																	
J6																																	
J7																																	
J8																																	
J9																																	
J10	Δ																																
TOTAL CHANNELS ALLOTTED TOTAL DES VOIES ATTRIBUÉES TOTAL DE CANALES DISTRIBUIDOS																																	
TOTAL CHANNELS REQUESTS TOTAL DES VOIES REQUISES TOTAL DE CANALES SOLICITADOS																																	
PERCENT ALLOTTED POURCENT ATTRIBUÉ PORCENTAJE DISTRIBUIDO																																	

⊗ { SLIGHT INTERFERENCE
BROUILLAGE LÉGER
INTERFERENCIA LIGERA

○ { REDUCED POWER
PUISSANCE RÉDUITE
POTENCIA REDUCIDA

Δ { COMMON FREQUENCIES
FRÉQUENCES COMMUNES
FRECUENCIAS COMUNES

TABLE
TABLEAU
CUADRO

DAY SHARING
ASSIGN ION MULTIPLE DE JOUR
COMPARTICIÓN DIURNA

AER.-DOC.
Nº266

⊗ { SLIGHT INTERFERENCE
BROUILLAGE LÉGER
INTERFERENCIA LIGERA

○ { REDUCED POWER
PUISSANCE RÉDUITE
POTENCIA REDUCIDA

△ { COMMON FREQUENCIES
FRÉQUENCES COMMUNES
FRECUENCIAS COMUNES

TABLE 5 TABLE OF ALLOTMENTS PER SUB AREA PER FREQUENCY BAND FOR 200 W PLAN

TABLEAU 5 TABLEAU D'ATTRIBUTION PAR SUBDIVISION DE ZONE ET PAR BANDE DE FREQUENCE POUR 200 W

CUADRO 5 CUADRO DE ASIGNACION DE FRECUENCIAS POR SUBAREA POR ORDEN DE FRECUENCIAS PARA 200 W

RDARA ZLARN RDARA	AREA/ZONE 10					AREA/ZONE 11					AREA/ZONE 12					AREA/ZONE 13														
	A	B	C	D	E	B	C	D	E	F	G	H	I	A	C	D	E	F	G	H	C	D	E	F	G	H	I	J	K	L
3.0	2	1	1	1	2	2	1	1	1	1	1	1	1	2	3	2	1	2	2	1	2	2	2	2	3	3	2	2	1	2
3.5	2	1	1	0	1	0	1	1	1	1	0	0	0	1	2	2	2	1	1	1	1	1	1	1	2	1	2	1	1	1
4.7	1	1	0	1	0	1	0	0	0	0	0	0	0	0	3	0	0	2	0	0	0	0	1	1	2	0	0	1	1	1
5.6	3	2	1	1	2	1	1	2	1	1	1	1	0	2	3	2	1	3	2	1	2	2	3	0	3	2	2	2	1	2
6.6	3	2	2	2	3	2	1	1	1	1	1	1	1	1	5	2	3	3	2	1	2	1	2	1	3	1	2	2	2	2
9.0	2	1	0	0	1	1	1	1	1	0	0	0	0	2	1	0	1	1	1	0	1	1	1	1	2	1	0	1	1	2
10.0	0	1	0	0	1	1	0	0	0	1	1	1	0	1	1	0	0	1	0	0	0	0	1	1	2	0	0	1	1	2
11.3	1	0	0	0	1	1	1	2	1	1	1	1	0	1	0	1	0	0	0	0	0	0	1	2	2	2	0	2	1	2
TOTAL allotted attribuées asignada	14	9	5	5	11	9	6	8	6	6	5	5	2	10	18	9	8	13	8	4	8	7	12	9	19	10	8	12	9	14
TOTAL requested demandées solicitada	7	8	7	5	8	9	6	9	6	6	6	6	2	9	29	14	10	18	10	6	10	8	20		28	9	15	9	12	

TABLE 6 COMPARATIVE RESULTS FOR 1 kW AND 200 W PLAN
 TABLEAU 6 COMPARAISON DES RESULTATS DES PLANS ETABLIS POUR 1 kW ET 200 W
 CUADRO 6 RESULTADOS COMPARATIVOS DE LOS PLANES DE 1kW Y 200 W

RDARA ZLARN RDARA	TOTAL CHANNELS TOTAL DE VOIES TOTAL DE CANALES			PERCENTAGE SATISFACTION POURCENT DES DEMANDES SATISFAITES PORCENTAGE DE SOLICITUDES SATISFECHAS	
	REQUESTED DEMANDEES SOLICITADAS	ALLOTTED ATTRIBUEES DISTRIBUIDAS		1 kW	200 W
		1 kW	200 W		
10 A	7	14	14	200	200
B	8	5	8	63	100
C	7	6	7	85	100
D	5	6	5	120	100
E	8	8	8	100	100
AREA 10 ZONE 10 AREA 10	38 *	42 *	45 *	111	118
11 B	9	6	9	66	100
C	6	5	6	83	100
D	9	6	8	66	90
E	6	6	6	100	100
F	6	6	6	100	100
G	6	6	5	100	83
H	6	5	5	83	83
I	2	2	2	100	100
AREA 11 ZONE 11 AREA 11	53 *	45 *	50 *	85	94
12 A	9	9	10	100	111
C	29	15	18	50	63
D	14	8	9	57	67
E	10	5	8	50	80
F	18	11	13	61	73
G	10	7	8	70	80
H	6	6	4	100	66
AREA 12 ZONE 12 AREA 12	99 *	54 *	77 *	55	76
13 C	10	9	8	90	80
D	8	5	7	63	87
E)	20	15	21	75	105
F)	28	27	29	96	104
G)	9	5	8	55	88
H)	15	11	12	73	80
I	9	11	9	122	100
J	12	9	14	75	117
K					
L					
AREA 13 ZONE 13 AREA 13	114 *	95 *	111 *	82 *	97

* - Two frequencies on 13 Mc/s and one frequency on 18 Mc/s band are added.

* - Sont ajoutées 2 fréquences dans la bande des 13 Mc/s et 1 dans la bande des 18 Mc/s.

* - Se añaden 2 frecuencias en la banda de 13 Mc/s y 1 en la banda de 18 Mc/s.

10 September 1948

COMMITTEE 6

(This document replaces
Annex 1 to the final report
of Working Group 6C:
Aer-Doc 198)

MAJOR WORLD AIR ROUTE AREAS (MWARA)

European Area - Designator "EU"

The precise boundaries of this area are defined by lines drawn on a great circle path between the coordinates of latitude and longitude as follows:

From 34°N 12°W	to	32°N 13°E
From 32°N 13°E	to	29°N 35½°E
From 29°N 35½°E	to	40°N 34°E
From 40°N 34°E	to	42°N 30°E

From the point 42°N 30°E along the borders between the following countries:

Bulgaria and Turkey
Greece and Bulgaria
Greece and Yugoslavia
Greece and Albania to the point 40°N 19°E.

From 40°N 19°E	to	45°N 13°E
----------------	----	-----------

From the point 45°N 13°E along the borders between the following countries:

Yugoslavia and Italy
Yugoslavia and Austria
Hungary and Austria
Hungary and Czechoslovakia
U.S.S.R. and Czechoslovakia
Poland and Czechoslovakia
Poland and Germany to the point 55°N 14°E

From 55°N 14°E	to	60°N 20°E
From 60°N 20°E	to	60°N 27°E excluding all U.S.S.R. and Republic of Poland territories.

From the point 60°N 27°E along the border between U.S.S.R. and Finland to the point 72°N 30°E.

From 72°N 30°E	to	70°N 0°Longitude
From 70°N 0°	to	54°N 12°W
From 54°N 12°W	to	34°N 12°W



The above area includes the following locations:

Cairo	(Egypt)
Lydda	(Palestine)
Ankara	(Turkey)
Istanbul	(Turkey)
Helsinki	(Finland)
Hammerfest	(Norway)
Shannon	(Ireland)
Lisbon	(Portugal)
Tangier	
Tripoli	(Libya)
Casablanca	(French Protectorate of Morocco)

North Atlantic Area. Designator "NA"

The precise boundaries of this area are defined by lines drawn on a great circle path between coordinates of Latitude and Longitude as follows:

From 39°N 78°W	to	47°N 75°W
From 47°N 75°W	to	68°N 20°W
From 68°N 20°W	to	60°N 20°E

From 60°N 20°E south along the border of the "EU" MWARA (See Page 1) and the northern border of Czechoslovakia to 50.5°N 12.5°E.

From 50.5°N 12.5°E	to	45°N 10°E
From 45°N 10°E	to	34°N 12°W
From 34°N 12°W	to	35°N 25°W
From 35°N 25°W	to	30°N 62°W
From 30°N 62°W	to	16°N 78°W
From 16°N 78°W	to	21°N 86°W
From 21°N 86°W	to	39°N 78°W

The above area includes the following locations:

Washington, D.C.	(U.S.A.)
Montreal	(Canada)
Goose Bay	(Labrador)
Reykjavik	(Iceland)
Oslo	(Norway)
Copenhagen	(Denmark)
Brussels	(Belgium)
Paris	(France)
Lisbon	(Portugal)
Azores Islands	
Bermuda	
Cuba	
Jamaica	
Miami	(U.S.A.)

South Atlantic Area. Designator "SA"

The precise boundaries of this area are defined by lines drawn on a great circle path between co-ordinates of Latitude and Longitude as follows:

From 34°S 74°W	to	36°S 52°W
From 36°S 52°W	to	13°N 15°W
From 13°N 15°W	to	40°N 13°E
From 40°N 13°E	to	48°N 13°E
From 48°N 13°E	to	51°N 16°E

From 51°N 16°E along the border of the "EU" MWARA (See Page 1) to the point 60°N 20°E

From 60°N 20°E	to	61°N 05°E
From 61°N 05°E	to	47°N 17°W
From 47°N 17°W	to	25°N 25°W
From 25°N 25°W	to	15°N 62°W
From 15°N 62°W	to	03°S 40°W
From 03°S 40°W	to	34°S 74°W

The above area includes the following locations:

Santiago	(Chile)
Buenos Aires	(Argentina)
Montevideo	(Uruguay)
Sao Paulo)
Rio de Janeiro	
Recife	
Natal	
Bolama	(Portuguese Guinea)
Dakar)
Port Etienne	
Villa Cisneros	(Rio de Oro)
Rome	(Italy)
Geneva	(Switzerland)
Frankfort	(Germany)
Stockholm	(Sweden)
Oslo	(Norway)
Prestwick	(United Kingdom)
Lisbon	(Portugal)
Canary Islands	
Fort de France *	(Martinique)

- * In order to increase the possibilities of frequency repetition of the frequencies used within the "SA" MWARA, the station Fort de France remains in that region but will use the corresponding frequencies only on a secondary basis; if this results in harmful interference, Fort de France will then use the frequencies of the "NSAM-2" MWARA (See Aer-Doc. 243, Para 3).

North/South American Area 1. Designator "NSAM-1"

The precise boundaries of this area are defined by lines drawn on a great circle path between co-ordinates of Latitude and Longitude as follows:

From 36°S 73°W	to	36°S 52°W
From 36°S 52°W	to	26°S 63°W
From 26°S 63°W	to	05°S 63°W
From 05°S 63°W	to	05°N 75°W
From 05°N 75°W	to	27°N 75°W
From 27°N 75°W	to	35°N 107°W
From 35°N 107°W	to	40°N 128°W
From 40°N 128°W	to	20°N 114°W
From 20°N 114°W	to	00° 93°W
From 00° 93°W	to	36°S 73°W

The above area includes the following locations:

Santiago	(Chile)
Galapagos Islands	(Ecuador)
San Francisco)	
El Paso	} (U.S.A.)
Miami	
Habana	(Cuba)
Kingston	(Jamaica)
Barranquilla)	} (Colombia)
Bogota	
Porto Velho	(Brazil)
Oran	(Argentina)
Montevideo	(Uruguay)
Buenos Aires	(Argentina)

North/South American Area 2. Designator NSAM-2"

The precise boundaries of this area are defined by lines drawn on a great circle path between coordinates of Latitude and Longitude as follows:

From 34°S 74°W	to	36°S 52°W
From 36°S 52°W	to	05°S 30°W
From 05°S 30°W	to	10°N 60°W
From 10°N 60°W	to	34°N 60°W
From 34°N 60°W	to	48°N 75°W
From 48°N 75°S	to	40°N 77°W
From 40°N 77°W	to	23°N 86°W
From 23°N 86°W	to	02°N 79°W
From 02°N 79°W	to	20°S 50°W
From 20°S 50°W	to	34°S 74°W

The above area includes the following locations:

Santiago	(Chile)
Buenos Aires	(Argentina)
Montevideo	(Uruguay)
Rio de Janeiro	(Brazil)
Belem	}
Recife	
Natal	
Paramaribo	
Port of Spain	(Trinidad)
Bermuda Islands	
Montreal	(Canada)
New York	}
Washington	
Miami	
Havana	(Cuba)
Bogota	}
Cali	
Leticia	
Cuyaba	(Brazil)

North/South African Area 1. Designator "NSA-1"

The precise boundaries of this area are defined by lines drawn on a great circle path between the coordinate of Latitude and Longitude as follows:

From 31°S 35°E	to	31°S 24°E
From 31°S 24°E	to	16°N 26°W
From 16°N 26°W	to	40°N 12°W
From 40°N 12°W	to	52°N 06°W
From 52°N 06°W	to	60°N 10°E
From 60°N 10°E	to	60°N 20°E

From 60°N 20°E south along the border of the "EU" MWARA (See Page 1) to the point 43°N 15°E.

From 43°N 15°E	to	37°N 12°E
From 37°N 12°E	to	00° 28°E
From 00° 28°E	to	11°S 28°E
From 11°S 28°E	to	20°S 35°E
From 20°S 35°E	to	31°S 35°E

The above area includes the following locations:

Durban	(Africa)
Kimberley	(Africa)
Cape Verde Islands	
Lisbon	(Portugal)
London	(United Kingdom)
Oslo	(Norway)
Copenhagen	(Denmark)
Stockholm	(Sweden)
Paris	(France)
Geneva	(Switzerland)
Rome	(Italy)
Algiers	}
Stanleyville	
Elizabethville	
Beira	
	(Africa)

North/South African Area 2. Designator "NSA-2"

The precise boundaries of this area are defined by lines drawn on a great circle path between coordinates of Latitude and Longitude as follows:

From 30°S 34°E	to	22°S 60°E
From 22°S 60°E	to	10°N 52°E
From 10°N 52°E	to	30°N 35°E
From 30°N 35°E	to	40°N 19°E

From 40°N 19°E north along the border of the "EU" MWARA (See Page 1) to the point 60°N 20°E.

From 60°N 20°E	to	60°N 10°W
From 60°N 10°W	to	48°N 5°W
From 48°N 5°W	to	37°N 07°E
From 37°N 07°E	to	00° 28°E
From 00° 28°E	to	11°S 28°E
From 11°S 28°E	to	20°S 24°E
From 20°S 24°E	to	30°S 24°E
From 30°S 24°E	to	30°S 34°E

The above area includes the following locations:

Durban	(Africa)
Mauritius Island	
Berbera	(Africa)
Cairo	(Africa)
Rome	(Italy)
Stockholm	(Sweden)
Copenhagen	(Denmark)
Oslo	(Norway)
London	(United Kingdom)
Paris	(France)
Geneva	(Switzerland)
Tunis)
Lake Victoria	
Elizabethville	
	(Africa)

Middle East Area. Designator "ME"

The precise boundaries of this area are defined by lines drawn on a great circle path between coordinates of Latitude and Longitude as follows:

From 05°N 80°E	to	17°N 70°E
From 17°N 70°E	to	28°N 30°E
From 28°N 30°E	to	37°N 10°W
From 37°N 10°W	to	60°N 10°W
From 60°N 10°W	to	60°N 20°E

From 60°N 20°E south along the border of the "EU" MWARA (See Page 1) to the point 45°N 13°E.

From 45°N 13°E	to	40°N 14°E
From 40°N 14°E	to	37°N 51°E
From 37°N 51°E	to	24°N 93°E
From 24°N 93°E	to	05°N 80°E

The above area includes the following locations:

Colombo	(Ceylon)
Bombay	(India)
Karachi	(Pakistan)
Cairo	(Egypt)
Lisbon	(Portugal)
London	(United Kingdom)
Oslo	(Norway)
Copenhagen	(Denmark)
Stockholm	(Sweden)
Frankfurt	(Germany)
Amsterdam	(Holland)
Paris	(France)
Rome	(Italy)
Teheran	(Iran)
Calcutta	(India)
Madras	(India)

Far East Area 1. Designator "FE-1"

The precise boundaries of this area are defined by lines drawn on a great circle path between coordinates of Latitude and Longitude as follows:

From 40°S 145°E	to	10°S 106°E
From 10°S 106°E	to	05°N 77°E
From 05°N 77°E	to	15°N 77°E
From 15°N 77°E	to	24°N 92°E
From 24°N 92°E	to	10°N 107°E
From 10°N 107°E	to	18°S 147°E
From 18°S 147°E	to	23°S 153°E
From 23°S 153°E	to	40°S 153°E
From 40°S 153°E	to	40°S 145°E

The above area includes the following locations:

Melbourne	(Australia)
Batavia	(Netherlands East Indies)
Colombo	(Ceylon)
Madras	(India)
Calcutta	(India)
Kuching	(Sarawak)
Saigon	(Indo China)
Darwin	(Australia)
Townsville	
Sydney	

Far East Area 2 - Designator "FE-2"

The precise boundaries of this area are defined by lines drawn on a great circle path between coordinates of Latitude and Longitude as follows:

From 12°N 124°E	to	33°N 133°E
From 33°N 133°E	to	35°N 132°E
From 35°N 132°E	to	24°N 88°E
From 24°N 88°E	to	08°S 105°E
From 08°S 105°E	to	15°S 130°E
From 15°S 130°E	to	15°S 158°E
From 15°S 158°E	to	00° 168°E
From 00° 168°E	to	00° 135°E
From 00° 135°E	to	12°N 124°E

The above area includes the following locations:

Manila	(Philippines)
Shanghai)	(China)
Kunming)	(India)
Calcutta	
Singapore	
Batavia	(Netherlands East Indies)
Darwin	(Australia)
Nauru Island	
Biak	(New Guinea)

North Pacific Area. Designator "NP"

The precise boundaries of this area are defined by lines drawn on a great circle path between coordinates of Latitude and Longitude as follows:

From 46°N 122°W	to	50°N 170°W
From 50°N 170°W	to	33°N 138°E
From 33°N 138°E	to	38°N 138°E
From 38°N 138°E	to	50°N 166°E
From 50°N 166°E	to	55°N 110°W
From 55°N 110°W	to	46°N 122°W

The above area includes the following locations:

Seattle	(U.S.A.)
Amchitka	(Aleutian Islands)
Tokyo	(Japan)
Anchorage	(Alaska)
Edmonton	(Canada)
Vancouver	(Canada)

South Pacific Area. Designator "SP"

The precise boundaries of this area are defined by lines drawn on a great circle path between coordinates of Latitude and Longitude as follows:

From 22°N 158°W	to	20°S 145°W
From 20°S 145°W	to	50°S 170°W
From 50°S 170°W	to	50°S 145°E
From 50°S 145°E	to	38°S 145°E
From 38°S 145°E	to	28°S 152°E
From 28°S 152°E	to	0° 167°E
From 0° 167°E	to	0° 175°W
From 0° 175°W	to	22°N 158°W

The above area includes the following locations:

Honolulu	(Territory of Hawai)
Tahiti	(Society Islands)
Chatham Islands	
New Zealand	
Hobart	(Tasmania)
Melbourne)	
Sydney)	(Australia)
Brisbane)	
Nauru Island	

Central East Pacific Area. Designator "CEP"

The precise boundaries of this area are defined by lines drawn on a great circle path between coordinates of Latitude and Longitude as follows:

From 32°N 117°W	to	16°N 159°W
From 16°N 159°W	to	22°N 159°W
From 22°N 159°W	to	50°N 122°W
From 50°N 122°W	to	38°N 120°W
From 38°N 120°W	to	32°N 117°W

The above area includes the following locations:

San Diego	(U.S.A.)
Hilo	(Territory of Hawai)
Honolulu	(Territory of Hawai)
Vancouver	(Canada)
Seattle) (U.S.A.)
San Francisco	
Los Angeles	

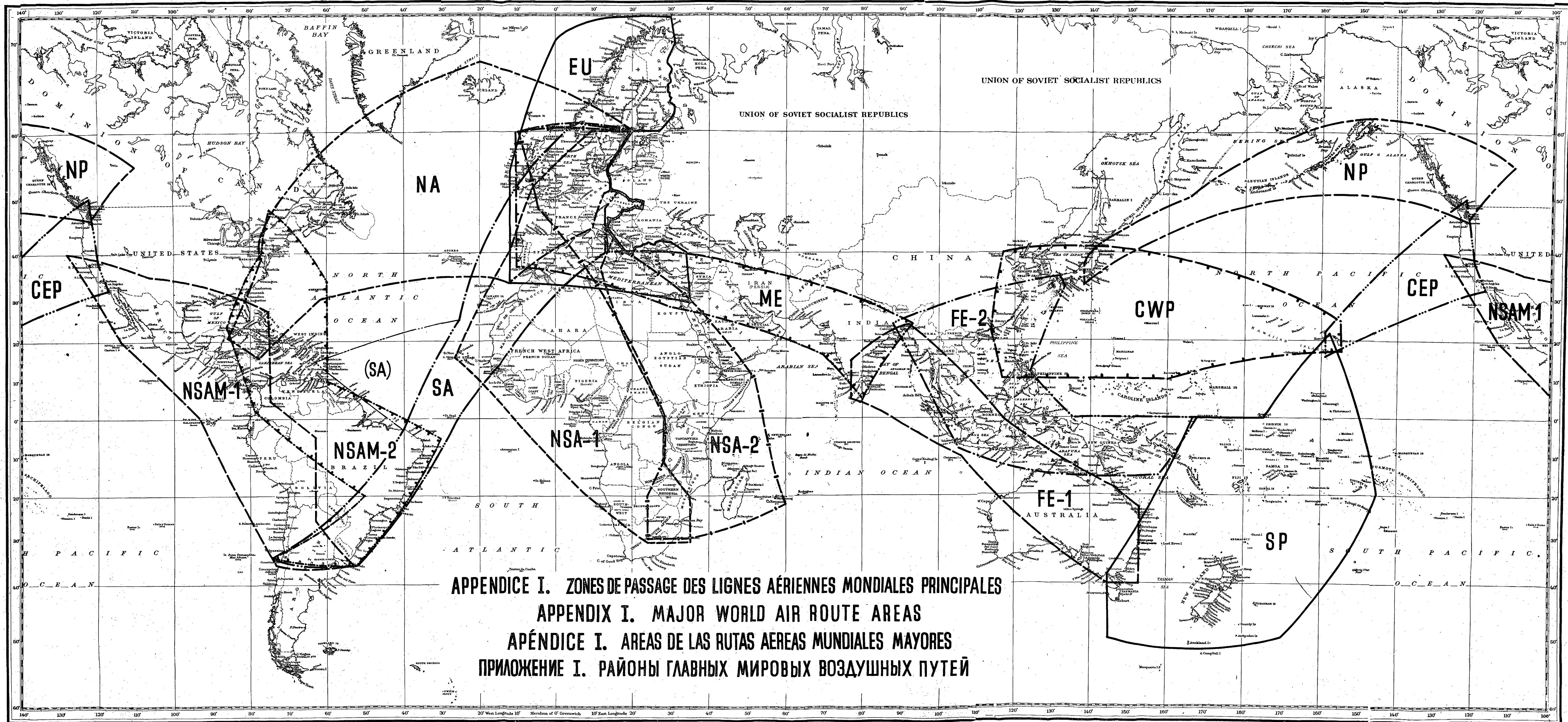
Central West Pacific Area. Designator "CWP"

The precise boundaries of this area are defined by lines drawn between coordinates of Latitude and Longitude as follows:

From 17°N 155°W	to	10°N 160°E
From 10°N 160°E	to	10°N 117°E
From 10°N 117°E	to	23°N 114°E
From 23°N 114°E	to	40°N 117°E
From 40°N 117°E	to	25°N 155°W
From 25°N 155°W	to	17°N 155°W

The above area includes the following locations:

Hilo	(Territory of Hawai)
Manila	(Philippines)
Hongkong	(China)
Shanghai	(China)
Tientsin	(China)
Tokyo	(Japan)
Honolulu	(Territory of Hawai)



This folder contains the following documents mentioned in paragraph 12.b. of the Provisional Report (Volume III) :

Aer-Document No

- 2 - CHINA - Minimum Route Frequency Requirements for national Air Transport Services in China.
- 18 - UNION OF SOUTH AFRICA - Suggested Method of Approach to the Problem of World Allocation of Aeronautical Frequencies.
- 21 - (Annex only) Statement by the Soviet Delegation to the Plenary Meeting of the Conference relative to the Report of the Preparatory Committee (PC-Aer-Doc. No 25)
- 28 - CHINA - Proposed Modification of the I.C.A.O. Plan for Division of Major World Air Route Areas.
- 30 - FRANCE - Proposal for the Utilization of Exclusive Frequency Bands assigned to Mobile Aeronautical R Services between 3 and 25 Mc/s.
- 33 - CHINA - Proposal on Classification of Air Services and on the Method of Approach to Route Frequency Allotment.
- 248 - Proposal by the Soviet Delegation in connection with alteration of Principles for the elaboration of a Draft Frequency Plan for the Aeronautical Mobile R Service.

C H I N A

Minimum Route Frequency Requirements for National Air Transport
Services in China.

In calculating the minimum route frequencies required for domestic air transport services in China, the recommendations and formulas submitted by Working Groups A and B respectively were generally taken as a basis. It was found necessary, however, to make a number of changes, to take into account local conditions affecting airline operations.

Many Chinese aerodromes are not yet equipped for use at night, and in some parts of the country there are inadequate facilities for navigation by instruments. Hence, as most scheduled and non-scheduled flights will be carried out in daylight and in fine weather, a "probable concentration factor" other than that of 2.4. (chosen for international routes) should be used in calculating probable peak loadings on Chinese domestic routes. In view of the fact that the Atlantic City Convention allotted an inadequate part of the radio spectrum to aeronautical mobile services, the figure 3 is adopted for the purpose of this document. This figure errs on the side of optimism.

Class A1 emissions are the only ones now in use for airways communications throughout the country. As the frequency tolerance of aircraft stations currently in use is greater than 0.02%, the Chinese Delegation considers that the channel separations proposed by Working Group A for A3 emissions should be used in assigning route frequencies for its domestic use.

The working figure of 12 aircraft as a loading factor, per hour, per frequency, or per family of frequencies is considered too high for Chinese domestic routes for the following reasons :

1. The slowness with which communications are passed by radio-telegraphy.
2. The serious QRM which prevails locally.
3. The considerable volume of ground-to-air meteorological information as well as air-to-ground weather reports.
4. The considerable volume of airline operational traffic.

Years of operational experience show that a figure greater than 6 aircraft per hour could not possibly be adopted.

The figures given below for the calculation of minimum route frequency requirements are those actually returned by three major domestic airlines for January, 1948.



Flying hours, scheduled and non-scheduled, during January :

Chinese National Aviation Corporation	7206
Central Air Transport Corporation	4416
Civil Air Transport	2070
10% non-scheduled military flights	<u>1369</u>
Total :	15061 hours

Flying hours per day :

$$\frac{15061}{31} = 486 \text{ hours}$$

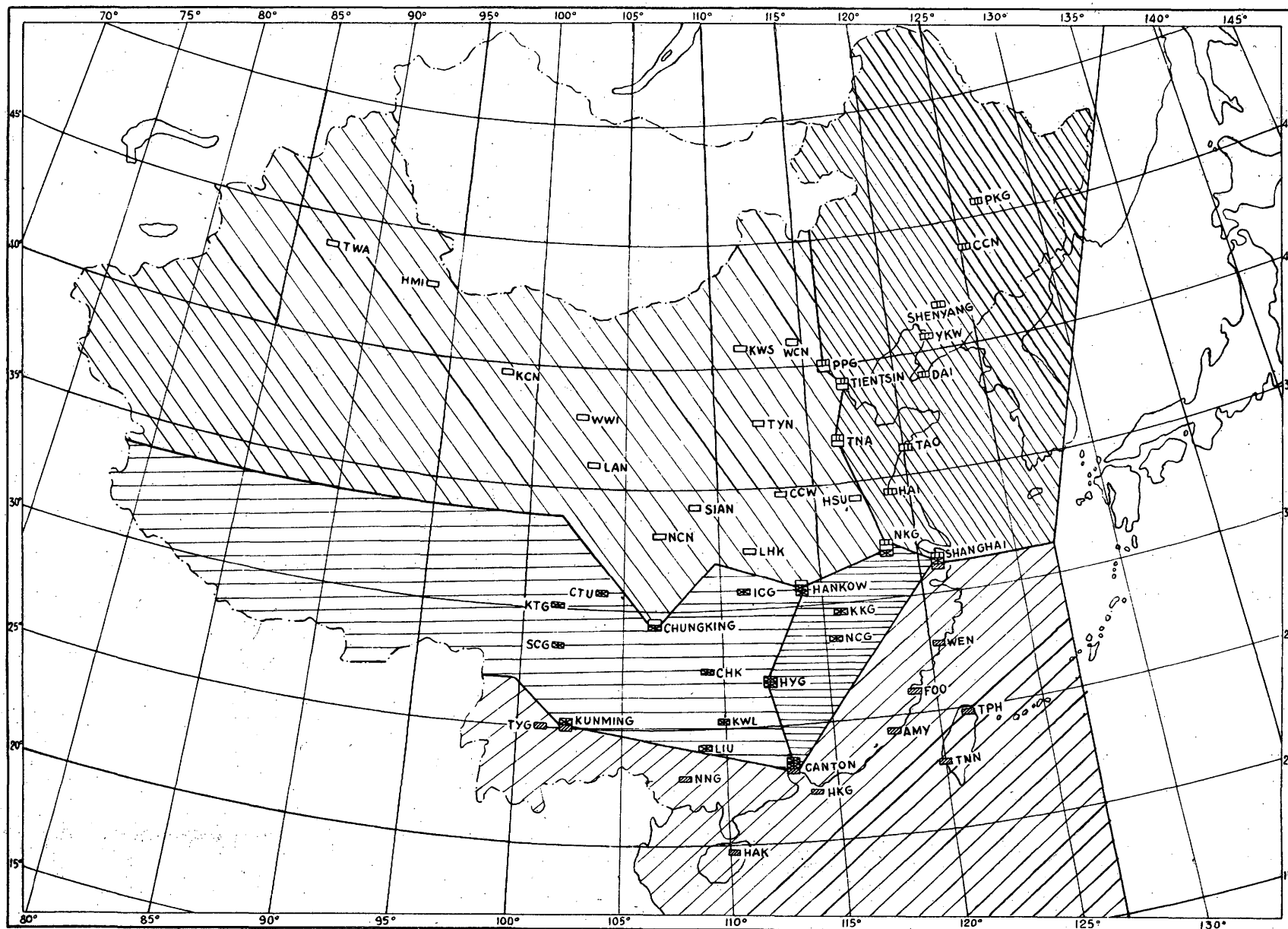
Number of aircraft per hour : $\frac{486}{8} = 60.1$
(probable peak loading)

Number of route frequencies or families of frequencies required : $\frac{60.1}{6} = 10$

From the above tentative figures, it becomes clear that at least 10 families of frequencies in the route bands would be required for the safe operation of domestic air services in China, each comprising one of 3 megacycles, one of 4 to 5 megacycles, and one of 6 to 8 megacycles. This estimate does not allow any margin; our aircraft operations are steadily increasing in volume and are likely to continue to do so in the near future.

It seems from an examination of the nature and pattern of all the major domestic air routes, and the density of air traffic in different areas, that the distribution of these 10 families of frequencies to be allotted to aeronautical mobile services may best be effected as in Appendix 1, with two families of frequencies per area.

REGIONS FOR THE DISTRIBUTION OF TEN FAMILIES OF FREQUENCIES ALLOTTED FOR DOMESTIC AEROMOBILE SERVICE
 RÉGIONS DE DISTRIBUTION DE DIX FAMILLES DE FRÉQUENCES ASSIGNÉES AU SERVICE AÉRONAUTIQUE INTÉRIEUR
 REGIONES DE DISTRIBUCIÓN DE DIEZ FAMILIAS DE FRECUENCIAS ASIGNADAS AL SERVICIO AERONÁUTICO INTERNO



Committee 6

UNION OF SOUTH AFRICA

Suggested Method of Approach to the Problem
of World Allocation of Aeronautical Frequencies.

1. The frequency requirements for the International Air Routes should be determined first as it is essential for the successful operation of these routes that they be planned on a "Route concept" basis and not on a regional basis.
2. The formula for peak traffic during any hour should be utilized together with ionospheric data for determining the number of frequency family groups and their magnitude required between recognized control positions on the routes.
3. The repetition of frequencies on these routes to be determined by :
 - 3.1. - Time difference factors
 - 3.2. - Propagation factors and their influence on the protection ratio.
4. Having determined the number of frequencies required to satisfy the world international air routes, these should be deducted from the total available frequency channels based on agreed channel separation figures.
5. Domestic or Regional Frequency Allocations should be determined by dividing the world up into the I.C.A.O. regions. This would simplify the administration of frequency allocation at any future date. A certain amount of flexibility must be allowed within these regions provided services in other regions suffer no adverse effects, the permissible variations within a region to achieve this flexibility to be accurately defined.
6. Utilizing the formula for weekly route mileage against frequency families, the number of families required to satisfy regional requirements should be determined.
7. The order of frequencies to satisfy the regional route requirements should be determined from ionospheric data.
8. "Time difference" areas in which duplication of frequencies is permissible should be determined.
9. From propagation data determine the repetition factors, if any, for the various orders of frequencies within areas to meet a specified protection ratio. Within areas as determined by paragraph 8. repetition may be possible, due to attenuation.

10. If after all these factors have been taken into consideration, the number of channels is in excess of the channels available, then each region should be examined individually in order to see whether directional aeriels, etc. cannot effect a solution. If this is not possible, a reduced value for the protection ratio should be decided on.
11. In the so-called tropical zone, the order of frequencies selected will automatically be the best, as the ionospheric data for the zone takes care of this. The serious factor in the tropical zone is the high noise levels. The only way to compensate for this is to increase the transmitter power in order to give a satisfactory signal to noise ratio and this factor must be allowed for when determining the repetition distance in the areas. It cannot be agreed that the correct approach to this zone is to allocate higher frequencies. It so happens that in the tropical zone the ionospheric data available indicates a higher M.U.F. than in other zones. Fortunately this in itself is some compensation for the higher noise levels encountered, as, in general, the higher the frequency, the less the noise.

A N N E X

STATEMENT OF THE SOVIET DELEGATION
TO THE PLENARY MEETING OF THE CONFERENCE RELATIVE TO
THE REPORT OF THE PREPARATORY COMMITTEE;
(PC - Aer-Document N° 25)

The task of the Conference is to draw up a plan for distribution of Aeronautical Mobile Service frequencies between all the countries of the world.

A Preparatory Committee of nine countries was convened in order to prepare recommendations for the solution of this problem, and sat from 26 April to 15 May, 1948.

As was mentioned on several occasions by a number of delegates in the Preparatory Committee and in the first plenary meeting of the Conference - in particular by Mr. Falgarone, the delegate of France - the Preparatory Committee carried on its work in an atmosphere of extreme haste. Many recommendations and technical documents, coming for the most part from the delegation of the United States, were adopted almost without discussion, even when questions of principle were involved. This fact undoubtedly detracts from the value and objectivity of the recommendations now before the Conference.

However, it cannot be said that the work of the Preparatory Committee was fruitless. A considerable proportion of the material assembled can be used, and will undoubtedly promote the work of the Conference, and if all the proposals on frequency allotment in the Aeronautical Mobile Services are objectively considered, the Conference can and should reach results satisfactory to all the countries concerned.

When Document N° 25 was considered by the Preparatory Committee, the Soviet Delegation, disagreeing with a number of the document's presuppositions, voted against its adoption.

The detailed examination of Document N° 25 ought logically to be reserved for the Committees, but the Soviet Delegation feels obliged to acquaint this Plenary Meeting with the objections it has to raise on the principal questions involved.

1.- Our principal objection bears on the method of frequency allotment. It is clear to all that the means at our disposal - that is, those bands allocated to Aeronautical Mobile Services at Atlantic City - are entirely inadequate for the requirements of aviation, which have increased considerably of late. It is also well known that the sum total of these bands is considerably less than that provided for in the former Cairo regulations.



In so far as it is impossible to satisfy all these requirements fully, the most equitable course would be to reduce them all in equal measure.

However, in the recommendations of the Preparatory Committee, (Document N° 25, paragraph 26, items 1.a and b) another method of approach is proposed to satisfy in the first instance the requirements of the so-called Major World Air Route Areas and of the Tropical Belt allotting the remaining frequencies to other air routes. We protest against this procedure, which creates an impossible situation for internal air routes.

2. - Another serious difference of opinion exists with regard to types of emission and bandwidth.

In the recommendation of Document N° 25, the calculation of frequencies is based on A3 emission, and the same bandwidth is accepted for telegraphy, with a view to the future employment of high capacity systems.

We think that at the present time the requirements of aviation may in many cases be satisfied by the large-scale use of A1 emissions, and by allocating to this type of emission a considerably greater number of stations operating simultaneously.

In this connection, the Soviet Delegation proposes to divide each frequency band into three parts, as follows :

- a) Frequencies reserved for the exclusive use of aircraft transmitters using telegraphy;
- b) Frequencies reserved for ground stations using telegraphy;
- c) Frequencies reserved for telephony by aircraft and ground stations on common frequencies.

3. - A third point on which there is a serious difference of opinion is the excessively high protection ratio of 30 dbs. recommended by the Preparatory Committee for the calculation of frequency sharing. We think that taking into consideration the short duration of communications made by aircraft at different distances, in the bands exclusively allocated to Aircraft Mobile Services, the practical probability of interference will be considerably less than the theoretical probability, which is more applicable to stations of the fixed service; and for this reason the protection ratio for Aeronautical Mobile Services may be lowered. Apart from this, the single protection ratio for telephony and telegraphy is inadmissible, as this would lead to an uneconomical, indeed, wasteful use of frequency sharing.

4. - These objections are relevant to the method of frequency allotment in the OR bands. We consider that there is no point in submitting information on Form 2 as the actual requirements of the OR services cannot possibly be correctly assessed on such data.

The Soviet Delegation proposes that frequencies in the OR bands be distributed between countries on a different principle. Frequencies should be distributed in proportion to the territorial extent of countries, after the world has been divided into regions for the fullest possible use of frequency sharing.

Using the above as an introduction, the Soviet Delegation submits for consideration its proposals on HF assignment in bands assigned to Aeronautical Mobile Services.

The Soviet Delegation considers that the acceptance of these proposals would assure the rapid and effective solution of the problems with which the Conference is faced.

THE SOVIET DELEGATION

PROPOSAL SUBMITTED BY THE SOVIET DELEGATION
ON THE GENERAL PRINCIPLES OF HF FREQUENCY ASSIGNMENT
IN BANDS ASSIGNED TO MOBILE AIRCRAFT SERVICES

1. - To prepare a plan of HF frequency allotment for Aeronautical Mobile Services, two types of emission shall be taken as a basis for calculation : for telephony, A3, and for telegraphy with oral reception, A1.

Provision shall be made for A3 telephony on the common frequencies air-to-ground and ground-to-air, together with, in general, A1 telegraphy for aircraft and ground stations on different frequencies, but the possibility of using common frequencies shall be taken into consideration; in such cases aircraft transmitters shall use frequencies allotted to ground stations.

2. - When frequency requirements for Aeronautical Mobile Services have been determined, the world shall be divided into regions and sub-regions in accordance with the grouping of air routes, the natural boundaries of states, and the conditions of wave propagation, with a view to the maximum possible use of frequency sharing.

The dimensions of these regions and sub-regions shall vary for different frequency bands and for different types of communication (telegraphic, telephonic).

3. - When the relative requirements in telephony and telegraphy have been determined, each frequency band shall be divided into three :

- a) A band reserved for A3 telephony on the common air-to-ground and ground-to-air frequencies.
- b) A band reserved exclusively for A1 telegraphy by aircraft transmitters.
- c) A band reserved for A1 telegraphy by ground transmitters.

4. - The separation between adjacent frequencies in each band shall be done according to the frequency tolerances for bandwidths of emission as adopted at Atlantic City.

5. - The total number of frequencies available obtained in accordance with points 2, 3, and 4, shall be allotted to the countries and regions in proportion to their needs. Each administration shall receive definite frequencies for its own use and may use them at its discretion, but shall do so in conformity with points 1 and 3, within the limits of the region concerned.

6. - In allotting frequencies between countries, account shall be taken of the dimensions of their territories, the length of air routes and the geographical peculiarities of such countries.

7. - The adjacent frequencies shall be divided as far as possible among countries which are at a considerable distance one from another.

8. - In the OR bands, the frequency requirements of each country shall be satisfied in proportion to the territory of that country; and hence, the common reserves of frequencies (within adjacent regions) shall be assigned between countries in proportion to their territory and having regard to their geographical peculiarities.

THE SOVIET DELEGATION

C H I N A

PROPOSED MODIFICATION OF THE I.C.A.O. PLAN
FOR DIVISION OF MAJOR WORLD AIR ROUTE AREAS.

The Chinese Delegation acknowledges the soundness of the principles on which the ICAO draft plan for division of Major World Air Route Areas is based, and in general, is in agreement with the proposed boundaries of areas as shown on the map attached to Annex 7 of PC-Aer-Document N° 19.

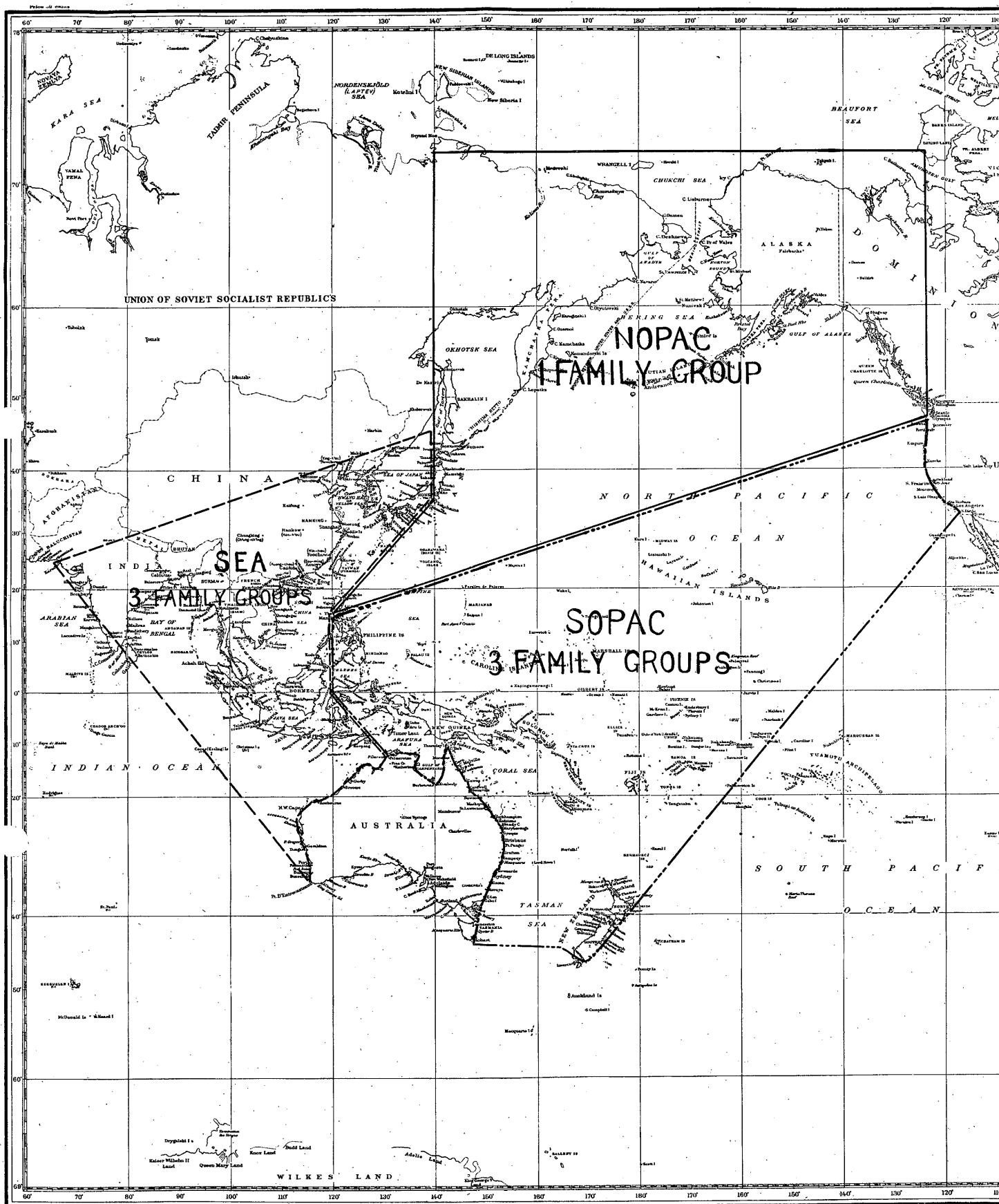
From the plan, it will be seen that three Major World Air Route Areas intersect at Shanghai. If the plan were adopted by the Conference, the frequency allotment made would require the station at Shanghai to provide at least three families of frequencies for international aviation. The provision of adequate equipment and personnel for the satisfactory operation of such services would impose a very heavy strain on the resources of the Chinese Government.

The Chinese Delegation is of the opinion that those countries which have a major interest in international air transport services should share most of the responsibility for the operation of ground aviation telecommunications facilities. It fears that the further development of international civil aviation in the Far East might be hampered if this burden were to be shouldered by the Chinese Government at a time when it is faced by a domestic crisis.

The present policy of the Chinese Government precludes the establishment of international telecommunications operating agencies in its territory. In addition, the international aeronautical stations at Tokyo and Manila are now favourably placed for improving and expanding their services in view of the increasing demands likely to be made on them.

For these reasons the Chinese Delegation, after careful study, proposes that minor modifications be made in the original boundaries of areas as shown in the ICAO plan. The following basic principles have been respected :

1. The overall pattern of air routes shall not be disturbed or interrupted.
2. Aircraft operating through several Major World Air Route Areas shall be obliged to carry a minimum number of frequencies.
3. Economy in families of frequencies shall be observed. The modifications proposed appear in the map appended. The new South East Asia Area follows very closely IATA's suggested division of the area. We believe, from our own operating experience, that the best results would be attained if the stations at Tokyo, Shanghai, Hongkong, Manila, Saigon and Bangkok (and/or Rangoon) were each assigned to one of the three families of frequencies allotted to the South East Asia Area.



F R A N C E

Proposal for the Utilization of Exclusive Frequency
Bands assigned to Mobile Aeronautical "R" Services
between 3 and 25 Mc/s

Introduction :

1. Operational experience of mobile aeronautical service on international air routes, as practised since 1945, has brought out certain difficulties due principally to bad organization.
2. The present organization of air communications is based on a combination of the use of frequencies in accordance with route concept (Cairo Regulations, 1938) and in accordance with a regional system (ICAO Regulations), in which the passage from one system to the other has not been clearly defined; the result is constant uncertainty on the frequency or frequencies to be used by an aircraft, according to whether it considers itself on a route or simply within a control region. It is practically impossible at present to guarantee a reasonably rapid transmission of messages to or from an aircraft in flight. The aeronautical telecommunications services receive numerous complaints on this subject, both from official ATC services and from companies.
3. The allocation of exclusive HF bands to aeronautical mobile services by the Atlantic City Conference provides an excellent opportunity for improving the position. With this in mind, the French proposal has been drawn up for examination by the Conference. It is proposed that the Conference discuss two aspects of the plan: 1) the principles on which it is based, and 2) the actual distribution of frequencies in the exclusive HF bands. Lack of time has prevented this draft from being worked out in detail, and it is to be considered only as a method on which a complete plan of frequency distribution can be based. This can be done by introducing into the present draft the technical principles yet to be adopted for determining the final total of usable frequencies in the different bands.

General Principles.

4. First of all, it is imperative that the duality which exists at present between the route system and the regional system be abolished. The regional system was adopted in 1945 to fit modern concepts of air traffic control. Unfortunately, this system had no assigned frequency of its own in the HF spectrum; it merely kept the frequencies used during hostilities by the belligerents for similar needs, thus claiming questionable rights. Besides, none of these frequencies belong to the frequency groups reserved for international routes by the Cairo Regulations of 1938.
5. The nature of regional air traffic control communications is closely bound up with certain practices in the realm of aviation, so that, for present purposes, these practices may be taken as identical with the principles on which the regional system operates.



This system, therefore, should now be equipped with the frequencies which would allow it to operate in the HF part of the spectrum; at the same time it should receive its fair share of the exclusive HF bands allocated by Atlantic City.

However, it must be remembered that the regional system uses VHF sections and also MF sections in certain regions, simultaneously with HF sections; hence the use of HF bands should be limited to large control areas, for example, to those more than 1,000 kms. across.

6. On the other hand the nature of communications to be envisaged for the route system provided by the Cairo Regulations of 1938 has never been precisely defined, because hostilities broke out at the moment the provisions took effect. The system therefore possesses the prescribed means of application but there are no settled principles on which it should operate. In practice, route frequencies are being used for purposes which vary according to the route, the country, and even according to individual aircraft on the same route.

From this irregularity arise our present difficulties, for route frequencies are often used for communications which concern only the regional system, and vice-versa.

7. Some order is necessary in the future organization which will result from the use of exclusive HF bands. Long-distance aircraft must be freed from intermediary regional controls; on the other hand, aircraft in service between adjacent areas should be subjected to those controls. The operational principles of the route system must be specified, so that from these principles an idea may be obtained of the nature and volume of communications to be provided by the system.

Hence HF bands assigned to mobile aeronautical "R" services must first satisfy the needs of two distinct types of organization.

- a) Present organization of regional controls; this requires the setting up of regional HF networks.
- b) The organization dealing with the control and operation of principal air routes; this requires the setting up of an HF world network.

8. There are several ways in which the available frequencies may be distributed between these two networks. One of the most logical seems to be to assign a certain number of bands to the regional networks and the other bands to the world network.

On this principle the following distribution plan has been formulated.

Regional Networks.

9. The frequencies now used in the HF spectrum for regional controls are, in general, poorly adapted to distances and propagation conditions. Moreover, their number is clearly insufficient to handle the corresponding traffic and yet to avoid interference.

It is advisable to assign to these networks a sufficient number of bands to ensure communications within even the largest control regions.

The bands specified below are proposed as a first approximation:

2.850	to	3.025	or	175 kc/s
4.650	to	4.700	or	50 kc/s
5 480	to	5 680	or	200 kc/s
8 815	to	8 965	or	150 kc/s
10.005	to	10 100	or	95 kc/s
13 260	to	13 360	or	100 kc/s

Total, 6 bands and 680 kc/s

10. Due to lack of time the detailed distribution of the frequencies of each band among the different control regions has not been studied.

On this point, the French Delegation will accept any distribution system which fulfils the following conditions :

The system must :

- a) be proportional to the traffic of each region,
- b) provide for possible use of all types of emissions, including A1,
- c) not assign frequencies to small regions which can handle this traffic with VHF or MF.

World Network

11. The French Administration has always felt that the assignment of frequencies by air route is a poor solution, for it has two principal disadvantages :

- a) Assignment by air routes makes it impossible to provide for new air routes which do not follow those existing when the distribution was made.
- b) This system makes it difficult or impossible to use an aircraft on a number of different routes. Since its radio equipment would require continual modification, and might lead to the aircraft being grounded for some considerable time. This latter inconvenience means heavy expenses for the operating companies, and destroys the flexibility indispensable for the economic operation of flying equipment.

It is principally with a view to avoiding these two inconveniences that the French Administration proposes the abandonment of distribution by routes. Thanks to the use of exclusive bands, this now becomes a practical proposition.

12. The French Administration has concentrated on a draft scheme for a world network; and has tried to work out a system which would meet the present and future needs of the principal airlines, and would be capable of handling a heavy traffic load.

In order that it may be applied, one principle must be admitted - that is, the compulsory use of A1 radiotelegraphy for making contacts.

This would of course require the presence of a radio operator on board, but a radio operator has always been considered indispensable in Europe, and it should be remembered that the use of radio-telephony was forbidden to public transport aircraft before 1939 in the member countries of the CINA.

Thus the use of A1 radiotelegraphy must be conceded before proceeding further with the present draft plan for a world network.

As will be seen, this system is very flexible, and when developed to its fullest extent, resembles the system of frequency distribution by route.

Organization and Operation
of the World Network

13. Bands assigned to the World Network.

In accordance with the principles set forth above, the bands of the world network are reserved for communications which do not directly affect the circulation of aircraft within the control regions : Urgent messages to aircraft navigators, meteorological information, position reports, company operational reports, direction-finding HF safety service etc....

These bands are primarily chosen with a view to assuring direct communications with aircraft at all distances and in all seasons, by day and night, and their number derives from the allocations already made to regional networks.

The frequencies in these bands are distributed in accordance with the diagram proposed further on, which explains their distribution.

The allocation indicated in this draft for bands and for frequencies are given only as an example in order to demonstrate the application of the principles upon which they are based.

<u>Designation of bands</u>	<u>Total</u> <u>Width</u>	<u>Width</u> <u>employed</u>	<u>Availability</u>
3,400 to 3,500	100	100	0
6,525 to 6,685	160	100	60
11,275 to 11,400	125	100	25
17,900 to 17,970	70	70	0
21,850 to 22,000	150	100	60

Internal Organization of a Band
of the World Network

All the bands in the above Table are organized in the same way and in conformity with the following indications :

14. Calling zone. In the middle of each band there is a calling zone of 8 kc/s in width. This calling zone includes the watch frequency of the band, and on each side of this frequency, the transmitting frequency of the aircraft and the transmitting frequency of ground stations.

Call frequencies are situated at about 2 kc/s on either side of the watch frequency of each band, so that calls transmitted on the two side frequencies may also be heard when listening out on the watch frequency; in this case it is necessary to use a receiver the width of which is approximately equal to that of the calling zone.

The dispersion of emissions made on call frequencies and arising from the margin of tolerances, permits the possibility of an easy selection of a call from among several others emitted simultaneously.

Moreover, this selection may be improved by using various standard devices on the receiver (increase of selectivity, use of the BFO, etc.)

It is evident that the selection of calls is only possible with Type A1 emissions, since radio-telephone emissions become completely unintelligible if there is the slightest interference.

Throughout the flight, both ground and aircraft stations must listen out on the watch frequency of the band.

15. Interference

The separation of call frequencies for ground stations and aircraft stations permits a considerable decrease in interference as the powers used by different stations have not the same value.

Furthermore, the possibility of selecting calls, as indicated above, together with the use of type A1 emissions, greatly increases protection against interference.

Once mutual contact is made between an aircraft and a ground station on the call frequencies, each station then uses its own individual frequency. This change of frequencies after the initial contact means that the call frequencies are set free, and that the risk of interference in the individual frequencies, for the duration of the communication, are almost completely eliminated.

16. Distribution of the other frequencies in the band.

On either side of the calling zone are working frequencies. These are allocated, on the left, to aircraft, and on the right, to ground stations. (See Plan No 26).

An individual working frequency is allocated to each ground station. The same frequency may of course be allotted to several stations geographically far apart, or where the risks of interference are very slight, taking propagation into account.

The same individual working frequency is allocated to every aircraft belonging to one company. For this purpose, each Administration receives a number of frequencies in proportion to its fleet of long-distance aircraft and the amount of traffic on inter-continental air routes ; these frequencies are then allocated to the different companies controlled by the Administration.

17. Furthermore, two standard frequencies for aircraft and two frequencies for ground stations are reserved on either side of the calling zone.

The standard frequencies for aircraft are allocated to individual aircraft and will also be considered as auxiliary working frequencies for all aircraft.

The standard frequencies for ground stations are common to all these stations.

18. Thus a ground station, thanks to its individual working frequency and to the two standard frequencies available to it, may communicate simultaneously, within the same band, with three different aircraft, and receive the call of a fourth.

In the same way, an aircraft may use three different working frequencies within the same band (one individual and two standard) with the result that its traffic may be transmitted with almost no interference and without loss of time.

19. Procedure for use.

When an aircraft wishes to contact a station, the following procedure is adopted :

- a) The aircraft calls simultaneously on the call frequency of the 2 or 3 bands used, at the same time indicating its own frequency, so that a reference number may be used for passing the communication.
- b) The station called replies on the call frequency of the same bands and specifies to the aircraft the band to be used for the traffic.
- c) The two stations then pass to their own respective frequencies in the band selected and exchange their messages.

When a ground station wishes to contact an aircraft in flight, it proceeds in a similar manner :

- a) The ground station calls simultaneously on the call frequency in three bands of the network and indicates its own frequency by means of a reference number.
- b) The aircraft keeping watch on at least two of the bands used; replies on the call frequency of the most satisfactory band, indicating its own working frequency.
- c) The two stations then pass to their own respective frequencies and exchange their messages.

20. Watch for Distress Calls.

As the system set out provides for only one general watch frequency in each band, it is possible to have an effective watch for distress calls on the ground. Such calls could in fact be passed on the call frequencies in each band.

One distress frequency alone would not be sufficient to ensure that an aircraft could contact a ground station, by reason of propagation conditions peculiar to each frequency.

21.

Moreover it would be unwise to contemplate reserving special frequencies for distress calls if they were put to no other use, for the watch on these frequencies would be tedious by reason of the rarity of signals (three distress calls for the North Atlantic routes received in France during the year 1947).

For a watch to be effective the receiving staff should be kept alert by using the watch frequency for the emission of signals, so that too long an interval shall not elapse between two calls intended for any one station, or, at least, so that any station may intercept different calls succeeding each other at irregular intervals.

22. As an additional security measure, the ground station listening out on distress frequencies might be used in conjunction with a radio direction finder equipped with an oscilloscope. This enables a bearing to be taken on an aircraft in distress without interrupting an urgent message or distress call.

23. Spacing of working frequencies in each band:

a) Aircraft : the spacing of individual working frequencies has not been specified; any spacing arrangement would, in general, be accepted, providing it did not preclude the use of the various different types of emission (A1, A2, A3, A4, etc.) which are used at present or are likely to be used in the future.

b) Ground stations : The same remarks apply as for aircraft stations; nevertheless, the spacing between stations may be appreciably less than that between aircraft, by reason of the narrower tolerances allowed.

Equipment of aircraft.

Every aircraft must be equipped in the near future so that it can transmit and receive on at least two frequencies simultaneously. Some aircraft are in position to do this already, by using their present transmitters and receivers. It is possible for these demands to be met by means of new transmitters specially made for this purpose, since there are no technical difficulties in the preparation of such equipment; they must conform to conditions of weight and cost compatible with economical operation.

The proposed system can, however, be applied by making use of transmitters on one band only, and by changing bands until contact is made, but the full worth and interest of the system only appears when frequencies are used simultaneously.

25. Ground Equipment.

Each station of the network keeps permanent simultaneous watch on at least three bands to be chosen as the most convenient of the five indicated, for example, on the three first bands given in the table in Paragraph 13.

Watch is kept only on the watch-frequency for each band, according to the detailed plan given further on.

Some stations, moreover, will be able to keep watch on the two other bands if these latter are thought necessary for certain long distance communications.

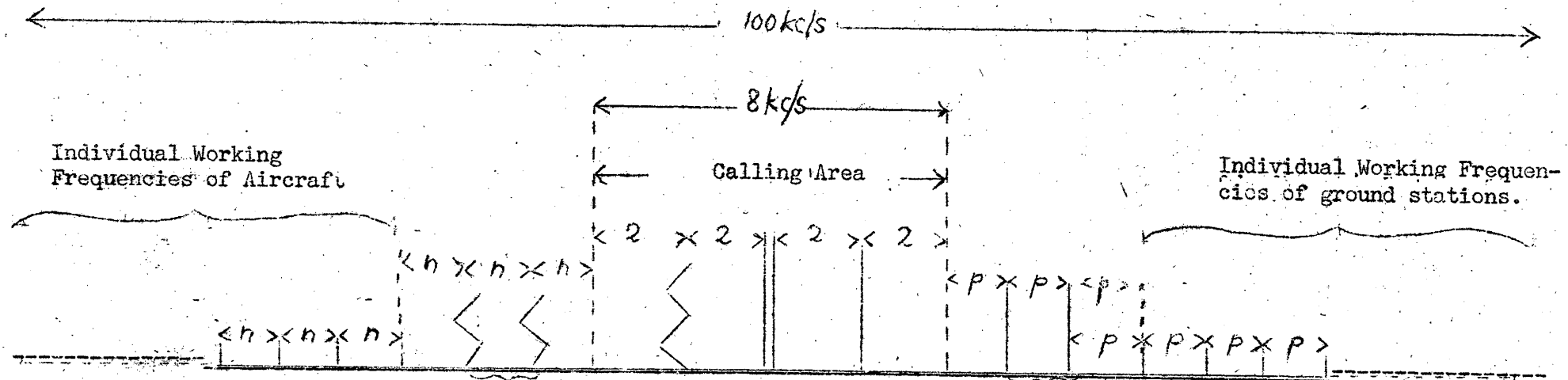
The equipment of a station should include a minimum of :

- 3 receivers for simultaneous watch on 3 bands
- 2 or 3 additional receivers for the use of auxiliary waves provided for in each band.
- 3 transmitters for simultaneous emissions on three bands.
- 2 or 3 transmitters for emissions on the auxiliary waves.

Simultaneous watch will be kept by a single operator, and the traffic on the auxiliary waves by as many additional operators as the station can spare during periods of heavy traffic.

It seems that a total of 3 operators would generally suffice as this number would allow one station to communicate with 3 aircraft at the same time.

26 - TYPICAL SCHEMA OF UTILISATION OF A BAND ASSIGNED
TO A WORLD NETWORK



Repartition by countries or by large companies with the possibility of repetition.

n = spacing to be determined in regard to frequency tolerances.

2 Auxiliary std. frequencies for aircraft transmitters.

Transmission frequency for aircraft transmitters.

Watch-frequency of the band for ground stations and aircraft.

Transmission frequency for ground stations.

2 Auxiliary std. frequencies for ground stations.

Repartition by countries with the possibility of repetition.

p = spacing admitted in application of technical principles to be adopted.

27. The French delegation will elucidate more fully the advantages and disadvantages of the plan compared with those presented by systems of allocation by routes.

This information will be subsequently embodied in a supplement to this proposal.

C H I N A

PROPOSAL ON CLASSIFICATION OF AIR SERVICES AND ON THE
METHOD OF APPROACH TO ROUTE FREQUENCY ALLOTMENT

It has been proposed that the Conference carry out its task of allotting route frequencies by dividing air services into three main categories : those within Major World Air Route Areas, those within the Equatorial Belt, and those operating regionally or nationally.

The Preparatory Committee proposed that the requirements of inter-continental flights should first be satisfied, followed by those of the Equatorial Zone, and that regional and national requirements should be considered last. In spite of the explanation repeatedly given that all services would be treated on an equal footing, a number of delegations have objected that preference has been shown to inter-continental air services, and that regional and national air services have been relegated to a position of secondary importance.

The Chinese Delegation doubts the wisdom of introducing an "Equatorial Zone" as a separate category. It considers that two main subdivisions instead of three would probably be sufficient, and would facilitate the work of Committee 6.

The Delegate of the Netherlands, in the course of the Conference, has stated that when frequencies other than those required for Major World Air Route Areas are to be allotted to the Eastern hemisphere, no specific provisions for an Equatorial Zone will be required. This lends weight to the proposal now submitted by the Chinese Delegation that, for the purposes of frequency allocation, air services shall be divided into two main categories instead of three.

The Chinese Delegation reaffirms as a fundamental principle that all air services shall be treated on an equal footing, and hopes that delegates from countries wholly or partly within the Equatorial Zone will support its proposal, bearing in mind that technical factors, as outlined below, should be considered, when allotting frequencies to tropical countries.

The reason for introducing a separate "Equatorial Zone" at all was because an arbitrary selection was made of a number of technical difficulties - different propagation characteristics, high atmospheric noise, etc. Allowance can be made for these factors by allocating to air routes running through the tropics a higher megacycle order of frequency. Possibly, also, a lower figure should be used as the loading factor per hour per frequency.

Hence the Chinese Delegation submits the following proposals :

1. For the purpose of frequency allotment, air services shall be divided into two main categories :
 - a) Intercontinental services operating within Major World Air Route Areas, and
 - b) Regions and national air services.
2. The method of approach recommended by the Preparatory Committee for the determination of frequency requirements in the Major World Air Route Areas shall be adopted for determining the requirements of regional and national air services.

Individual delegations, and probably IATA, could supply statistics relative to regional and national air services. By using the figures so provided, together with a slightly modified loading formula, a rapid and equitable solution to the problem of frequency assignment would be found, provided that the technical aspects of frequency sharing are considered along the lines recommended by the Preparatory Committee.

PROPOSAL BY THE SOVIET DELEGATION

IN CONNECTION WITH ALTERATION OF PRINCIPLES FOR THE ELABORATION
OF A DRAFT FREQUENCY PLAN FOR THE AERONAUTICAL MOBILE "R" SERVICE

CONSIDERING :

- 1) that several months' experience of the work of the Conference has proved the impossibility of drawing up a plan which would adequately satisfy the needs of all categories of the aeronautical mobile "R" service, using the principles and standards adopted by Committees 4 and 6 as a basis.
- 2) that at present, in accordance with p.158 of the Cairo Radio Regulations, intercontinental air routes are allowed to use A-1 emission only;
- 3) that the use of A-3 emission for communications on world air routes over long distances is not absolutely necessary.

THE SOVIET DELEGATION PROPOSES :

1. That the restriction laid down in p. 158 of the Cairo Radio Regulations remain in force, i.e. Major World Air Routes should in future be permitted to use A-1 emission only.
2. That the draft plan for Major World Air Route be re-drafted, basing it on the use of A-1 emission, in accordance with point 1) above.
3. That in calculating frequency repetition for night-time conditions, a reduction in protection ratio to 10 db be permitted, as it is impossible otherwise to satisfy the needs of all categories of the aeronautical mobile R service. Protection ratio should be the same for all categories of the R service.
4. That in calculating frequency repetition, it be assumed that all the frequencies made available for the Major World Air Route Areas surrounding Europe, should not be employed within the European Major World Air Route Area. Instead, one family of frequencies of the European Major World Air Route Area should be extended outside the limits of this area to meet the needs of operational control.
5. That one A-3 family of frequencies only should be left for meteorological broadcasts, bearing in mind that this family may be divided into two families for A-1 emission, and that an A-3 channel of the order of 3 Mc/s may be divided into as many as four A-1 channels.



This folder contains the following documents mentioned in paragraph 12.c. of the Provisional Report (Volume III) :

Aer-Document N°

- 1 - Final Report of the Preparatory Committee of the International Administrative Aeronautical Radio Conference.
- 4 - Statement made by Mr. Falgarone (France) at the First Plenary Meeting.
- 34 - I.A.T.A. Regional Division of the World.
- 65 - Republic of Poland - Proposal for the Adoption of Minimum Field Intensity Figures required for the satisfactory Reception by aircraft of A1 and A3 commercial Telephony.
- 67 - Major World Air Route.- Statement presented by I.A.T.A.
- 71 - Flight Information Tables -- (with Annex 4 to Doc.198 Final Report Committee 6 C)
- 72 - (Map) - International Air Routes - (Revised Annex 5 to PC-Aer.Doc.19)
- 110 - Working Group 6 E - Polish Delegation - Observations on the Allocation of High Frequencies to the Special Aeronautical Meteorological Service.
- 142 - Final Report of Joint Working Group on Utilization of unallotted Space.
- 145 - Committee 6 - Report of Working Group C.2."
- 154 - Committee 6 - Report of Working Group E - Final Report of Working Group 6 E.
- 169 - Resolution adopted by Committee 6 in connexion with the use of the two common channels 3023.5 and 5680 kc/s.
- 192 - Committee 6 - Summary of Recommendations.
- 211 - Committee 6 - Propagation Group - Interim Report.
- 216 - Committee 6 - Propagation Group - Report N° 2.
- 218 - The Problem of Assignment of Frequencies to individual Aeronautical Stations. (Statement presented by the Representative of I.C.A.O.).
- 219 - (revised) - Committee 6 - Report by Working Group in connection with the Requirements for the Major World Air Route Areas.
- 226 - Proposal submitted by the Delegate of Pakistan in connection with Meteorological Broadcast Frequencies.
- 240 - Proposal submitted by the Delegation of Egypt - Minimum Frequency Requirements of a Country in the Route Aeronautical Mobile Bands for Domestic Flying.
- 243 - Summary of Recommendations adopted by Committee 6.
- 258 - Committee 6 - Report of the Committee on the Allotment of R Frequencies (30th meeting - forenoon session).
- 259 - Committee 6 - Report of the Committee on the Allotment of R Frequencies (30th meeting - afternoon session).

p.t.o.



Aer-Document No

- 273 - (para.5 only) - Resolution in connection with future work of Conference. - Resolution submitted by Delegate of Brazil.
- 274 - Committee 6 - Report of the Committee for the Allotment of R Frequencies - 34th Meeting.
- 275 - Committee 6 - Report of the Committee for the Allotment of R Frequencies - 31st Meeting.
- 276 - Committee 6 - Report of the Committee for the Allotment of R Frequencies - 32nd Meeting.
- 277 - Committee 6 - Report of the Committee for the Allotment of R Frequencies - 33rd Meeting.
- 286 - Committee 6 - Report of the Committee for the Allotment of R Frequencies - 37th Meeting.
- 315 - (para 4.1 to 4.4) - Extract from the Final Report of Committee 6.
- 285 - Summary Record of the 11th Plenary Meeting.
- 293 - " " " " 12th " "
- 292 - " " " " 13th " "
- 299 - " " " " 14th " "
- 308 - " " " " 15th " "
- 309 - " " " " 16th " "
- 311 - " " " " 17th " "
- 312 - " " " " 18th " "
- 319 - " " " " 19th " "
- 317 - " " " " 20th " "
- 318 - " " " " 21st " "
- 320 - " " " " 22nd " "

International Administrative
Aeronautical Radio Conference
G E N E V A, 1948

Aer. Document No 1 - E

1 - F

1 - S

Preparatory Committee

Delegates will find attached herewith Document PC-Aer No 25 which contains the final Report of the Preparatory Committee of the International Administrative Aeronautical Radio Conference.

Conférence internationale administrative
des Radiocommunications aéronautiques
G E N E V E, 1948

Commission préparatoire

MM. les délégués trouveront, ci-joint, le Document CP-Aér No 25 qui contient le Rapport final de la Commission préparatoire de la Conférence internationale administrative des radiocommunications aéronautiques.

Conferencia Administrativa Internacional
de Radiocomunicaciones Aeronáuticas
G I N E B R A, 1948

Comisión Preparatoria

Los señores Delegados encontraran, adjunto a la presente, el documento CP-Aer No 25 que contiene el Informe Final de la Comisión Preparatoria de la Conferencia Administrativa Internacional de Radiocomunicaciones Aeronáuticas.



PREPARATORY COMMITTEE

International Administrative
Aeronautical Radio Conference
GENEVA, 1948

PC-Aer-Document No. 25-E

13th May, 1948

FINAL REPORT

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CHAPTER I

Introduction

§1 The Preparatory Committee for the International Administrative Aeronautical Radio Conference met at Geneva, Switzerland, on April 26, 1948 in pursuance of a resolution adopted by the I.T.U. Administrative Council in its session of January 1948 which was later concurred in by the requisite number of members of the I.T.U. The text of this resolution may be found in PC-Aer-Document No. 1.

§2 The Preparatory Committee elected Mr. Arthur L. Lebel (United States) as its chairman. It set up four working groups. These working groups, and their chairmen, as appointed by the Committee, are as follows:

<u>Working Group</u>	<u>Chairman</u>
A - Technical and Operational Rules	Mr. Charles Acton (Canada)
B - Assignment Plan for R Frequencies	Mr. E.G. Betts (Australia)
C - Assignment Plan for OR Frequencies	Sqd. Leader A. Fry (United Kingdom)
D - Draft Agenda for the Main Conference	Mr. W.A. Duncan (United Kingdom)

In addition, an editorial group was set up by the Committee, consisting of a representative of France (Mr. M. Falgarone), of the United Kingdom (Sqd. Leader A. Fry), and of Argentina (Mr. E. H. Luraschi).

§3 A comparative analysis of the HF bands allocated exclusively to the aeronautical mobile service by the Atlantic City Radio Conference, and the stated minimum requirements of the different countries in those bands has satisfied the Preparatory Committee that these requirements are likely to be in excess of the physical capacity of the Atlantic City bands referred to. Due to the different conditions under which aircraft using the R and OR bands operate, it was found essential to apply different methods of treatment to these bands and therefore their consideration was entrusted to separate committees.

§4 Their findings led the Committee to suggest a method of frequency allotment to the Aeronautical Mobile (R) service essentially consisting of two steps: first, the subdivision of the world into a number of areas within which air routes or aircraft operations have a community of interest from the standpoint of mobile frequency utilization, and, secondly, the allotment to each area of families of frequencies representing its fair share of the total available bands, due regard being had to adequate geographical spacing in order to permit maximum duplication of allotments around the world. This method has the added advantage that it ensures world-wide coordination at its inception.

§5 As regards the Aeronautical Mobile (OR) service, the Committee suggests that the allotment of frequencies should be based on the requirements stated by the various countries on Form 2, and to this end the Committee has taken action to ensure that the Conference will have available accurate and complete information on requirements in this service.

- 86 The recommendations and proposals made by the Preparatory Committee for the Conference are to be considered as a starting point intended to facilitate the work of the Conference. It has been made clear that these recommendations and proposals are not binding on any delegation regarding the position which such delegation may take in the course of the Conference, and that any other proposals made according to the rules of procedure will have to be considered on an equal footing with those emanating from the Preparatory Committee.
- 87 In the suggested approach to the specific problem of allotment of R frequencies, three general subdivisions are covered, namely, intercontinental operations, tropical operations and domestic or land area operations. The detailed application of this method of approach will require that the Conference determine, on technical bases, the fair proportion of the total frequencies available which are to be set aside for each one of these three types of operation in the light of their respective safety and operational requirements.

CHAPTER II

Recommended Agenda for the International Administrative
Aeronautical Radio Conference

- 88 A - Rules of procedure for the Conference. Election of officers.
 Admission of International Organizations.
- B - Consideration of the Report of the Preparatory Committee.
- C - Determination of the general technical and operational principles
 underlying the allotment of frequencies in the H.F. Aeronautical
 Mobile bands.
- D - Determination of principles relating specifically to the allotment
 of frequencies in the R bands.
- E - Determination of principles relating specifically to the allotment
 of frequencies in the OR bands.
- F - Plan of allotment of frequencies:
- (a) for the R bands,
 (b) for the OR bands,
 (c) for special services, for examples: Distress, Air/Sea
 rescue, Meteorological Broadcasts, Aerodrome Control,
 Approach Control, etc. ...
- G - Consideration of methods for the accommodation of additional
 future requirements in the aeronautical mobile bands.
- H - Consideration of the recommendation to be made to the P.F.B.
 relating to the carrying out of the plan drawn up by the Conference.
- I - Handling of Public Correspondence on Aeronautical Frequencies
 (see Article 225, Page 63-E, Chapter III of the Atlantic City Radio
 Regulations).

* * * * *

- 89 A telegram, the text of which is at Annex I to PC-Aer-Document No. 20,
has been sent informing Administrations of the proposal to raise the
question of the handling of Public Correspondence on Aeronautical
Frequencies.

CHAPTER III

Recommendations Relative to the Establishment of Frequency Allocation Plans for the Aeronautical Mobile Services.

Section (a) - Technical Principles

§10 The technical principles requiring recommendations to enable the preparation of a draft plan for the allocation of Aeronautical Mobile Service frequencies were considered to be:

- a) The minimum channel separation practicable between assignable frequencies, using A3 emission as a basis,
- b) To what extent each order of frequency may be simultaneously shared throughout the world without resulting in harmful interference.

§11 In consideration of the associated operational problem, namely, the aircraft loading factor, per frequency, it was accepted in principle, that:

- a) The figure recommended as representing the communication capacity per channel in terms of numbers of operating aircraft in the air, should be based on the use of manual Morse telegraphy.
- b) Air to ground meteorological messages be treated as being in the same category as position reports and therefore such messages should be passed on operational channels.
- c) In certain areas of the world ground to air meteorological broadcasts should not be made on operational channels, examples, the North Atlantic and Aleutians.
- d) Such data as may be made available relative to areas of the world which experience severe weather conditions should be taken into consideration when dealing with the specific problem of assigning frequencies for ground to air meteorological broadcasts.

§12 THE COMMITTEE RECOMMENDS:

- a) That a provisional working figure of 12 aircraft as a loading factor per hour, per frequency or per family of frequencies, for long range inter-continental routes be adopted. In accepting this figure of 12 it was agreed that meteorological broadcasts to aircraft in flight must be provided on frequencies other than those assigned for air traffic control and operational traffic. Furthermore, this figure of 12 may be subject to change after examination of more exact loading data, if and when available.

- b) That channel separations of 7 kc/s for the 2-6 Mc/s bands inclusive, 8 kc/s for the 8 Mc/s bands and 10 kc/s for the higher H.F. bands commencing with 10 Mc/s be adopted on a provisional working basis.
- c) That in establishing standards to be applied in the selection of frequencies to meet Aeronautical Mobile Service needs, provision has been made for the eventual use of high capacity means of communication on all circuits. Should the application of these relatively high standards fail to provide sufficient communication channels to meet immediate needs, it will be necessary to restudy the standards to determine wherein and to what extent they must be relaxed in order that the required number of channels may be provided.
- d) That the Aeronautical Mobile Service propagation charts, contained in PC-Aer-Document No. 5, be taken as a basis for determining the allocation and distribution of high frequencies to this service. However, it is understood that the data contained in PC-Aer Document No. 5 are based principally on A3 emission, or other high capacity means of communication, and do not give direct information relative to A1 emission although this may be deduced. It is further recommended that PC-Aer-Document No. 5 be adopted as a provisional working document with the understanding that should additional data be made available, including A1 emission data, they shall be taken into consideration.
- e) That the adoption of a 30 db protection ratio in considering duplication of frequencies, would be appropriate on a provisional working basis. The use of this protection ratio in the assignment of frequencies will permit present and future application of high capacity means of communication to the Aeronautical Mobile Service.
- f) That in the allocation of frequencies duplication be provided in accordance with Chart No. 18, PC-Aer-Document No. 5. If a frequency is allocated to perform a specific service either in an area or along a route, that frequency may be duplicated elsewhere in the world provided that the specified protection ratio is applied to that service.

Section (b) - Statistical Data and Mathematical Formulae

- ¶13 Flight Information Tables have been prepared by the Preparatory Committee and may be found at Annex 4 to PC-Aer-Document No. 19.
- ¶14 An Aeronautical Route Map has also been prepared by the Preparatory Committee and may be found at Annex 5 to PC-Aer-Document No. 19.
- ¶15 THE COMMITTEE RECOMMENDS that the number of flights in the Flight Information Tables be increased by 33 1/3% to represent the probable total loading (scheduled plus non-scheduled flights, including military traffic) which will have to be accommodated on the air routes indicated.

* * * * *

- §16 THE COMMITTEE CONSIDERS that the following formula is satisfactory for general application on the inter-continental routes but that it may be necessary to determine another "Probable Concentration Factor" in estimating probable peak densities in cases where a number of low density routes or areas are served by one frequency or family of frequencies:

N = number of aircraft per hour (probable peak loading) =

$$K \left(\frac{\text{Route miles} \times \text{scheduled flights per week}}{200 \times 7 \times 24} \times \% \text{ allowed for non scheduled operations} \right)$$

K is the "probable concentration factor" = 2.4 for inter-continental routes

* * * * *

- §17 A statement relating to the I.B.M. frequency lists is contained in Annex 6 to PC-Aer-Document No. 19.

Section (c) - Recommended Method of Establishing a Frequency Allocation Plan for the Aeronautical Mobile (R) Service

- §18 THE COMMITTEE RECOMMENDS that the following method of approach be adopted in the determination of frequency requirements and the planning of the frequency organization to meet the operation requirements of the Major World Air Route Areas. (Note: A Major World Air Route Area is defined as a strip, or area, through which there is a flow of inter-continental or inter-regional air traffic, as distinct from purely regional or national air traffic, and which embraces any number of air routes having a community interest served by any number of communication stations associated with the route or routes).

- §19 Step 1 - Study the world air route map and its associated Flight Information Tables (See Chapter III, Section (b), §13 and §14) as well as the maps and material made available by IATA and ICAO (See PC-Aer-Document No. 19, Annex 7) and decide on a basis for the grouping or organization of individual routes into defined Major World Air Route Areas and minor areas within these areas having a common interest if necessary.
- §20 Step 2 - By the use of the loading formula (See Chapter III, Section (b), §16) determine the total peak load on all routes within individual Major World Air Route Areas.
- §21 Step 3 - By application of the recommendation in Chapter III, Section (a), §13 (d) determine the order of frequencies required for the families of frequencies required to serve

the individual world air route areas. This step should also include the determination of the numbers of frequencies required in each order based on loading.

§22 Step 4 - By application of the recommendation in Chapter III, Section (a), §12 (d) (e) (f) determine to what extent frequency orders established may be duplicated throughout the world.

§23 Step 5 - Allot specific frequencies to the individual Major World Air Route Areas.

* * * * *

§24 WHEREAS, a preliminary study of the problems of the communications necessary to serve aircraft other than those operating in the Major World Air Route Areas indicates that there are major differences in the communications problems involved in different areas, it is considered that because of the varied nature of the operations, not only between various areas of the world but within these areas, that the method of approach satisfactory for one particular region is not always applicable to other regions, and,

§25 WHEREAS, consideration of the tabulation of weekly miles flown by aircraft of the world indicates there are probably insufficient frequencies allocated to the Aeronautical Mobile service in the H.F. bands allocated by the Atlantic City Radio Regulations to meet the needs of these aircraft operations. For this reason it is believed that the only solution is to provide for the allotment of the available frequencies for simultaneous use in as many areas of the world as possible and to leave the problem of distribution within these areas to satisfy aeronautical communication needs to the administrations concerned with the expectation that the high frequencies allocated by the Atlantic City Radio Regulations will be supplemented by the very high frequencies, that abbreviated procedures will be used, and that all other methods will be adopted to accommodate requirements for safe aircraft operation.

§26 THE COMMITTEE RECOMMENDS the following method of approach:

- (i)(a) Inasmuch as the Tropical Belt of the world offers peculiar communication problems, determine as necessary those areas of the world in which such problems exist, determine the requirements of aircraft operations in those tropical zones, and decide the frequencies necessary with a view to a maximum duplication of frequencies around the world.
- (b) After providing the minimum requirements necessary for the Major World Air Route Areas and the Tropical Belt, divide the remainder of the world into areas and provide for the allotment of all the frequencies remaining to those areas other than those required for world-wide use.

(PC-Aer-No. 25-E)

- (c) Within the areas mentioned in (b) above, provide, where necessary, for sub-areas for allotment of frequencies to ensure as far as possible against harmful interference.
- (ii) Give consideration, in establishing areas, to the regions established by the Atlantic City Convention, those established by ICAO, by national boundaries, or in some other manner, in order to provide for maximum flexibility in any plans developed at the Conference.
- (iii) Within these regions, delineate frequency allotment areas as far as possible with aircraft operational consideration in mind.

(See Annexes 1 and 2, PC-Aer-Document No. 19 for examples of the application of this recommendation, See Annex 3, PC-Aer-Document No. 19 for the reservations made by certain delegations on this recommendation.)

* * * * *

Par.27 THE COMMITTEE RECOMMENDS that urgent Notices to Airmen and meteorological broadcasts to aircraft in flight should not be made on the frequencies in use for operational communications. In certain areas provision is made for these broadcasts on frequencies simultaneously used in other areas for other services such as air navigation aids. In other areas there is a need for these broadcasts which can only be met by the assignment of frequencies from the Aeronautical Mobile Bands under consideration.

* * * * *

Par.28 THE COMMITTEE RECOMMENDS That the Conference determine in which areas there is a need for the assignment of frequencies for urgent Notices to Airmen and meteorological broadcasts and allot a minimum of frequencies to meet that need. In this connection attention is invited to the possibility of using frequencies common to both the R and OR bands to assist in this matter.

* * * * *

Par.29 WHEREAS it appears that if the channel separations which have been tentatively agreed are accepted, the frequencies of 3025 kc/s and 6685 kc/s might be put to a use common to the Aeronautical Mobile (R) and (OR) service.

Par.30 THE COMMITTEE RECOMMENDS :

- a) That the Conference consider how best the frequencies 3025 kc/s and 6685 kc/s may be employed.
- b) That if channel spacing finally is so arranged that between an adjacent (R) and (OR) band there is a total surplus spectrum space which would accommodate a channel and neither service can make use of its portion of the surplus, consideration should be given to allotting this combined space for common use e.g., meteorological broadcasts to aircraft in flight.

- c) That frequencies for distress and "scene of action" purposes should be considered by the Conference. The Committee has requested the Secretary-General of the I.T.U. to contact the Safety of Life at Sea and in the Air Conference in London for its decisions and recommendations.

Section (d) - Recommended Method of Establishing a Frequency Allocation Plan for the Aeronautical Mobile (OR) Service

831 The Committee agreed that assignments in the Aeronautical Mobile (OR) service would be based on the statements of the various countries' requirements as submitted on Form 2. It was apparent however that the submissions of some countries are at present incomplete, and that the present method of completing Form 2 made it difficult for many countries to give an adequate indication of their requirements. Accordingly, the text of a telegram to all Member Countries was agreed, and in accordance with the decision of the Second Plenary Meeting of the Committee, the telegram was despatched on 2nd May 1948. The text of the telegram may be found in Appendix A to PC-Aer-Document No. 15.

832 A Sub-Working Group was set up, to examine the statements of requirements already submitted, to carry out any corrections so far submitted, and to make recommendations on any subject which appears appropriate in connection with the completion of Form 2. It was decided that in the initial stages the Sub-Working Group should work direct from Form 2 and should not have recourse to the work of the International Business Machine. A preliminary report by the Sub-Working Group is at Appendix B to PC-Aer-Document No. 15.

* * * * *

833 THE COMMITTEE RECOMMENDS that the Conference accept the channel separations proposed in PC-Aer-Document No. 7, viz:

3-6 Mc/s	7 kc/s separation
8 Mc/s	8 kc/s separation
10-20 Mc/s	10 kc/s separation

as applicable to the Aeronautical Mobile (OR) service, provided that these separations produce sufficient channels to satisfy all the requirements of the service.

* * * * *

834 WHEREAS, in the above recommendations (833) the Committee has, in accepting the channel separations recommended, accepted also the figure of 0.02% as the transmitter tolerance to be applied to the Aeronautical Mobile (OR) service.

§35 THE COMMITTEE records as its OPINION:

- a) That the recommended channel separations are based on a frequency tolerance for aircraft stations of 0.02% and that this figure is the tolerance applicable "to new transmitters installed after 1st January 1950, and to all transmitters from the date of entry into force of the Radio Regulations of the next Conference". It should be noted, therefore, that not all countries will be in a position to meet this tolerance at the date of the present Conference.
- b) That wherever practicable assignments for similar types or emission be assembled into contiguous channels, provided that this will not preclude changes from one type of emission to another on any frequency.
- c) That wherever practicable assignments for any one country be assembled into contiguous channels.

§36 THE COMMITTEE CONSIDERS that the application of this recommendation may assist in the elimination of local interference.

§37 It recognises, however:

- a) That such an arrangement may result in the production of an undesirable number of junctions between blocks of frequencies, each junction requiring a certain amount of protection, thereby wasting some frequency space, and,
- b) That countries having Overseas territories may wish to have all or some of the same frequencies for such Overseas territories as for their home country.

* * * * *

§38 WHEREAS, the Committee has considered the decision of the Administrative Council at its 32nd Meeting in accepting the recommendation contained in P.F.B. document 66, and,

§39 WHEREAS, requirements for families of frequencies common to more than one Region will be assigned from allocations common to the Regions concerned, and,

§40 WHEREAS, every effort will be made to assign Aeronautical Mobile (OR) requirements from allocations providing for that service on a world-wide exclusive basis, and,

§41 WHEREAS, where requirements exceed the world-wide space available, consideration will be given to satisfying excess requirements from both Regional allocations and from allocations shared with other services.

* Reference Radio Regulations (Atlantic City, 1947) Appendix 3.

842 THE COMMITTEE RECOMMENDS, in respect of the bands named at Appendix 6 to PC-Aer-Document No. 15,

- a) That the Conference submit to the I.F.R.B., for further submission to the various Regional Conferences, information concerning the requirements of the Aeronautical Mobile (OR) service in the shared bands between 3 Mc/s and 4 Mc/s, due mention being made of the technical standards considered applicable to the Aeronautical Mobile (OR) service. This action is considered necessary as certain common families of frequencies for the Aeronautical Mobile (OR) service are required in more than one Region and it is necessary that these requirements be properly coordinated.
- b) That the Conference submit to the P.F.B. a statement of the requirements of the Aeronautical Mobile (OR) service in the shared bands between 4 Mc/s and 27.5 Mc/s under the same conditions and for the same reasons as in (a) above.
- c) That consideration be accorded to making assignments from bands in the following sequence:
 - (i) Regionally exclusive allocations in which should be assigned frequencies for requirements common only to that Region (see "Directives for the P.F.B., Art. 6(e)") but taking into account (a) above.
 - (ii) Allocations which specifically provide for the Aeronautical Mobile (OR) service but which are shared with other services.
 - (iii) Allocations for the General Mobile service from which the Aeronautical Mobile (OR) service is not specifically excluded.

* * * * *

843 WHEREAS, the Committee has considered PC-Aer-Document No. 5 and accepts it, subject to verification of the data contained therein, and notes that the charts refer only to one value for the power of the ground station.

844 THE COMMITTEE CONSIDERS that it will be necessary to adjust these charts for various transmitter powers, and has accordingly requested the United States Delegation, on whose proposal this document was originally submitted, to investigate and report to the Conference what changes will be required to take variations of this factor into account.

* * * * *

845 WHEREAS, the Committee notes that in PC-Aer-Document No. 5, figure 18 refers only to night-time conditions, and,

846 WHEREAS, the Committee considers that similar charts for day-time conditions may be required by the Conference.

847 THE COMMITTEE NOTES that the necessary charts, corresponding to PC-Aer-Document No. 5, figure 18, for day-time conditions are printed in C.R.P.L. report CRPL-1-2, 3-1, a number of copies of which are available in Geneva.

* * * * *

848 WHEREAS, the Committee notes that in the bands allocated on a world-wide exclusive basis to the Aeronautical Mobile (OR) service there are only 83 separate frequencies available on the basis of the channel separations recommended (see 833), and,

849 WHEREAS, the Committee considers that a lowering of the safety standards would be an undesirable method of increasing the number of frequencies available, and,

850 WHEREAS, the Committee recognises that the geographical separation required between two stations for interference-free operation on frequencies separated by one-half of the normal channel separation, is less than that required for stations on the same frequencies.

851 THE COMMITTEE RECOMMENDS that if the 83 frequencies so far provided are insufficient, the Conference divide up part of the bands available into two groups of frequencies, the frequencies in one group being separated from those of the other group by half the normal channel separation, taking into account 838, 39, 40, 41, and 42. The Conference might then assign these two groups of frequencies in such a way that the frequencies of one group are protected from interference from those of the second group by assigning the frequencies to stations sufficiently far apart to give the required protection.

* * * * *

852 WHEREAS, complete data on world requirements will not be available until May 15th the Committee decided not to consider in detail the problem of sharing in various Megacycle orders of frequencies, nevertheless the Committee has considered a plan whereby the sharing pattern of the various frequencies might best be made by dividing up the world by means of a grid, such that if a frequency is assigned in one area, the remaining areas in which it can also be assigned can be specified by reference to the grid.

853 THE COMMITTEE RECOMMENDS for further consideration by the Conference this type of solution as one possible means of solving the sharing problem.

* * * * *

854 The Committee discussed requirements common to both the (R) and (OR) services, namely, common calling, meteorological broadcast requirements and Air Search and Rescue, and its recommendations are recorded in Chapter III, Section (c), 829 and 830.

CHAPTER IV

Additional Recommendations

§55 THE COMMITTEE RECOMMENDS that the Aeronautical Mobile (R) and (OR) services be dealt with separately in so far as consideration of Frequency Allocation plans is concerned, because of the differences in the operational characteristics of the two services.

* * * * *

§56 THE COMMITTEE RECOMMENDS the following organisation for the Conference, based on the experience of the Preparatory Committee, for consideration by the Conference:

- 1 - Steering Committee
- 2 - Credentials Committee
- 3 - Editorial Committee
- 4 - Technical and Operational Committee
- 5 - Committee on Aircraft Operation Statistics
- 6 - Committee on the Allotment of R. Frequencies
- 7 - Committee on the Allotment of OR Frequencies

The above-mentioned committees would have the following terms of reference:

§57 Committee 1 - To have the responsibility for the general conduct and coordination of the work of the Conference. It would be composed of the chairmen of the other committees of the Conference and would be presided over by the Chairman of the Conference.

§58 Committee 2 - To examine the credentials of the delegates to the Conference and to account therefore to the Plenary Assembly.

§59 Committee 3 - (See Rule 22, Page 70-E, first part of the Atlantic City Final Acts).

§60 Committee 4 - To examine the technical and operational principles contained in the report of the Preparatory Committee and any other proposals submitted on this subject and recommend their adoption eventually by the Plenary Assembly of the Conference with such amendments or additions as would be deemed necessary.

§61 Committee 5 - To examine the aircraft flight statistics assembled by the Preparatory Committee, and the associated maps, to make such amendments therein as may be deemed necessary, and to recommend their acceptance by the Plenary Assembly to serve as a basis for the work of the Conference.

§62 Committee 6 -

- a) To examine the recommendations of the Preparatory Committee for a plan of allotment of frequencies in the HF bands allocated by the Atlantic City Radio Regulations for the Aeronautical Mobile (R) service.

- §63 b) On the basis of this study, a study of the results of Committees 4 and 5 and such other studies as it may deem necessary, to make a complete world-wide plan of allotment of the frequencies referred to.
- §64 c) In carrying out the above functions, to collaborate with Committee 7, in the manner deemed most suitable, in dealing with all matters of joint interest.

§65 Committee 7 -

- a) To examine the recommendations of the Preparatory Committee for the allotment of frequencies in the HF bands allocated by the Atlantic City Radio Regulations for the Aeronautical Mobile (OR) service.
- §66 b) On the basis of this study, a study of the results of Committees 4 and 5 and such other studies as it may deem necessary, to make a complete world-wide plan of allotment of the frequencies referred to.
- §67 c) In carrying out the above functions, to collaborate with Committee 6, in the manner deemed most suitable, in dealing with all matters of joint interest.

§68 It is suggested that all these committees be created at the beginning of the Conference. Although Committees 6 and 7 will not be able to finish their tasks until the work of Committees 4 and 5 is terminated, they would find it profitable to study and dispose of Point a of their terms of reference while Committees 4 and 5 advance their work to a point where their findings can be used at least tentatively by Committees 6 and 7.

§69 It is further suggested that, where necessary in the interests of saving time, Committees 6 and 7 be instructed to use the findings of Committees 4 and 5 even before these are approved by the Plenary Assembly, subject to such later adjustments as may be required by any amendment made by the Plenary Assembly in those findings.

14 May, 1948

Addendum
to the Final Report
of the Preparatory Committee
(PC. Aer.-Document No 25-E)

1. At end of § 26 (i) (b) add :

"However for the detailed application of this method of approach the Conference will require to determine, on technical bases, the fair proportion of the total frequencies available which are to be set aside for each one of the three types of operation, intercontinental, tropical and national, in the light of their respective safety and operational requirements."

2. In § 42 (c) (i); amend line 4 to read :

"taking into account (a) and (b) above."

3. On page 16, add :

§ 70 It is further suggested that the Conference considers frequency assignment problems in the field of aeronautical telecommunication, not specifically within the terms of reference of the Conference, with a view to the formulation of recommendations which may be transmitted to regional conferences for appropriate consideration.

4. An index of the documents of the Preparatory Committee referred to in CP-Aer Document No 25 - E is added as page 17 to the document.

5. § 23 should read as follows :

Step 5 - Allot specific frequencies to the individual Major World Air Route Area, in such detail as the Conference may deem advisable after consultation with the I.F.R.B., taking into account the possibility of the assignment of frequencies to specific stations by regional aeronautical conferences.

6. In § 26 the words "Equatorial zone" should be substituted for the words "Tropical Belt" in the first line of (i) (a) and the second line of (i) (b).

7. In § 9, first line, read "Annex II" instead of "Annex I"

17.

(PC.-Aer. n° 25-E)

Note

The list below shows the documents mentioned in this report which it has not been possible to include in the report, but which will be available to all the delegates to the Conference on demand.

References	Titles
PC - Aer - No 5	Selection of Required Frequencies for Individual Routes
PC - Aer - No 15	Final Report of Working Group C
PC - Aer - No 19 and annexes 1,2,3,4,5,6 et 7	Final Report of Working Group B
PC - Aer - No 20 Annex 2	Final Report of Working Group D (text of a telegram)

International Administrative
Aeronautical Radio Conference
G E N E V A, 1948

Statement made by Mr. FALGARONE (France)
at the First Plenary Meeting

(Aer-Document No. 4-E)

Mr. FALGARONE (France) said that the French Delegation wished to draw the attention of members to the circumstances under which the Conference had been convened at that time by the Administrative Council of the I.T.U.

Originally the Conference was to have been held in Brussels, in accordance with proposals made by Belgium at Atlantic City. It was because the Belgium Government had been unable to convene this Conference that the Swiss authorities and the Council of the I.T.U. had undertaken to do so. By a telegram addressed to member States, it had been proposed to convene it in Geneva on 15th May 1948.

In its reply, the French civil aviation authorities had requested postponement of the Conference until 1st September 1948, for the following reasons:

In order that a detailed frequency assignment plan might be drawn up by the Conference for transmission to the P.F.B., agreement would have to be reached on a number of principles. Some of those concerned the actual, technical operation of radio communications; they could be disposed of by the technicians at the Conference.

But some of those basic principles had nothing to do with radio communications as such. They in fact depended on the conceptions, doctrines and methods envisaged for the control and security of air traffic, and on the material possibilities available to each State for making arrangements in conformity with these methods. On this there was very little agreement, as flying control services were only in their infancy. There was still no agreement on principle; ways and means would continue to be a subject for discussion.

The number and nature of communications exchanged between aircraft and ground stations were greatly affected by the principles adopted for flying control, which were of capital importance for the organization of mobile aeronautical radio services.

For this reason the French civil aviation authorities had considered that before tackling the problem of frequency assignment in the exclusive HF bands, agreement should logically be reached on the use to which they would be put.

This should have been done by a World Aeronautical Conference, which would comprise qualified representatives of Telecommunication and flying control services, and would have laid solid foundations for the present Conference.



The standards and practices of the ICAO had been quoted as principles commonly accepted in this matter. But none of these documents had binding force; they were merely recommendations which a member State might put into effect at its discretion, according to the means at its disposal and its own particular ideas on the subject.

It was because the French authorities found it impossible to apply some of these standards and practices, that they considered it necessary to re-examine those which were relevant to the drawing up of a frequency assignment plan before the Conference was convened.

Such a re-examination had been impossible for the countries concerned, for reasons beyond the control of the French authorities; he did not propose to enlarge on them at that time. Hence the Council had been requested to postpone the Conference, so that a special aeronautical services conference might first be convened.

Four other countries had also requested postponement, amongst them Belgium, and there was reason to believe that postponement would have been granted if it had been possible to leave the organization of the conference to the Belgian Government.

The Belgian aeronautical authorities had authorized the French Delegation to declare that they fully associated themselves with the reasons just given in favour of postponing the Conference.

In the opinion of his Delegation there was another reason for postponement - the speed with which the P.F.B. carried out its work. This was in no sense a criticism, but a simple statement of fact. Hence it would have to be admitted that postponement of the Aeronautical Conference until September would not have created difficulties for the P.F.B. in its difficult task.

In passing, he would like to mention that the Forms 2, hastily drawn up at Atlantic City, were of no use for mobile civil aviation services. The P.F.B. itself had decided not to study them, and the Preparatory Committee had stated that they could give no information which might be of use to such services. This had seemed obvious to the French Delegation from the beginning, as the detailed organization of civil aeronautical services in the exclusive HF bands could not possibly be known before these latter had been assigned by Atlantic City. Otherwise they would be putting the cart before the horse.

It was not absolutely necessary for the operation of aeronautical mobile services that the frequencies they would use in the exclusive HF band should appear in the future frequency list. This, in itself, was of secondary importance. The plan they were asked to prepare had two aims; the first, which was the only one to concern the P.F.B., was to provide it with the necessary material for drawing up its frequency list; the second, of primary importance for aeronautical services, was to provide these latter with means whereby they could function in a logical and rational way, in harmony with the principles governing their operation. Hasty work, undertaken to obtain secondary results, should not be allowed to prejudice the possibility of applying the plan.

Many principles would probably have to be reconsidered, and in view of the fact that they had not been dealt with by a preliminary special conference, members might find that in discussing them they were exceeding their terms of reference. For example, on questions relative to Flying Control, areas to be controlled, practices and methods of regional control, route control, aerodrome and approach control, etc., there was very little agreement. But those methods, ideas and practices were of fundamental importance for the work of the Conference.

Hence the Conference was opening under difficult conditions. Most of the Delegations had arrived without having been able to study these problems or to reach a conclusion and put forward concrete proposals, the examination and comparison of which would have meant a considerable saving in time.

As proof of this he would point to the fact that hardly any draft plan had been submitted. To the best of his knowledge, such plans had only been prepared by the Delegations of the United States and of France. Indeed, the French plan was far from complete, having been drawn up hastily during the few weeks following the decision which had been taken to convene the Conference.

He felt justified in saying that almost all the Delegations present were conscious of being insufficiently prepared for consideration of the problems before them, and would probably have asked for postponement of the Conference if they had been informed beforehand of the situation that had arisen.

However, the French Delegation had bowed to the decision duly taken, and had participated in the work of the Preparatory Committee with the greatest good will.

His Delegation appreciated the work done by the United States Delegation, which had prepared a complete and detailed plan, now adopted as the basis for their discussions. He would like to express his appreciation of the considerable amount of work involved.

But due to the insufficient time available to the Committee the principles in question had not been discussed; nor, in fact, did such a discussion come within its terms of reference. Hence, the French delegation was only behind the plan in so far as it represented one way of tackling the problem. It was in this spirit that the plan, as amended, had been recommended to the attention of the Conference in the Final Report of the Preparatory Committee. In the opinion of the French Delegation, the plan contained valuable material without which the Conference could not undertake its work, and would allow them to look forward with confidence to the ultimate result.

His delegation, however, considered that the final plan should not be based on the adoption of questionable principles which had not been explicitly discussed and adopted when it was being drawn up, or which exceeded the terms of reference of the Conference. It should be sufficiently flexible for any country to adapt its own organization to it.

In addition, as aeronautical technique was rapidly and ceaselessly evolving, such a plan should not bind their services for a definite period; it should be such as could be revised, if circumstances so required, without having to reconvene an administrative Conference under the auspices of the I.T.U.

No plan, in the opinion of his delegation, would be acceptable or workable unless it satisfied these two conditions.

I. A. T. A.
Regional Division of the World.

Introduction.

Before attempting to divide the world into Regions for the purpose of allotting frequencies or families of frequencies to these regions, it is considered that it will be easier to first make an allocation of frequencies to meet the minimum requirements of the Major World Air Routes. The suggested grouping of these Major World Air Routes is contained in the I.A.T.A. map attached to Annex No.7 to PC-Aer Document No. 19 referred to in the Final Report of the Preparatory Committee. This grouping of Major World Air Routes into Major Air Routes was carried out in order to allot frequency families to Major World Air Routes having a common interest.

It should be noted that although it was decided to consider the Major World Air Route Areas first, there was no intention to allot frequencies to these areas at the expense of a satisfactory regional allocation. It is, however, the intention that frequencies be allotted to these Major World Air Route Areas according to their operational requirements and in the event of such an allotment resulting in an unsatisfactory regional allotment it will then be necessary to reduce the allocation of frequencies to these areas in proportion to the relative operational requirements of the various regions.

Regional Considerations.

In considering possible regional division, the following factors should be taken into account:

- a) Route patterns.
- b) Propagation characteristics, i.e. areas of high noise and absorption.
- c) National boundaries.
- d) Air Traffic Control organization.
- e) Existing regional organizations.
- f) Aircraft equipment limitations.
- g) Operating practices.

In light of the above and the proposals submitted by the U.S.A. and the European countries, an attempt has been made by I.A.T.A. to coordinate these and other individual considerations and present them as a possible world plan of regional division.

Regional Division.

It was decided that the World could be divided into 9 regions and for reference purposes these regions have been named as follows:

African Region
Australasian Region
Caribbean Region
European Region



Far East Region
Indian and Arabian Region
North American Region
South American Region
U.S.S.R. Region

The proposed boundaries of each region are outlined at Appendix A and for easy reference these are presented in map form at Appendix B.

Special Regional Considerations.

Unfortunately complete information is not available on the factors affecting frequency allocation in all regions, but in light of the information available, it would appear desirable to consider the factors outlined herein for the individual regions.

African Region.

- a) Abnormal propagation characteristics due to high noise and absorption levels prevailing in certain areas of the region.
- b) Relatively large land mass with large unpopulated areas.
- c) Rapidly increasing use of air transport due to extensive development schemes.
- d) Number of different local administrations.
- e) Terrain difficulties.

Australasian Region.

- a) Region embraces considerable land mass and a large number of small islands are scattered throughout the region.

Caribbean Region.

- a) Abnormal propagation characteristics due to high noise and absorption exist throughout the region.
- b) Relatively high traffic density concentration in certain areas of the region.
- c) Number of different administrations.

European Region.

- a) Very high traffic density.
- b) Large number of different administrations.
- c) Language difficulties
- d) Air traffic control organization.

Far East Region.

- a) Abnormal propagation characteristics exist in the major portion of the region.
- b) Number of different administrations.
- c) Embraces considerable concentration of small islands and a large land mass.
- d) Contains large undeveloped areas.

Indian and Arabian Region.

- a) Includes a small area affected by high noise and absorption.
- b) Embraces a large land mass and large undeveloped areas.
- c) Rapidly increasing use of air transport.

North American Region.

- a) Embraces a large land mass.
- b) Area of high traffic density.
- c) Extensive use of V.H.F.
- d) Large undeveloped area in the north.
- e) Northern area affected by auroral activity.

South American Region.

- a) Inadequate aeronautical fixed services.
- b) Extensive use of R/T and W/T on parallel circuits.
- c) Relatively large land mass with a number of local administrations.
- d) Terrain difficulties.
- e) Rapidly increasing use of air transport.

U.S.S.R. Region.

- a) Large land mass.
- b) Terrain difficulties.
- c) Northern area affected by auroral activity.

Frequency Repetition.

In assigning frequencies for use within the above mentioned regions, consideration should be given to the possibility of frequency repetition, taking into account the following factors:

- a) Propagation data, as contained in Paper No.5 of the Preparatory Committee.
- b) Geographical separation.
- c) Twelve hour time difference effect on propagation characteristics.
- d) Six months seasonal difference effect on propagation characteristics.
- e) Channel interlacing, i.e. no two adjacent channels to be allotted for use in the same area.

Equatorial Considerations.

It will be noted that in the attached plan, certain areas have been singled out for consideration with regard to the allotment of higher orders of frequencies to meet the peculiar propagation requirements of these areas, due to high noise and absorption. These areas are mainly contained in the following regions:

Caribbean Region
African Region
Far East Region.

In certain parts of the Indian and Arabian region and a limited area of the Australasian region, difficulties may be experienced due to the relatively high noise and absorption levels. It was deemed advisable to meet these difficulties by using some of the higher frequencies which normally would be contained in the regional allotment to these areas. This method of approach would tend to overcome some of the difficulties which may be experienced with frequency repetition in the equatorial areas should an equatorial belt encompassing the earth be established.

Appendix A.

I. A. T. A.
Regional Division of the World

Introduction.

The regional boundaries outlined in the following paragraphs may require slight changes in order to meet administrative requirements. However, it is considered that, in general, this proposed regional division will provide Committee No.6 with a satisfactory basis for consideration of the problem.

African Region

This region embraces the entire African Continent.

The Western boundary is defined by a line drawn from the South Pole along 15° West to 16° South and then to a point 25° North, 40° West. From here along 40° West to 34° North. The Northern boundary is defined by a line drawn from this point running along 34° North to the North African coast, and along this coast to the Western border of Palestine. The Eastern boundary follows the Eastern shore of the Red Sea to Aden and then to the tip of Somaliland and from here to a point 20° South, 80° East and South along 80° East to the South Pole.

Australasian Region

This region embraces the Continent of Australia, New Zealand, part of New Guinea and the South Pacific Islands.

The Western boundary of this region coincides with the Eastern boundary of the African region from the South Pole to a point 20° South, 80° East. The Northern boundary runs from here to a point 10° South, 141° East and North along 141° East to a point 11° North, and then to a point 18° North, 169° East and from here along 18° North to 140° West. The Eastern boundary runs from here to a point 16° South, 120° West and along 120° West to the South Pole.

Caribbean Region.

This region embraces Central America and the Northern area of South America.

The Western boundary runs from a point 25° North, 140° West along 140° West to 18° North, and from here to 16° South, 20° West. The Southern boundary runs from this point along 16° South to 15° West. The Eastern boundary coincides with the Western boundary of the African region. The Northern boundary runs from a point 25° North, 40° West along 25° North to 140° West.

European Region.

The Western boundary of this region runs from the North Pole South along the Greenwich meridian to a point 74° North and from there to a point 34° North, 40° West. The Southern boundary coincides with the Northern boundaries of the African region and the Indian and Arabian region. The Eastern boundary runs from the North Pole along 40° East to the Turkish border and along the Turkish border to the Northern boundary of the Indian and Arabian region. The Eastern boundary

of the European region coincides with that laid down by the I.T.U. Atlantic City Regulations, but it is felt that it may be considered desirable for administrative purposes to modify this border to coincide with that suggested in the European approach to the problem, contained in Annex No.2 to PC-Aer.Document No.19, of the Final Report of the Preparatory Committee.

Far-East Region.

This region embraces the whole of China, Siam, French Indo-China, Dutch East Indies, Philippines, Japan and part of New Guinea.

The Western boundary coincides with the Eastern and Northern boundaries of the Indian and Arabian region. The Northern boundary follows the Southern boundaries of the U.S.S.R. and Outer Mongolia to include Japan and the Southern section of Sakhalin Island, then along 50° North to 169° East. The Eastern boundary runs from here down 169° East to 18° North and from here to a point 11° North 141° East, and South along 141° East to 10° South. The Southern boundary runs from here to a point 20° South, 80° East.

Indian and Arabian Region.

This region embraces the entire Indian Continent, Ceylon, Burma, Afghanistan, Iran, Iraq, Syria, Palestine and Saudi Arabia. The Western boundary coincides with the Eastern boundary of the African region. The Northern boundary runs along the Palestinian and Syrian coasts, Southern border of Turkey, along the Northern border of Iran, Afghanistan and along the Southern border of China to a point where it meets the French Indo-China border. The Eastern boundary follows the common Burma, Indo China and Siam borders to a point where it meets the coast and then to a point 20° South 80° East.

North American Region

This region embraces Canada, United States of America, Alaska, Greenland and Iceland.

The Western boundary runs from the North Pole down 169° West to 65° North and then along the U.S.S.R./United States boundary to a point 54° North, and South along 169° East to 18° North.

The Southern boundary follows the Northern boundaries of the Australasian and Caribbean regions. The Eastern boundary coincides with the Western boundaries of the European and African regions.

South American Region.

This region embraces the whole of Argentina, Chile, Uruguay, Paraguay and parts of Brazil, Bolivia and Peru.

The Western boundary coincides with the Eastern boundary of the Australasian region. The Northern boundary is common with the Southern boundary of the Caribbean region. The Eastern boundary coincides with the Western boundary of the African region.

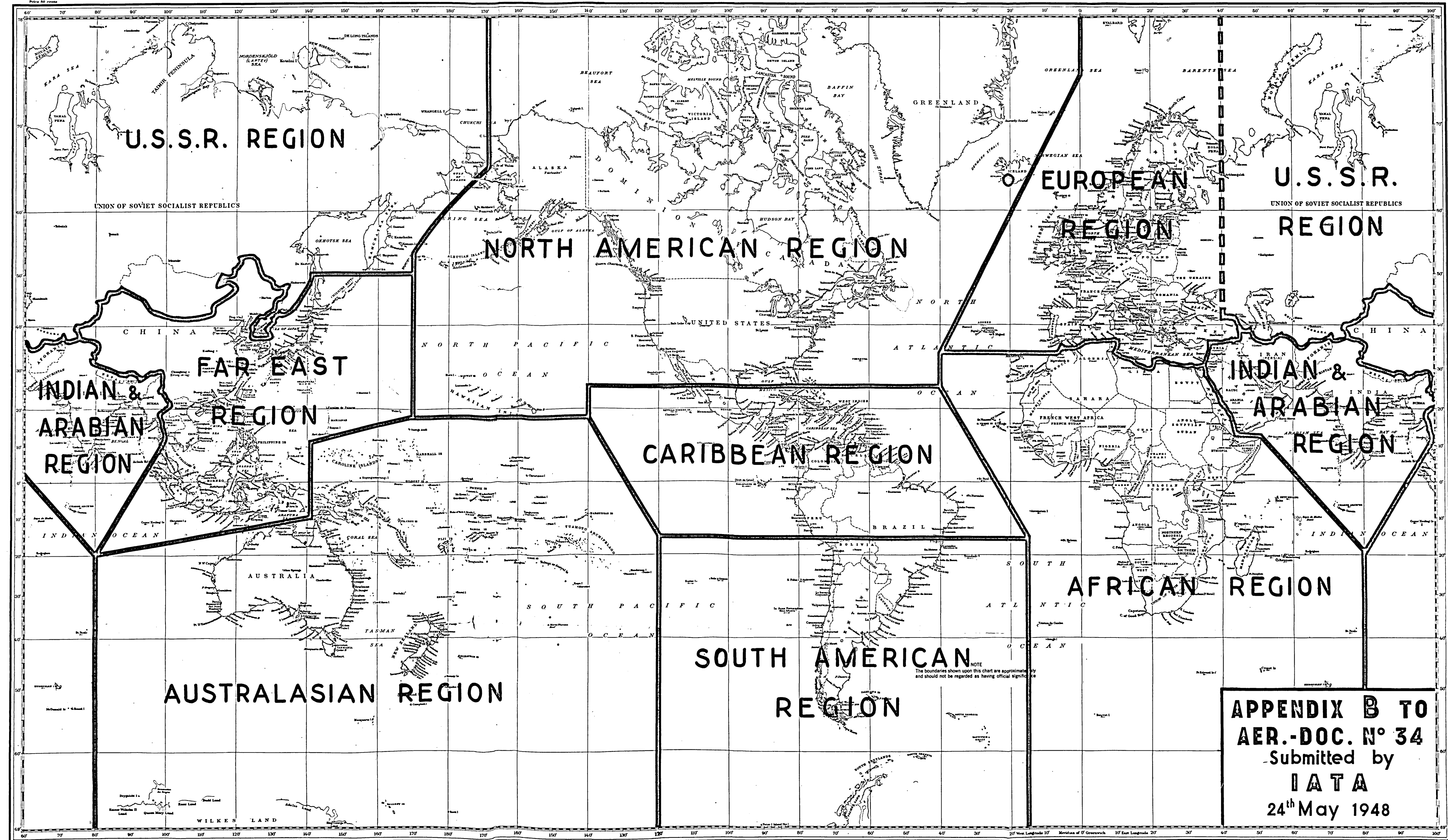
U.S.S.R. Region.

This region embraces the large land mass of the U.S.S.R. and Outer Mongolia.

The Western boundary follows the Eastern boundary of the European region. The Southern boundary coincides with the Northern boundary of the Indian and Arabian region and the Far-East region. The Eastern boundary coincides with the Western boundary of the North American region.

REGIONAL DIVISION OF THE WORLD

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**APPENDIX B TO
AER.-DOC. N° 34
Submitted by
IATA
24th May 1948**

1 June, 1948

REPUBLIC OF POLAND

PROPOSAL FOR THE ADOPTION OF MINIMUM FIELD INTENSITY FIGURES
REQUIRED FOR THE SATISFACTORY RECEPTION BY AIRCRAFT OF
A1 and A3 COMMERCIAL TELEPHONY.

1. It was agreed in Committee 4 that $5 \mu\text{v/m}$ was a reasonable figure for the average noise field level experienced on board a modern aircraft. A proposal to this effect had been submitted by the Polish Delegation; this proposal was adopted by the Committee (See Aer-Document No 45, 27 May, 1948).

2. The figure of $5 \mu\text{v/m}$ represents the minimum field intensity of local noise on board an aircraft "including statics generated by the motion of the aircraft through the atmosphere, but exclusive of atmospheric noise".

In other words, $5 \mu\text{v/m}$ indicates that the average level of intensity of parasitic fields corresponds to the parasitic RMS inducted in the input circuit of an aircraft receiver, connected to the antenna. So that for an antenna 1 metre high, the figure for mentioned RMS will be as high as $5 \mu\text{v}$.

The terms "bad", "satisfactory", or "good reception" are mainly based on the average signal-to-noise ratio, which varies according to the type of emission, and is different according to whether A1 reception is used or A3 commercial telephony.

Generally speaking, a minimum signal-to-noise ratio of 1 : 1 is essential for the completely satisfactory reception of A1 radio telegraphy by earphones or loudspeaker. For A3 commercial telephone transmission, this ratio must be as high as 3 : 1 or even 4 : 1.

It follows from the above that as the Committee agreed on the figure of $5 \mu\text{v/m}$ as a minimum noise level equivalent to the parasitic field intensity, then average figures for minimum field intensities required for reasonably satisfactory reception, would be given by the following table :

Type of Reception	Minimum intensity required for satisfactory reception	Ratio Signal noise Minimum	db above noise level
A1 - Normal aural reception	$5 \mu\text{v/m}$	1 : 1	-
A3 - Commercial telephony	$20 \mu\text{v/m}$	4 : 1	12

The Polish Delegation proposes that these figures shall be taken as a working basis for further discussion.

The Polish Delegation :

A. Arciuch

2 June, 1948

MAJOR WORLD AIR ROUTE

Statement presented by I.A.T.A.

With reference to Annex No. 7 to PC-Aer-Doc. No.19 attached to the Final Report of the Preparatory Committee, it is felt that some amplification of the concept of Major World Air Route Areas is required in order to clarify any misunderstanding which may exist.

The fundamental reasoning behind the conception of Major World Air Routes lies in the necessity to provide a system of communication suitable for aircraft engaged in long distance operation on the Major Air Routes of the World. It will be appreciated that owing to the technical limitations of existing and proposed aircraft equipment which will be in use and available for use during the period under consideration, the necessity for the employment of a minimum number of frequencies for operation over any Major World Air Route cannot be too strongly emphasized. This factor is of vital importance to the efficient operation of international air transport, because if this factor is not taken into consideration, it may be necessary to ground an aircraft at a given point along a route to make equipment changes, resulting in :

- a) An airline being required to maintain unnecessarily large stocks of equipment at many locations scattered throughout the world.
- b) The necessity to instal multiple equipments, thereby involving a further unnecessary reduction in payload.
- c) In the event of an aircraft not being able to land at the regular airfield where the stocks of equipment are held, it would mean that it would be necessary to have equipment flown, to the alternate airfield in order that the aircraft may continue on its flight. The significance of the above factors to the safe and economic operation of international air transport will be obvious.

In considering the problem of the allocation of frequencies to these Major World Air Routes, the I.A.T.A. delegation considers that a suitable approach would be to analyse the traffic patterns of the Major World Air Routes with a view to the possibility of grouping routes sharing a common interest for the purpose of allocating frequencies to these common routes. It is considered that the grouping of Major World Air Routes into Major World Air Route Areas as suggested in Appendix 2 to Annex 7 of PC-Aer-Doc.19 would provide Committee No.6 with a satisfactory working basis.

In determining the frequency requirements of the Major World Air Route Areas, the data contained in the Flight Information Tables now being prepared by Committee No. 5 should be analysed to determine the routes to be included in the Major World Air Route Areas. On completion of this analysis the loading formula accepted by the Conference for determining the frequency family requirements of Major World Air Route Areas should then be applied. When considering routes for inclusion in Major World Air Route Areas, some limitations must be placed on the minimum length of an air route which can be included in the Major World Air Route Areas. It is suggested that a figure in the order of 1000 miles would satisfy this requirement. The allocation of frequencies to Major World Air Route Areas should not be made to the detriment of a satisfactory Regional allocation.

After having allotted frequencies for application to Major World Air Route areas, it is considered that it would be necessary for administrative purposes to group these Major World Air Route Areas together into larger Master Areas on the lines indicated in Appendix No.1 to Annex No.7 of PC-Aer-Doc.No.19 as suggested by I.C.A.O. This would facilitate a re-allotment of frequencies within these Master Areas to accommodate changing operational requirements.

The next step in the allocation of frequencies would be to consider the possibility of dividing the world into suitable Regions, taking into account the following factors :

- a) Route patterns
- b) Propagation characteristics, i.e. areas of high noise and absorption.
- c) National boundaries
- d) Air Traffic Control organizations.
- e) Existing regional organizations.
- f) Aircraft equipment limitations
- g) Operating practices.

More precise details of this method of approach to regional division are outlined in Aer-Document No.34 entitled "Regional Division of the World".

GENEVA, 1948

COMMITTEE 5

FLIGHT INFORMATION TABLES

Flight Information Tables I and II included in this document have been compiled for use in connection with the International Air Route Map published as Aer-Doc. No. 72-E.

THE INTERNATIONAL AIR ROUTE MAP shows the reported international routes of all scheduled common carrier airlines of the world as of June 1, 1948. Any international route on which a traffic or technical stop is made in a country other than the home country of the airline concerned, or in a colonial possession of the home country of the airline, is included on the map along with all intermediate stops on the route.

Table I shows the route segments of international routes, the mileage for each segment, the airlines using the routes, and, for the non-scheduled flights per week, the name of the country reporting the flights. It also indicates traffic density on the route segments by showing the number of flights made per week.

Every reported route segments between terminals and intermediate stops on an international route is listed in the tabulation. Each route segment is shown only once in the tabulation, the segment between any two stopping points may be found listed under the name of whichever of the two cities comes first in alphabetical order. All place names shown in table I have also been listed in alphabetical order in a Master Index for ready reference.

After each route segment in Table I, there is listed (in column 4) each airline operating and international route involving that segment together with the number of flights (without regard to direction) which the airline is scheduled to make over that segment in the course of a week. In column 6 there are listed the appropriate numbers of non-scheduled flights made per week, together with the country responsible for the flights, over those route segments for which specific information concerning non-scheduled services has been provided by Delegations. Where no information is shown, it is assumed that Committee 6 will assign to Column 6 approximately one-third the number of scheduled services, or whatever other proportion may be agreed to.

It should be noted that in certain instances route segments have been listed which lie wholly within one country; such segments are so listed if they are part of an overall international route. In such cases flights reported over the domestic segments in a purely domestic service are not tabulated.

Table II shows by regions all the countries of the world and the total mileage scheduled per week for domestic air service where domestic services are in operation. Column 4 of this table shows the mileage of non-scheduled flights per week, where such has been reported by Delegations. Where no information is shown, it is assumed that Committee 6 will assign to Column 4 approximately one-third the mileage of scheduled services, or whatever other proportion may be agreed to.



MASTER INDEX

All place names contained in Table I of this document are listed below in alphabetical order, and the corresponding index numbers of Table I are listed opposite each place name as a ready reference.

° °

INDEX PRINCIPAL

Tous les noms de localités figurant dans le Tableau I de ce document sont classés ci-dessous par ordre alphabétique, et les chiffres de référence du Tableau I sont indiqués en regard de chaque localité.

° °

INDICE PRINCIPAL

Todos los nombres de lugares enumerados en el Cuadro I de este Documento se dan a continuación por orden alfabético. Los números de índice correspondientes del Cuadro I aparecen al lado de cada nombre de lugar a fin de proporcionar una referencia rápida.

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T A B L E I

SEGMENTS OF INTERNATIONAL ROUTES AND
TRAFFIC DENSITY EXPRESSED IN NUMBER OF FLIGHTS PER WEEK
(as of June 1, 1948)

TRONCONS DE ROUTES INTERNATIONALES
ET DENSITE DU TRAFIC EXPRIMES EN NOMBRE DE VOLS PAR SEMAINE
(au 1er Juin, 1948)

SECCIONES DE RUTAS INTERNACIONALES Y VOLUMEN
DEL TRAFICO EN FUNCION DEL NUMERO DE VUELOS POR SEMANA
(hasta el 1 de junio de 1948)

1	2	3	4	5	6	7
Index Number	Route Segments	Miles	Airlines & number of scheduled flights	Total sched- uled flights	Number of non-sched- uled flights	
Nombre indice	Tronçons de route	Milles	Lignes aé- riennes de vols régu- liers	Total de vols régu- liers	Nombre de vols non- réguliers	
Numero en el indice	Secciones de ruta	Millas	Companias de aviación y numero de vue- los regulares	Total de vuelos re- gulares	Numero de vuelos no regulares	
1	Aalborg Goteborg (Den)	86	SAS-14, KLM 6	20		
2	Kristiansand	108	SAS-14	14		
3	Oslo	206	SAS-14	14		
4	Abadan (Iran) Basra	75	BOAC-2	2		
5	Cairo	575	BOAC-2	2		
6	Abercorn (N.Rhod.)Kasama	92	CAAC-2	2		
7	Abidjan Accra (Fr.W. Af.)	260	Air-France-8	8		
8	Bobo Dioulasso	424	Air-France-4	4		
9	Robertsfield (Lb)	446	Air-France-8	8		
10	Accra Dakar (Go.Cst.)	1338	PAA-4	4		
11	Lagos	253	BOAC-12	12		
12	Leopoldville	1271	PAA-4	4		

1	2	3	4	5	6	7
13	Accra (Cont'd)	Libreville	754	TAP-1	1	
14		Lome (Fr.Togo)	109	Air-France-8	8	
15		Takoradi (Go.Cst.)	118	BOAC-2 TAP-1	3	
16	Addis Ababa (Eth.)	Aden	489	EAL-1 BOAC-2	3	
17		Asmara	432	EAL-4 BOAC-2	6	
17A		Cairo	1600	Ethiopian Airways 2 -2		
18		Dire Dawa	213	EAL-12	12	
19		Djibouti	337	Air-France-1 EAL-6 BOAC-2	9	
20		Hargeisa	362	BOAC-4	4	
21		Nairobi	727	EAL-1	1	
22	Aden (Aden)	Asmara	429	BOAC-2	2	2(Fr.)
23		Dire Dawa	308	EAL-10	10	
24		Djibouti (Fr.Somlnd)	153	EAL-4 BOAC-2	6	2(Fr.)
25		Hargeisa	239	BOAC-2 Clairway-2	4	
26		Kamaran Island	226	BOAC-2	2	
27		Mukalla(Aden)	295	EAL-1	1	
28	Ahmedabad(India)	Bombay	275	Air-India-14	14	
29		Karachi	369	Air-India-14	14	
30	Ajaaccio(Cors.)	Marseille	193	Air-France-16	16	
31		Tunis(Tun.)	355	Air-France-4	4	
32	Akyab(Burma)	Calcutta	330	Orient-14	14	
33		Chittagong	170	Orient-14	14	
34		Rangoon	313	Orient-14	14	
35	Albertville (Bel.Congo)	Usumbura (Ru.Ur.)	175	Air-Congo-4	4	
36	Aleppo (Syr.)	Beirut	186	Syrian-4	4	
37		Deir ez Zor	175	Syrian-1	1	
38		Kamechlie(Syr.)	236	Syrian-3	3	
39	Alexandria(Egy.)	Cairo	125	Misr-2	2	
40		Nicosia (Cyp.)	325	Misr-2	2	

1	2	3	4	5	6	7
41	Algiers(Alg.)	Bidon V	1000	Transsaharienne-1	1	1 (Fr.)
42		Bone	255	Air-France-11	11	
43		Casablanca	687	Tropicaux-1		
				Air-France-6	7	
44		Kano	1698	Air-France-4	4	1 (Fr.)
45		Lagos	2066	Air-France-2	2	
46		Lyon (Fr.)	625	Air-France-4	4	
47		Madrid	453	TWA-2	2	
48		Marseille	466	Air-France-14	14	10(Fr.)
49		Nice	700	Air-France-4	4	
50		Oran	230	Air Atlas-6		
				Air-France-4, TAI-		
					1 11	
51		Paris	844	Air-France-26,		
				TAI-3	29	14 (Fr.)
52		Toulouse (Fr.)	489	Air-France-6	6	
53		Tunis	388	Air-France-6, TWA-		
				2, Tropicaux-1	9	
54	Alma Ata (U.S.S.R.)	Tihwa (China)	526	Hamata-2	2	
55	Amman (Tr. Jor.)	Beirut	136	Arab Airways-8	8	
56		Cairo	303	Arab Airways-2	2	
57		Haifa	85	Arab Airways-4	4	
58		H.3 (33°N., 40°E)	232	Arab Airways-2	2	
59		Lydda	63	Arab Airways-4	4	
60	Amoy (China)	Canton	318	CNAC-4	4	
61		Foochow	135	CNAC-4	4	
62		Manila	716	CNAC-4	4	
63		Shanghai	600	CNAC-4	4	
64		Swatow (China)	119	CNAC-2	2	
65	Amsterdam(Neth.)	Aalborg	355	KLM-6	6	
66		Antwerp (Belg.)	85	KLM-12	12	

1	2	3	4	5	6	7
67	Amsterdam (Cont'd)	Basel	355	KLM-6, Swissair- 10	16	
68		Brussels	101	SAS-6, KLM-26, SABENA-14	46	
69		Cairo	2032	KLM-12	12	
70		Copenhagen	394	SAS-14, BEA-2, KLM-14	30	
71		Eindhoven	69	KLM-12	12	
72		Frankfort	229	AOA-18, CSA-2	20	
73		Geneva	429	KLM-12	12	1 (Nor.)
74		Hamburg	232	KLM-6	6	
75		Kristiansand	425	SAS-6, KLM-6	12	
76		Lisbon	1155	KLM-4	4	
77		London	232	BEA-14, KLM-98	112	
78		Manchester	303	ALT-4, KLM-6	10	
79		Marseille	627	KLM-2	2	
80		Oslo	568	KLM-6	6	1 (Nor.)
81		Paris	264	Air-France-12, KLM-28	40	
82		Praha	436	CSA-12, KLM-14	26	
83		Prestwick	443	KLM-24	24	
84		Rome	800	KLM-18	18	
85		Shannon	578	AOA-18	18	
86		Tunis	1099	KLM-4	4	
87		Zurich (Switz.)	380	KLM-14, Swissair- 14	28	
88	Anchorage (Alsk.)	Minneapolis (US)	2515	Northwest-6	6	
89		Seattle	1448	Northwest-14	14	
90		Tokyo (Jap.)	3476	Northwest-6	6	
91	Ankara (Turk.)	Beirut	441	MEA-2	2	
92		Istanbul	214	SAS-2, Air-France-2 BEA-2, BOAC-2, CSA-2, MEA-2	12	
93		Nicosia	330	BOAC-4	4	
94	Annapolis (Braz.)	Carolina (Braz.)	620	Aerovias Brasil-4	4	

1	2	3	4	5	6	7
95	Annapolis (Cont'd)	Rio de Janeiro	584	Aerovias Brasil-4	4	
96	Antigua	Barbados	309	BIA-4	4	
97	(Leeward Is.)	St. Kitts	63	BIA-6	6	
98		St. Lucia (Windward Is.)	226	BIA-2	2	
99	Antofagasta (Chile)	Arica	344	PANAGRA-4	4	
100		Lima	899	PIA-4, PANAGRA-8, BSAA-2, Skyways-2	16	
101		Salta	330	PANAGRA-2, ZONDA-12 LAN-12	26	
102		Santiago (Chile)	696	PIA-4, PANAGRA-8, BSAA-2, Skyways-2	16	
103	Arad (Rum.)	Bucharest	262	MASZOVLET-2, TARS-2	4	
104		Budapest	141	MASZOVLET-2, PARS-2	4	
105	Arequipa (Peru)	Arica	172	PANAGRA-8	8	
106		La Paz	225	PANAGRA-8	8	
107		Lima (Peru)	468	PANAGRA-18	18	
108	Arica (Chile)	La Paz	196	PANAGRA-6	6	
109	Armuelles (Pan.)	Golfito	34	LACSA-4	4	
110	Aruba (Cur.)	Barranquilla	340	KLM-6	6	
111		Caracas	240	KLM-4	4	
112		Curacao	77	KLM-66	66	
113		Habana	1100	KLM-4	4	
114		Kingston	587	KLM-10	10	
115		Las Piedras	55	LAV-4	4	
116		Maracaibo	168	KLM-14	14	
117	Asmara (Erit.)	(Venez.) Kamaran Island	240	BOAC-2	2	
118		Kassala	163	Sudan-2	2	
119		Khartoum	423	BOAC-2	2	
120		Luxor	825	EAL-4	4	2 (Fr.)
121		Port Sudan (A-E.Sud.)	318	BOAC-4	4	
122	Asuncion (Parag.)	Buenos Aires	651	ALFA-2	2	
123		Formosa (Arg.)	74	ALFA-4	4	

1	2	3	4	5	6	7
124	Asuncion (Cont'd)	Iguassu Falls	187 PAB-2	2		
125		Ponta Pora	228 PAB-2	2		
126		Resistencia (Arg.)	178 ALFA-2	2		
127	Athens (Gr.)	Beirut	713 IRANAIR-2, MEA-2	4		
128		Brindisi	358 SAS-8, Air-France-4	12		
129		Cairo	695 Air-France-1, CSA-2, TWA-18, KLM-4	25	1 (Nor.)	
130		Geneva	1057 Swissair-2	2		
131		Istanbul	345 SAS-6, Air-France-2, BEA-4, CSA-2, DHY-2, Swissair-2	20		
132		Lydda	753 CSA-2, TWA-2	4		
133		Nicosia	569 Air-France-2, BOAC-2, SAS-2	6		
134		Rome	650 BEA-20, BOAC-2, CSA-6 IRANAIR-2, MEA-2, TWA-20 KLM-4, ALI-2, Air-France- 2	60	1 (Nor.) 1 (NZ)	
135	Auckland (N.Z.)	Norfolk Isl.	610 NZNAC-2	2		
136		Suva	1329 BCPA-1, PAA-2, NZNA-6	9	4 (US)	
137		Sydney (Austr.)	1340 TEA-14, BOPA-2	16		
138	Augusta (Sic.)	Cairo	1047 BOAC-12	12		
139		Marseille	729 BOAC-10	10		
140		Southampton	1300 BOAC-8	8		
141	Baghdad (Iraq)	Beirut	504 CSA-2 IRANAIR-4 MEA-4	10		
142		Cairo	807 KLM-4, Irak-3	7		
143		Damascus	469 Iraqi-2 Syrian-3, Mizr-4	9		
144		Dhahran	580 Syrian-1	1		
145		H.3 (33°N., 40°E)	265 Arab Airways-2	2		
146		Istanbul	1400 KLM-2	2		

1	2	3	4	5	6	7
147	Baghdad (Cont'd)	Karachi	1493 KLM-4	4		
148		Karmanshah	175 Iranian State-4	4		
149		Lydda	561 BOAC-2 IRANAIR-2 Iraqi-4 Misr-4 Air-France-2	14		
150		Nicosia	625 BOAC-2	2		
151		Tehran(Iran)	423 Air-France-2, BOAC-2, IRANAIR-6, Iraqi-2, KLM-2, Misr-4	18		
152	Bahrein Is- land	Basra	347 BOAC-6	6		
153		Cairo	1210 BOAC-4	4	56 (UK)	
154		Karachi	1042 BOAC-6	6	50 (UK)	
155		Kuwait	275 BOAC-4	4		
156		Barranquilla	351 PAA-28	28		
157		Cali	436 PANAGRA-14	14		
158		David	201 PAA-14	14		
159		Guatemala	838 PAA-7	7		
160		Guayaquil	770 PANAGRA-8	8		
161		Kingston	647 PAA-14	14		
162		Lima	1468 PANAGRA-6	6		
163		Managua	500 PAA-14	14		
164		Medellin(Col.)	332 AVIANCA-4, UMCA-14,	18		
165		Miami	1166 PAA-14	14		
166		San Jose(C.R.)	318 PAA-14	14		
167		San Salvador	724 PAA-7	7		
168	Balikpapan (Borneo)	Zamboanga(Phil.)	780 KLM-2	2		
169	Baltimore (U.S.)	Hamilton	817 BOAC-6	6		
170	Bamako (Fr.W.Af.)	Bidon V	937 Transsaharienne-1	1	1 (Fr.)	
171		Bobo Dioulasso	217 Air-France-2	2	1 (Fr.)	
172		Dakar	625 Air-France-4	4	1 (Fr.)	
173		Kankan (Fr.W.Af.)	200 Air-France-2	2		

1	2	3	4	5	6	7
174	Bamako (Cont'd) Kayes (Fr.W.Af.)	256	Air-France-2	2		
175	Bangka Singapore (Neth.Indies)	377	KLM-2	2		
176	Bangkok (Siam) Batavia	1454	KLM-12	12		
177	Calcutta	1001	KLM-16, PAA-2,	18	1 (Nor.)	
178	Canton	1100	KLM-2	2		
179	Hong Kong	1065	BOAC-6, Cathay Pacific-2 POA Siam-4, CNAC-2	14	1 (Nor.)	
180	Manila	1366	PAA-2	2		
181	Phnom-Penh	327	Air-France-1	1		
182	Rangoon	363	BOAC-4	4		
183	Singapore	890	BOAC-2, Cathay Pacific-2 KLM-2, POA SIAM-2	8		
184	Bangor (U.S.) Moncton (Can.)	221	Northeast-14	14		
185	Bangui Berberati (Fr.Equat.Af.) (Fr.Equat.Af.)	197	Air-France-2	2		
186	Coquilhatville	302	Air-France-2	2	1 (Fr.)	
187	Fort Archambault	329	Air-France-2	2	1 (Fr.)	
188	Libenge (Bel.Congo)	52	SABENA-2	2		
189	Stanleyville (Bel.Congo)	536	SABENA-2	2		
190	Yaounde	475	Air-France-2	2		
191	Barbados Georgetown	455	BIA-2	2		
192	Grenada	161	BIA-2	2		
193	Port-of-Spain	208	BIA-24	24		
194	St. Lucia	104	BIA-4	4		
195	Barcelona (Sp.) Geneva	386	Iberia-6, Swissair-4,	10		
196	Madrid	308	Iberia-6, Swissair-2	8		

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197	Barcelona (Venez.)	Caracas	164	Air-France-1, LAV-14, PAA-28	43	
198		Maturin	107	LAV-14, PAA-14	28	
199		Port-of-Spain	224	Air-France-1	1	
200	Barquisimeto (Venez.)	Caracas	162	LAV-4	4	
201		Coro	95	LAV-4	4	
202	Barranquilla (Colo.)	Pogota	428	AVIANCA-2	2	
203		Kingston	503	BSAA-2, PAA-14	16	
204		Lima	1598	BSAA-2	2	
205		Maracaibo	215	PAA-28, Air-France-1	29	
206		Miami	1068	AVIANCA-2	2	
207		San Jose	626	KLM-4	4	
208	Basel (Switz.)	Eindhoven	300	KLM-12	12	
209		London	441	Swissair-20, BEA-2	22	
210		Luxembourg	158	SABENA-12	12	
211		Paris	247	Air-France-12	12	
212		Zurich (Switz.)	49	Swissair-20	20	

1	2	3	4	5	6	7
213	Basra (Iraq)	Cairo	990	Air-France-4, BOAC-18 KLM-12	34	2 (Fr.)
214		Karachi	1263	Air-France-4, KLM-12, BOAC-10	26	2 (Fr.)
215		Kuwait (Kuwait)	78	Iraqi-6, BOAC-4	10	
216	Bastia (Cors.)	Nice	130	Air-France-24	24	
217	Bata (Rio Muni)	Santa Isabel (Fern.Po)	149	Iberia-4	4	
218	Batavia (Neth.Indies)	Singapore	558	KLM-12	12	
219	Bathurst (Cam.)	Dakar	101	BOAC-4, Air-France-2	0	
220		Freetown	416	BOAC-4, TAP-1	5	
221		Villa Cisneros (Rio de Oro)	743	TAP-1	1	
222		Zigwinchor (Fr.W-Af.)	54	Air-France-2	2	
223	Batouri (Cam.)	Berberati	92	Air-France-2	2	
224		Yaounde (Cam.)	204	Air-France-2	2	
225	Bauru (Braz.)	Campo Grande	383	PAB-2	2	
226		Sao Paulo (Braz.)	176	PAB-2	2	
227	Beira (Moz.)	Inhambane	279	DETA-2	2	
228		Lourenco Marques	444	Air-France-1	1	
229		Quelimane (Moz.)	191	Air-France-1	1	
230		Salisbury (S.Rhod.)	281	CAAC-2 DETA-2	4	

1	2	3	4	5	6	7
231 Beirut (Leb.)	Cairo	362	CGT-6, IRANAIR-2, MEA-8, Misr-48, Lebanon-3	63	6 (Egy.)	
232	Damascus	51	Iraqi-2, MEA-28, Syrian-4	34		
233	El Adaw	730	BOAC-2	2		
234	Haifa	81	MEA-10	10		
235	Lydda	138	BOAC-2, MEA-10	12		
236	Nicosia	150	MEA-10, Misr-6	16		
237 Belem (Braz.)	Carolina	410	Aerovias Brasil-4	4		
238	Cayenne	507	PAA-6	6		
239	Paramaribo	664	Aerovias Brasil-4	4		
240	Port-of-Spain	1212	PAA-12	12		
241	Rio de Janeiro	1524	PAA-32	32		
242	San Juan	1823	PAA-14	14		
243 Belfast (N.Ire.)	Dublin	84	ALT-24	24		
244 Belgrade (Yug.)	Bucharest	280	JUSTA-2, TARS-2	4		
245	Budapest	350	LOT-2	2		
246	Podgorica	171	JAT-6	6		
247	Praha	460	CSA-4, JAT-4	8		
248	Sofia	175	JUSTA-2, BVS-2	4	2 (Bulg.)	
249 Belize (Brit-Hond.)	Chetumal	68	TAMSA-4	4		
250	El Cayo (Brit.Hond.)	60	TACA de Honduras-4	4		
251	Guatemala	248	TACA El Salvador-8	8		
252	Habana	530	TACA El Salvador-8	8		

1	2	3	4	5	6	7
253	Belize (Cont'd)	Kingston	741 BIA-2	2		
254		San Pedro Sula (Hond.)	138 TACA de Honduras-4	4		
255	Bellingham (U.S.)	Seattle	88 United-28	28		
256		Vancouver(Can.)	40 United-28	28		
257	Bengasi (Libya)	Tripoli	400 Air-France-3	3		
258	Berlin (Ger.)	Frankfort	269 AOA-4	4		
259		Hamburg	154 BEA-16	16		
260		Vienna	320 BEA-4	4		
261		Warsaw (Pol.)	318 LOT-2	2		
262	Bern (Switz.)	London	450 Swissair-6	6		
263	Bhuj (India)	Jamagar	66 ASI-14	14		
264		Karachi	192 ASI-14	14		
265	Biscarosse (Fr.)	Port Etienne (Fr.W.Afr.)	1897 Air-France-1	1		
266	Bissao (Port.Gui.)	Conakry	250 Air-France-2	2		
267		Dakar	250 Air-France-2	2		
268		Zigwinchor	54 Air-France-2	2		
269	Blackbushe (U.K.)	Paris	211 TAI-2	2		
270	Blantyre (Nyasa)	Salisbury	307 CAAC-12	12		
271		Zomba (Nyasa)	33 CAAC-4	4		
272	Bloemfontein (U.of S.Af.)	Johannesburg	230 SAA-2	2		
273		Kimberley	102 SAA-2	2		
274	Boa Vista (Braz.)	Cd.Bolivar (Venez.)	412 LAV-2	2		
275	Bobo Diou- lasso (Fr.W.Af.)	Ouagadougou (Fr.W.Af.)	204 Air-France-2	2	1 (Fr.)	
276	Bogota (Col.)	Cali	200 AVIANCA-4	4		
277		Maracaibo	443 TACA de Venezuela -6	6		
278		Medellin	170 AVIANCA-4	4		

1	2	3	4	5	6	7
279	Bombay (India)	Colombo	957 BOAC-2	2	25 (UK)	
280		Dhahran	1533 TWA-4	4		
281		Hyderabad	384 Air-India-14	14		
282		Junagadh (India)	236 ASI-14	14		
283		Karachi	549 Air India-14, BOAC-2, TWA-4	20	25 (UK)	
284	Bone (Alg.)	Tunis	133 Air-France-11	11		
285	Bordeaux (Fr.)	Brussels	500 SABENA-2	2		
286		Casablanca	858 Air-France-2, TAI-1	3		
287		Lisbon	595 BEA-10, SABENA-2, Air-France-2	14		
288		London	466 BEA-22, BOAC-4	26		
289		Madrid	341 BEA-14	14		
290		Paris	300 TAI-1	1		
291		Tripoli	1106 BOAC-27	27		
292	Boston (U.S.)	Gander	916 AOA-6, PAA-6, TWA-8, Air-France-2	22		
293		New York	184 AOA-8, PAA-11, TWA-8, Air-France-2	29		
294		St. John (Can.)	319 TCA-14	14		
295		Santa Maria (Azores)	2444 PAA-5	5		
296		Shannon	2897 AOA-2	2		
297	Bowen (Austr.)	Darwin	1273 BOAC-6	6		
298		Sydney	1062 BOAC-6	6		
299	Bratislava (Czech.)	Budapest	98 CSA-6, MASZOVLET-4	10		
300		Praha	183 CSA-10, JAT-4, MASZOVLET-4	18		
301		Zagreb (Yugos.)	163 CSA-4, JAT-4	8		

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302	Brazzaville (Fr.Equat.Af.)	Coquilhatville 364	Air France-3	3	1 (Fr.)	
303		Lagos 1109	Air France-2	2		
304		Pointe Noire 235	Air-France-4	4		
305	Brindisi (It.)	Rome 293	SAS-8, Air France-4	12		
306	Brisbane (Austr.)	Darwin 1750	QEA-6	6		
307		Noumea 950	QEA-6	6		
308		Rockhampton 330	QEA-6	6		
309		Sydney 454	QEA-3	3		
310	Broken Hill (N.Rhod.)	Lusaka 65	CAAS-6	6		
311		Ndola (N.Rhod.) 100	CAAC-6	6		
312	Brownsville (U.S.)	Corpus Christi 129	PAA-14	14		
313		Mexico 460	PAA-14	14		
314		Tampico (Mex.) 251	PAA-14	14		
315	Brussels (Belg.)	Cairo 1938	SABENA-3	3		
316		Copenhagen 488	SABENA-6, SAS-14	20		
317		Dublin 484	ALT-4, SABENA-4	8		
318		Frankfort 192	PAA-14, BEA-10	24		
319		Geneva 331	SABENA-12	12		
320		Hamburg 295	SABENA-4	4		
321		Liège 50	SABENA-14	14		
322		London 218	BEA-42, SABENA-77, PAA-14	133		

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323 Brussels (Cont'd)	Luxembourg	116	SABENA-36	36		
324	Milan	436	SABENA-6	6		
325	Nice	511	SABENA-12	12		
326	Paris	159	Air France-14, SABENA-38	52		
327	Praha	435	BEA-12, CSA-4, SABENA-6	22		
328	Rome	727	SABENA-1, AVIOLINEE-4	5		
329	Shannon	587	PAA-8, SABENA-4	12		
330	Tunis	1009	SABENA-10	10		
331	Zurich	309	SABENA-18, Swissair-14	32		
332 Bucharest (Rum.)	Praha	665	CSA-2, TARS-2	4		
333	Sofia	160	TARS-2, BVS-2	4	2 (Bulg.)	
334	Warsaw	580	LOT-2	2		
335 Budapest (Hung.)	Praha	275	MASZOVLET-2	2		
336	Warsaw	342	LOT-2	2		
337 Buenos Aires (Arg.)	Colonia (Urug.)	37	CAUSA-12	12		
338	Cordoba	398	FAMA-4, ZONDA-14, PANAGRA-6	24		
339	Montevideo	154	ALFA-20, Air France-4 BSAA-4, KLM-4, CAUSA-18 IBERIA-4, SAS-4, PAA-32	90		
340	Parana	230	ALFA-6	6		
341	Porto Alegre	542	Cruzeiro-6, FAMA-6	12		
342	Rio de Janeiro	1238	BSAA-4, Cruzeiro-4, FAMA-10, ALFA-1	19		

1	2	3	4	5	6	7
343	Buenos Aires (Cont'd)	Santiago (Chile)	699	BSAA-2, FAMA-14, IAN-14, PANAGRA-14	44	
344		Sao Paulo	1051	BSAA-2	2	
345	Duffalo (U.S.)	Toronto	69	American-42	42	
346	Bulawayo (S.Rhod.)	Elisabethville	580	SABENA-2	2	
347		Francistown	104	CAAC-2	2	
348		Johannesburg	392	CAAC-8, SAA-6, SABENA-2	16	
349		Salisbury	235	CAAC-8, SAA-6	14	
350	Burlington (U.S.)	Montreal	75	Colonial-27, Northeast-28	55	
351		Plattsburg	24	Colonial-14	14	
352	Cabinda (Ang.)	Luanda (Ang.)	233	DTA-2	2	
353		Pointe Noire	56	DTA-2	2	
354	Cabo Jubi (Rio de Oro)	Ifni (Ifni)	196	Iberia-2	2	
355		Las Palmas	150	Iberia-2	2	
356	Cairns (Austr.)	Port Moresby (N.G.)	524	QEA-6	6	
357		Townsville (Austr.)	377	QEA-6	6	
358	Cairo (Egy.)	Damascus	375	Misr-8, Syrian -3	11	
359		Rahran	1172	TWA-1	1	
360		El Adem	456	BOAC-18	18	
361		Haifa	294	MEA-4, Misr-6	10	
362		Jidda	776	Saudi Arabian-4, Seoudian-1	5	
363		Juba	1730	SABENA-1	1	
364		Khartoum	1005	Air-France-2, BOAC-20, SABENA-1	23	29 (28-UK, 1-Nor)
365		London	2218	BOAC-6	6	

1	2	3	4	5	6	7
366	Cairo (Cont'd)	Luxor	314	BOAC-5, EAL-4	9	2 (Fr.)
367		Lydda	243	Air France-3, IRANAIR-2, 68 Iraqi-4, MEA-3, Misr-38, Swissair-2, TWA-11		
368		Nicosia	366	BOAC-4, Misr-4	8	
369		Paris	2007	Air France-4	4	1 (Fr.)
370		Rome	1324	KLM-4, PAB-2, SABENA-1, 14 TWA-4, Air France-1, ALI-2	14	1 (Nor.)
370 A		Teheran	1200	Iran-Airways-1	1	
371		Tripoli	1086	BOAC-20	20	84 (UK)
372		Tunis	1305	Air France-4, TWA-2	6	2 (Fr.)
373		Wadi Halfa (A.-E. Sud)	547	BOAC-3	3	
374	Calcutta (India)	Chittagong	220	Orient-14	14	
375		Dacca	150	Orient-28	28	
376		Delhi	822	BOAC-6, INA-14, PAA-4	24	
377		Karachi	1357	Air France-4, BOAC-12, KLM-16, PAA-2, QEA-3	37	27(25-UK, 2-Fr.)
378		Kunming(China)	920	CNAC-2	2	
379		Rangoon	639	BOAC-6, CNAC-2, INA-4	12	25(UK)
380		Saigon	1446	Air France-4	4	2 (Fr.)
381		Singapore	1802	QEA-3, BOAC-3	6	
382	Cali (Col.)	Quito (Ec.)	287	AVIANCA-3, PINAGRA-14	22	
383	Calvi (Cors.)	Marseille	189	Aigle Azur-6	6	
384	Camaguey(Cuba)	Cd. Trujillo	557	PAA-14	14	
385		Habana	310	Aerovias "Q"-4	4	
386		Holguin	111	Aerovias "Q"-4	4	
387		Kingston	247	PAA-23	28	
388		Miami	336	PAA-60	60	
389		Montego Bay (Jam.)	206	PAA-6	6	

1	2	3	4	5	6	7
390	Camaguey (Cont'd)	Port-au-Prince (Haiti)	412 PAA-12	12		
391	Campo Grande (Braz.)	Ponta Pora (Braz.)	157 PAB-2	2		
392		Puerto Suarez	230 PANAGRA-4	4		
393	Canton (China)	Hong-Kong	82 CNAC-6	6		
394		Kweilin (China)	255 CNAC-2	2		
395		Shanghai	750 KLM-2	2		
396	Canton Island	Honolulu	1911 BCPA-4, PAA-6	10	9 (US)	
397		Suva	1271 BCPA-4, PAA-6	10	9 (US)	
398	Capetown (U. of S. Af.)	Keetmanshoop	475 SAA-6	6		
399	Caracas (Venez.)	Cd. Bolivar	289 LAV-2	2		
400		Coro	188 PAA-14	14		
401		Curacao	168 KLM-24, PAA-30	54		
402		Habana	1330 LAV-6	6		
403		Kingston	823 BSAA-4	4		
404		Maracaibo	312 LAV-14, PAA-14, TACA de Venezuela-6, Air France-1	35		
405		Port-of-Spain	389 Air France-1, BSAA-2, PAA-2	5		
406	Casablanca (Mor.)	Dakar	1526 Air France-10, KLM-4, ALI-1	15	3 (Fr.)	
407		Lisbon	372 Air France-2, TAP-1	3		
408		Lyon	1100 Air France-4, TAI-1	5		
409		Marseille	963 Air France-6	6	1 (Fr.)	
410		Oran	421 Air France-6	6	1 (Fr.)	
411		Paris	1176 Air France-24, TAI-2	26	10 (Fr.)	
412		Rabat	60 Air Atlas-12	12	2 (Fr.)	
413		Rome	1260 KLM-4, ALI-1	5		
414		Tangier	176 Aero Portuguesa-2	2		

1	2	3	4	5	6	7
415	Casablanca (Cont'd)	Villa Cisneros	874	TAP-1		1
416	Catania (Sic.)	Rome	331	ALITALIA-6		6
417		Tripoli	346	ALITALIA-6		6
418	Cayenne (Fr.Gui.)	Paramaribo	200	PAA-6, Air France-1		7
419	San Juan (Dom. Rep.)	Curacao	442	KLM-4 PAA-29		23
420		Kingston	447	BIA-2		2
421		Miami	836	Aerovias Brazil-4 PAA-2		6
422		Port-au-Prince	160	KLM-4, PAA-14		18
423		Port-of-Spain	782	Aerovias Brazil-4 BIA-2		6
424		San Juan	249	PAA-29		29
425	Changuinola (Pan.)	Limon	56	TACA de Costa Rica-2		2
426		Sixtola (C.R.)	16	TACA de Costa Rica-2		2
427	Chetumal (Mex.)	Merida	186	TAMSA-4		4
428	Chicago (U.S.)	Detroit	219	TWA-4		4
429		Windsor (Can.)	242	TCA-28		28
430	Chiclayo (Peru)	Lima	415	PANAMA-14		14
431		Talara (Peru)	182	PANAMA-14		14
432	Chittagong (E.Pak.)	Dacca	140	Orient-14		14
433	Chunya (Tan.)	Mbeya (Tan.)	26	EAAC-2		2
434		So. Highlands (Tan.)	125	EAAC-2		2

1	2	3	4	5	6	7
435	Cleveland(U.S.)	London (Can.)	112	TCA-14	14	
436	Cloncurry (Austr.)	Darwin	865	Cathay Pacific-2	2	
437		Sydney	1250	Cathay Pacific-2	2	
438	Cochabamba (Bol.)	Oruro (Bol.)	78	PANAGRA-10	10	
439		Santa Cruz	194	PANAGRA-10	10	
440	Colombo (Cey.)	Madras (India)	399	Air India-14	14	
441		Singapore	1750	BOAC-2	2	5)UK)
442	Conakry (Fr.W.Af.)	Dakar	434	Air France-6	6	
443		Freetown	92	Air France-6	6	
444		Kankan	275	Air France-2	2	
445		Robertsfield	275	Air-France-2	2	
446	Concepcion (Bol.)	San Ignacio de Velasco	78	PANAGRA-4	4	
447		Santa Cruz (Bol.)	129	PANAGRA-4	4	
448	Copenhagen (Den.)	Frankfort	418	SAS-30	30	
449		Geneva	709	SAS-4	4	
450		Glasgow (U.K.)	674	BEA-6	6	
451		Goteborg	147	SAS-42	42	
452		Hamburg	182	SAS-14	14	
453		London	600	BEA-14, SAS-20	34	
454		Malmo	23	SAS-168	168	
455		Oslo	322	CSA-2, SAS-28	30	
456		Paris	656	SAS-20	20	
457		Praha	394	CSA-8, SAS-14	22	
458		Prestwick	674	AOA-2, Iceland Airways-2, SAS-8	12	

1	2	3	4	5	6	7
459 Copenhagen (Cont'd.)	Reykjavik	1335	AOA-4	4	2(Ice.)	
460	Stockholm	325	AOA-6, BEA-14, CSA-4, KLM-14 SAS-78, Swissair-4	120		
461	Zurich	597	Swissair-4	4		
462 Coghilhatville (Bel.Congo)	Leopoldville	369	SABENA-2	2		
463	Libenge	251	SABENA-2	2		
464 Cordoba (Arg.)	Mendoza	291	ZONDA-7	7		
465	Tucuman (Arg.)	316	PANAGRA-6, FAMA-4, ZONDA-7	17		
466 Coro (Venez.)	Las Piedras	43	LAV-4	4		
467	Maracaibo	142	PAA-14	14		
468 Corpus Christi (U.S.)	Houston	185	PAA-14	14		
469 Corrientes (Arg.)	Formosa	99	ALFA-4	4		
470	Parana	312	ALFA-4	4		
471 Costermansville (Bel.Congo)	Goma(Bel.Congo)	65	Air Congo-4	4		
472	Irumu(Bel.Congo)	284	SABENA-2	2		
473	Usumbura	78	Air Congo-4 SABENA-6	10		
474 Cotonou (Fr.W.Af.)	Lagos	68	Air-France-4	4		

1	2	3	4	5	6	7
475	Cotonou (Cont'd)	Lome	80	Air France-4	4	
476	Cuenca (Ec.)	Guayaquil	70	AVIANCA-4	4	
477	Curacao	New York	1977	KLM-4	4	
478		Port-of-Spain	514	KLM-10	10	
479		St. Martin (Cur.)	555	KLM-2	2	
480	Curityba (Braz.)	Iguassu Falls	333	PAB-2	2	
481		Sao Paulo	204	PAB-2	2	
482	Cutbank/Shelby (U.S.)	Lethbridge (Can.)	72	Western-14	14	
483	Dacca (E.Pak.)	Delhi	870	Orient-14	14	
484	Dakar (Fr.W.Af.)	Kayes	348	Air France-2	2	
485		Lisbon	1739	BSAA-8, KLM-4 PAA-4, PAB-6, SAS-4	26	
486		Madrid	1980	FAMA-4	4	
487		Natal	1870	BSAA-8, FAMA-2, KLM-4	14	
488		Recife	1993	Air France-4, FAMA-2, PAB-6, SAS-4, ALI-1	17	
489	Dallas/Ft.Worth (U.S.)	Mexico	940	American-7	7	
490		S.Antonio(U.S.)	250	American-21	21	
491	Damascus (Syr.)	Istanbul	660	PAA-1	1	
492		London	2216	PAA-1	1	
493	Danzig (Pol.)	Stockholm	350	LOT-4	4	
494		Warsaw	250	LOT-4	4	
495	Dar es Salaam (Tan.)	Morogoro (Tan.)	113	EAAC-4	4	
496		Nairobi	415	BOAC-2 Air France-2	4	

1	2	3	4	5	6	7
497	Dar es Salaam (Cont'd)	Tananarive (Mad.)	980	Air France-2	2	
498		Tanga	117	EAAC-10	10	
499		Zanzibar(Zanz.)	48	EAAC-22	22	
500	Darwin (Austr.)	Manila	2100	QEA-4	4	
501		Moretai I. (Neth. Indies)	1032	Cathay Pacific-2	2	
502		Singapore	2091	QEA-6	6	
503		Soerabaya (Neth. (Indies)	1294	BOAC-6	6	
504		Sydney	1965	QEA-6	6	
505	David (Pan.)	San Jose	159	PAA-14	14	
506	Deir ez Zor (Syr.)	Hassetche	87	Syrian-1	1	
507	Delhi (India)	Karachi	675	BOAC-8, PAA-4	12	
508		Lahore	261	INA-16	16	
509	Detroit (U.S.)	Gander	1469	TWA-3	3	
510		Windsor (Can.)	32	American-14	14	
511	Dhahran (Saudi Arab)	Hasa	86	Saudi Arabian-2	2	
512		Karachi	1079	BOAC-14, TWA-4,	18	
513		Lydda	1002	BOAC-14, TWA-9	23	
514		Riyadh	238	Saudi Arabian-2	2	
515	Dire Dawa(Eth.)	Djibouti	160	EAL-2	2	
516	Dodoma (Tan.)	Kongwa	46	EAAC-2	2	
517		Tabora (Tan.)	216	EAAC-2	2	
518	Douala (Cam.)	Lagos	476	Air-France-4	4	
519		Libreville	256	Air France-2	2	
520		Yaounde	128	Air France-2	2	

1	2	3	4	5	6	7
521 Dublin (Ire)	Glasgow	197	ALT-36	36		
522	Liverpool (U.K.)	142	ALT-48	48		
523	London	281	ALT-100	100		
524	Manchester	166	ALT-4, KLM-6	10		
525	Paris	497	ALT-4	4		
526 Duluth (U.S.)	Fort William	172	TCA-12	12		
527 Eindhoven (Neth.)	Frankfort	175	KLM-6	6		
528	London	241	KLM-12	12		
529	Zurich	325	KLM-6	6		
530 El Adem (Libya)	Lydda	642	BOAC-6	6		
531	Valetta (Malta)	603	BOAC-18	18		
532 Elisabethville (Bel. Congo)	Leopoldville	964	SABENA-2	2		
533	Luluabourg (Bel. Congo)	520	SABENA-2, TAP-1	3		
534	Manono	319	SABENA-2	2		
535	Salisbury	477	TAP-1	1		
536 El Paso (U.S.)	Monterrey	555	American-14	14		
537 Entebbe (Ugan.)	Kisumu	157	EAAC-6	6		
538 Espiritu Santo	Pt. Moresby	100	QEA-1	1		
539 Fairbanks (Alsk.)	Galena	273	PAA-4	4		
540	Seattle	1526	PAA-5	5		
541	Whitehorse (Can.)	489	PAA-9, TCA-6	15		
542 Fez (Mor.)	Oujda (Mor.)	184	Air Atlas-12	12		
543	Rabat	100	Air Atlas-12	12		
544 Foochow (China)	Shanghai	385	CNAC-4	4		
545 Fort Archambault (Fr. Equat. Af.)	Fort Lamy	305	Air France-2	2	1 (Fr.)	

1	2	3	4	5	6	7
546 Fort de France (Mart.)	Pointe à Pitre (Quad.)	118	Air France-2	2		
547	Port Etienne (Fr.W.Af.)	2929	Air France-1	1		
548	Port-of-Spain	270	Air France-2	2		
549 Fort Jameson (N.Rhod.)	Lilongwe	78	CAAC-2	2		
550 Port Lamy (Fr.Equat.Af.)	Kamo	438	Air France-2	2	1 (Fr.)	
551 Fort William (Can.)	Sault Ste.Marie (U.S.)	267	TCA-28	28		
552	Winnipeg (Can.)	375	TCA-21	21		
553 Francistown (Bech.)	Maun (Bech.)	276	CAAC-2	22		
554 Frankfort (Ger.)	Geneva	294	SAS-16	16		
555	Hamburg	244	SAS-14, BEA-4	18		
556	London	409	BEA-16	16		
557	Munich	300	KLM-4	4		
558	Paris	293	Air France-6	6		
559	Praha	252	CSA-2, BEA-10, PAA-14	26		
560	Shannon	778	AOA-2	2		
561	Vienna (Aust.)	359	BEA-14	14		
562	Zurich	192	BEA-10, SAS-28	38		
563 Freetown (S.L.)	Robertsfield	235	Air France-2	2		
564	Takoradi	798	BOAC-2, TAP-1	3		
565 Galena (Alask.)	Nome (Alask.)	250	PAA-4	4		

1	2	3	4	5	6	7
566 Gander (Nfd.)	Montreal	923	BOAC-8	8		
567	New York	1100	AOA-42, Air France-12 BOAC-12, KLM-18 PAA-41, Swissair-1 SABENA-4, SAS-14 TWA-28	172		
568	Prestwick	2121	BOAC-10 KLM-18 SAS-14	42		
569	Reykjavik	1579	AOA-6	6	15 (Ice.)	
570	Santa Maria	1691	TWA-8	8		
571	Shannon	1982	Air France-14 AOA-42, BOAC-6, PAA-47, SABENA-4, TWA-32, Swissair-1	146		
572	St. John's (Nfd.)	107	TCA-14	14		
573	Sydney (Can.)	327	TCA-14	14		
574 Gao (Fr.W.Af.)	Niamey	241	Air France-2	2	1 (Fr.)	
575	Ouagadougou	283	Air France-2	2	1 (Fr.)	
576 Gatwick (U.K.)	Paris	211	TAI-2	2		
577 Geita (Tan.)	Mwanza (Tan.)	57	EAAC-2	2		
578	Shinyanga	105	EAAC-2	2		
579 Geneva (Switz.)	Lisbon	925	SAS-4	4		
580	London	462	BEA-16 Swissair-14	30		
581	Lydda	1804	Swissair-2	2		
582	Madrid	629	KLM-6, Swissair-4	10		
583	Nice	180	SAS-14, Air France-4	18		
584	Paris	245	Air France-14 Swissair-14, TWA-16	44		
585	Rome	447	KLM-6, AvioLinee-1 TWA-18, SAS-1	26	1 (Nor.)	
586	Shannon	808	TWA-2, Swissair-1	3		
587	Tunis	915	Swissair-1	1		
588	Zurich	140	Swissair-8	8		

1	2	3	4	5	6	7
589 Georgetown (Brit. Gui.)	Paramaribo	222	BIA-6, PAA-6	12		
590	Port-of-Spain	353	PAA-6	6		
591 Gibraltar	Madrid	308	BEA-10	10		
592	Tangier	42	GAL-56	56		
593 Gelfito (C.R.)	San Isidro (C.R.)	52	LACSA-4	4		
594 Goteborg (Swed.)	Karlstad (Swed.)	160	SAS-14	14		
595	London	646	DEA-6	6		
596	Oslo	162	SAS-28	28		
597 Gracias (Hond.)	La Esperanza	26	TACA de Hondu- ras-4	4		
598	Santa Rosa (Hond.)	22	TACA de Hondu- ras-4	4		
599 Grand Forks (U.S.)	Winnipeg (Can.)	135	Northwest-28	28		
600 Grenada (Winward Is.)	Port-of-Spain	99	BIA-8	8		
601	St. Lucia	134	BIA-4	4		
602 Guadalajara (Mex.)	Mazatlan (Mex.)	268	CMA-14	14		
603	Mexico	285	CMA-14	14		
604 Guam	Kwajalein	1583	PAL-4	4		
605	Manila	1599	PAA-10, PAL-4	14	14(US)	
606	Okinawa	1419	PAA-2	2		
607	Shanghai	1945	CNAC-2, PAA-2	4		
608	Wake Island	1500	PAA-12, CNAC-2	14	14(US)	
609 Guatemala (Guat.)	Merida	437	PAA-20	20		
610	Mexico	658	PAA-28, TACA EL Salvador-14	42		
611	San Salvador	115	PAA-49, TACA EL Salvador-22	71		
612	Tapachula (Mex.)	118	PAA-14	14		
613 Guayaquil (Ec.)	Lima	716	PANAGRA-8	8		

1	2	3	4	5	6	7
614	Guayaquil (Cont'd)	Quito	167	AVIANCA-8 PANAGRA-14	22	
615		Talara	192	PANAGRA-14	14	
616	Habana (Cuba)	Key West	114	Aerovias "Q"-14	14	
617		Kingston	499	KLM-4	4	
618		Merida	493	CMA-4, PAA-20	24	
619		Mexico	1098	CMA-10	10	
620		Miami	235	Cubana-42, Expre- so-26, National- 14, TACA EL Salvador-4, PAA-104 KLM-4	194	
621		Nassau	300	BSAA-2	2	
622		New Orleans	685	C&S-14	14	
623		New York	1320	LAV-6	6	
624		Panama	986	PIA-4	4	
625		San Salvador	777	TACA EL Salvador -4	4	
626		Tampa	343	National-14	14	
627		Washington	1129	PIA-4	4	
628	Haifa (Pal.)	Lydda	55	Arab Airways-2, Misr-6	8	
629		Nicosia	187	MEA-6	6	
630	Haiphong (China)	Hanoi	75	Air France-2	2	
631		Hong Kong	550	Air France-2	2	
632	Halifax (Can.)	Yarmouth	136	TCA-14	14	
633	Hamburg (Ger.)	London	445	BEA-18	18	
634	Hami (China)	Tihwa	306	Hamiata-2	2	
635	Hamilton (Ber.)	Kingston	1202	BSAA-2	2	
636		Montreal	1200	TCA-8	8	
637		Nassau	912	BSAA-4	4	
638		New York	773	Colonial-14 PAA-20, BOAC-8	42	

1	2	3	4	5	6	7
639 Hamilton (Cont'd)	Santa Maria	2256	BSAA-4	4		
640	Washington	827	Colonial-2	2		
641 Hankow (China)	Kweilin	446	CNAC-2	2		
642	Nanking	288	CNAC-2	2		
643 Hanoi	Kunming	400	CNAC-2	2		
644	Saigon	750	Air France-7	7		
645 Hargeisa (Brit.Somlnd.)	Mogadiscio	529	Clairways-2, BOAC-2	4		
646 Hasa (Saudi Arab.)	Riyadh	182	Saudi Arabian-2	2		
647 Hassatche (Syr.)	Kamechlie (Syr.)	42	Syrian-1	1		
648 Helsinki (Fin.)	Stockholm	255	Aero Q/Y-24 AOA-6, BEA-2, SAS-18	50		
649 Hermosillo(Mex.)	Mazatlan	497	CMA-14	14		
650	Mexicali (Mex.)	359	CMA-14	14		
651 Holguin (Cuba)	Port-au-Prince (Haiti)	302	Aerovias "Q"-4	4		
652 Hong Kong	Iwakuni	2212	BOAC-2	2		
653	Kunming	756	CNAC-4, CATC-4	8		
654	Manila	701	Cathay Pacific-8, PAL-6	14		
655	Saigon	944	Air France-2, CNAC-2	4		
656	Shanghai	757	CNAC-6, PAL-2, Air France-1, CATC-8, HA-6, PAA-2	37		
657	Singapore	1750	BOAC-4	4	5(UK)	
658	Swatow	175	CNAC-2	2		
659 Honiara	Nauru	760	QEA-2	2		
660 Honolulu (Haw.)	Kwajalein	2316	PAL-4	4		
661	Los Angeles	2553	PAA-22	22	54(US)	
662	Midway Island	1310	PAA-12, CNAC-2	14	14(US)	
663	San Francisco	2400	DCPA-4, PAA-40, PAL-4, United-14, CNAC-2	64	162(US)	

1	2	3	4	5	6	7
664	Honolulu (Con'd)	Vancouver	3000	TCA-4	4	
665	Houston (U.S.)	Mexico	746	PAA-14	14	
666	Hyderabad (India)	Madras	324	Air India-14	14	
668	Inhambane (Moz.)	Lourenco Marques	231	DETA-2	2	
669	Ipoh (Mal.U.)	Kuala Lumpur	109	Malayan-14	14	
670		Penang (Mal.U.)	78	Malayan-14	14	
671	Irumu (Bel.Congo)	Stanleyville (Bel.Congo)	332	SAPUNA-4	4	
672		Usumbura	340	SABENA-2	2	
673	Istanbul (Turk.)	Karachi	2462	PAA-4	4	
674		London	1567	PAA-5	5	
675		Rome	860	KLM-2, SISA-1	3	
676	Jamnagar (India)	Junagadh	68	ASI-14	14	
677	Jersy (Chan.Is.)	Paris	205	BEA-2	2	
678		Rennes (Fr.)	79	BEA-4	4	
679	Jidda (Saudi Arab.)	Luxor	513	BOAC-2	2	
680		Port Sudan	177	BOAC-2	2	
681		Riyadh	513	Saudi Arab- ian-2	2	
682		Taif	76	Saudi Arab- ian-2	2	
683	Johannesburg (U.of S.Af.)	Kimberley	274	SAA-4	4	
684		Kisumu (Kenya)	1838	SAA-4	4	
685		Leopoldville	1732	KLM-4, PAA-4, SAA-2, Swiss- air 1	11	
686		Lourenco Marques	276	DETA-4, SAA-4	8	
687		Nairobi	1825	BOAC-8	8 (Nor.)	

1	2	3	4	5	6	7
688	Johannesburg (Con'd)	Salisbury	602	BOAC-6, SAA-4	10	
689	Juba (A.-E.Sud.)	Khartoum	737	SABENA-1	1	
690		Kisumu	401	BOAC-4	4	
691		Malakal (A.-E.Sud)	324	BOAC-4	4	
692		Stanleyville	539	SABENA-2	2	
693	Juneau (Alaska)	Ketchikan	257	PAA-19	19	
694		Seattle	906	PAA-10	10	
695		Whitehorse	163	PAA-5	5	
696	Kabalo (Bel.Congo)	Luluabourg	311	SABENA-2	2	
697		Usumbura	252	SABENA-2	2	
698	Kabul (Afg.)	Peshawar (W.Pak.)	180	ORIENT-6	6*	
699	Kano (Nig.)	Lagos	518	AIR FRANCE-2, BOAC-12	14	
700		Leopoldville	1223	KLM-4, SABENA- 10, Swissair- 1	15	
701		Tripoli	1453	BOAC-12	12	
702		Tunis	1697	KLM-4, SABE- NA-10, SWISS- AIR-1	15	
703		Zinder (Fr.W.Af.)	125	AIR FRANCE-2	2	
704	Karachi (W.Pak.)	Lahore	640	ORIENT-14	14	
705		Lydda	2086	BOAC-6	6	
706		Quetta (W.Pak.)	371	ORIENT-20	20	
707		Singapore	3064	QEA-3	3	
708	Kasama (N.Rhod.)	Mbeya	171	EAAC-2	2	
709		Ndola (N.Rhod.)	263	EAAC-4	4	
710		Shiwa Ngandu	81	EAAC-2	2	
711		Tabora	377	EAAC-4	4	
712	Kassala (A.E.Sud)	Khartoum	259	SUDAN-2	2	

*) Proposed

1	2	3	4	5	6	7
713	Keetmanshoop (S.W.A.)	Upington (U. of S.A.)	233 SAA-6	6		
714		Windhoek (S.W.Af.)	272 SAA-12	12		
715	Kermanshah (Iran)	Teheran	249 IRANIAN STATE-4	4		
716	Ketchikan (Alsk.)	Seattle	656 PAA-19	19		
717	Khartoum (A.E.S.)	Luxor	800 BOAC-1	1		
718		Malakal	415 BOAC-4	4		
719		Mombasa	1475 BOAC-2	2		
720		Nairobi	1192 BOAC-14 AIR FRANCE-26	16	29(28-UK 1-Nor.)	
721		Port Bell	1100 BOAC-4	4		
722		Tripoli	1693 SAA-4	4		
723		Wadi Halfa	441 BOAC-2	2		
724	Kimberley (A.S.A.)	Upington	223 SAA-6	6		
725	Kingston (Jam.)	Miami	589 KLM-10, PAA-2	12		
726		Montego Bay	85 PAA-6	6		
727		Nassau	490 SAA-12	12		
728		Port-auPrince (Haiti)	295 KLM-4, PAA-2	6		
729		St. Kitts	919 BIA-2	2		
730	Kismayo (it.Somld.)	Mogadiscio (it.Somld)	255 CLAIRWAYS-4	4		
731		Nairobi	398 CLAIRWAYS-4	4		
732	Kisumu (Kenya)	Nairobi	164 BOAC-4, EAAC-6	10		
733	Kongwa (Tan.)	Morogoro	97 EAAC-4	4		
734		Nduli	112 EAAC-2	2		
735	Kota Bharu (Mal.U.)	Kuala Lumpur	212 MALAYAN-2	2		
736	Kristiansand (Nor.)	Oslo	160 SAS-6, KLM-6	12		
737		Stavanger (Nor.)	98 SAS-14	14		

- 40 -
(71 - E/F/S - A)

1	2	3	4	5	6	7
738 Kuala Lumpur (Mal.U.)	Kuantan(Mal.U.)	127	Malayan-2	2		
739	Singapore	205	Malayan-18	18		
740 Kunming	Rangoon	700	CNAC-2	2		
741 Lae (N.G.)	Port Moresby	188	QEA-6	6		
742 La Esperanza (Hond.)	Tegucigalpa (Hond.)	75	TACA de Honduras-		4	4
743 Lahore (W.Pak.)	Quetta	454	Orient-6	6		
744	Rawalpindi	162	Orient-10	10		
745 La Paz (Bol.)	Oruro (W.Pak.)	124	PANAGRA-14	14		
746 Las Palmas (Can.Is.)	Santa Cruz (Can.Is.)	71	IBERIA-2	2		
747 Leopoldville (Bel.Congo)	Luanda	332	DTA-2, TAP-1	3		
748	Luluabourg	495	SABENA-4, TAP-1	5		
749 Libreville (Fr. Equat.Afr.)	Luanda	685	TAP-1	1		
750	Pointe Noire	400	Air-France-2	2		
751	Port Gentil	94	Air France-2	2		
752 Liège (Bel.)	Paris	193	SABENA-14	14		
753 Lille (Fr.)	London	149	Air Transport-12	12		
754	Manchester	295	Air Transport-4	4		
755 Lilongwe(Nyasa)	Zomba	130	CAAC-4	4		
756 Lima (Peru)	Panama	1488	PIA-4	4		
757	Santiago	1535	BSAA-2, PANAGRA- 6	8		
758 Limon (C.R.)	San José	74	TACA de Costa Rica-4	4		
759	Sixaola	39	TACA de Costa Rica-2	2		
760 Lisbon (Port.)	London	984	BSAA-10	10		
761	Madrid	319	Iberia-6, KLM-6, BEA-2, Swissair- 4, TAP-6, TWA-8	32		
762	Paris	904	SAS-2, Air Fran- ce-4, PAB-4	10		
763	Rome	1156	PAB-2, LAI-1	3		

1	2	3	4	5	6	7
764	Lisbon (Cont'd)	Santa Maria	885	TWA-20	20	
765		Tangier	277	Aero Portugue- sa-2, Air France- 2	4	
766	London (Can.)	Toronto	95	TCA-28	28	
767		Windsor	101	TCA-14	14	
768	London (U.K.)	Lydda	2208	BOAC-3	3	
769		Madrid	795	Iberia-2	2	
770		Marseille	618	BEA-28, BOAC-20	48	
771		Montreal	3600	BOAC-2	2	
772		New York	3450	PAA-7	7	
773		Oslo	720	BEA-6	6	
774		Paris	211	Air France-56 BEA-84, FAMA-2, PAB-2	144	
775		Praha	651	BEA-14, CSA-14 PAA-1	29	
776		Prestwick	328	BOAC-6	6	
777		Rome	890	Aviolinee-8	8	
778		Santa Maria	1569	BSAA-4	4	
779		Shannon	370	ALT-6, AOA-28, BOAC-6, PAA-38, TCA-2	80	
780		Stavanger	560	BEA-6, SAS-20	26	
781		Sydney (Can.)	2722	TCA-12	12	
782		Tripoli	1449	BOAC-28, SAA-4	32	84 (U.K.)
783		Zurich	482	Swissair-14, BEA-14	28	
784	Los Angeles (US)	Mexicali	191	GMA-14	14	
785		Mexico	1541	GMA-14	14	
786	Lourenco Marques (Moz.)	Salisbury	163	TAP-1	1	
787	Lulagi	Port Moresby	900	QEA-1	1	
788	Lusaka (N.Rhod.)	Ndola	163	CAAC-4	4	
789		Salisbury	239	CAAC-12	12	

1	2	3	4	5	6	7
790 Luxor (Egy.)	Wadi Halfa	271	BOAC-4	4		
791 Lydda (Pal.)	Nicosia	238	BOAC-2, MEA-6, Misr-4	12		
792	Paris	2050	Air France-4	4		
793	Rome	1375	KLM-4, SAS-1, Air France-6	11		
794	Tehran	975	SAS-1	1		
795	Tripoli	1277	BOAC-17	17		
796 Lyon	Paris	248	TAI-1	1		
797 Madrid (Sp.)	Paris	645	FAMA-2	2		
798	Rome	847	FAMA-2, Iberia-2, TWA-6, LAI-1	10		
799	Tangier	338	Iberia-6	6		
800	Villa Cisneros	1346	Iberia-2	2		
801 Managua (Nic.)	San José	206	PAA-28, TACA de Costa Rica-14	42		
802	San Salvador	224	PAA-28	28		
803	Tegucigalpa	149	PAA-14, TACA de Costa Rica-14	28		
804 Manchester (UK)	Paris	376	Air France-4	4		
805 Manila (Phil.)	Marotai I.	989	Cathay Pacific-2	2		
806	Shanghai	1153	Northwest-6, PAL-4, CNAC-2, PAA-2	18		
807	Zamboanga	560	KLM-2	2		
808 Manono (Bel. Congo)	Usumbura	295	SABENA-2	2		
809 Marseille (Fr.)	Oran	614	Air France-4	4		
810	Paris	412	Air France-14	14		
811	Rome	373	BEA-20, BOAC-2, MEA-2	24		
812	Southampton	650	BOAC-12	12		
813	Tunis	507	Air France-8, TAI-12	20		
814	Valetta	710	BOAC-18	18		
815	Zurich	318	SAS-6	6		
816 Massena (U.S.)	Ottawa	49	Colonial-28	28		

1	2	3	4	5	6	7
817	Massena (Cont'd)	Plattsburg	67	Colonial-14	14	
818	Maturin (Venez.)	Port-of-Spain	138	LAV-14, PAA-14	28	
819	Mauritius	Reunion Island	144	Air France-2	2	
820	Medan (Neth. Indies)	Penang (Malay U.)	246	KLM-4	4	
821		Singapore	508	KLM-4	4	
822	Melbourne (Austn)	Sydney	520	BCPA-6	6	
823	Mendoza (Arg.)	Santiago	121	ZONDA-12, LIPA-12	24	
824	Merida (Mex.)	Mexico	617	OMA-4	4	
825		New Orleans	635	PAA-14	14	
826	Mexico (Mex.)	Monterrey	452	American-28	28	
827		San Antonio	700	American-7	7	
828		Tampico	213	PAA-14	14	
829		Tapachula	549	PAA-14	14	
830	Miami (U.S.)	Nassau	188	PAA-14, BSAA-6	20	
831		New York	1210	FAMA-2	2	
832		Port-of-Spain	1600	FAMA-2	2	
833		San Juan	1040	Eastern-14, PAA-14	28	
834	Midway Island	Wake Island	1186	PAA-8, CNAC-2	10	14 (U.S.)
835	Milan (It.)	Trieste	224	SISA-14	14	
836	Mombasa (Kenya)	Nairobi	267	EAAC-10	10	
837		Tanga	83	EAAC-12	12	
838	Monterrey (Mex.)	San Antonio	275	American-14	14	
839	Montevideo (Urug)	Natal	2438	Iberia-2	2	
840		Pelotas	298	VARIG-6	6	
841		Porto Alegre	434	PAA-18	18	
842		Rio de Janeiro	1131	Air France-4, BSAA-4, KLM-4, PAA-14, SAS-4	30	
843		Santiago	990	KLM-4	4	
844		Sao Paulo	1100	BSAA-2	2	
845	Montreal (Can.)	Nassau	1800	TCA-7	7	
846		New York	325	Colonial-67	67	

1	2	3	4	5	6	7
847	Montreal (Cont'd)	Ottawa	94	Colonial 62	62	
848		Sydney (Can.)	658	TCA-14	14	
849	Morotai Island	Port Moresby	1500	QEA-1	1	
850	Moscow (U.S.S.R.)	Sofia	1055	Aeroflot-4, BVS-2	6	2 (Bulg.)
851	Moshi (Tan.)	Nairobi	143	EAAC-10	10	
852		Tanga	167	EAAC-10	10	
853	Mozambique (Moz.)	Quelimane	320	Air France-1	1	
854		Tananarive	511	Air France-1	1	
855	Mpika (N. Rhod.)	Ndola	213	CAAC-2	2	
856		Shiwa Ngandu	46	CAAC-2	2	
857	Musoma (Tan.)	Mwanza	102	EAAC-2	2	
858		Nairobi	205	EAAC-2	2	
859	Nairobi (Kenya)	Salisbury	1204	BOAC-2	2	
860		Tabora	385	CAAC-4	4	
861	Nanking (China)	Shanghai	165	CNAC-2	2	
862	Naples (It.)	Rome	116	SISA-14	14	
863	Natal (Braz.)	Port-of-Spain	2150	FAMA-2	2	
864		Rio de Janeiro	1296	BSAA-7, FAMA-4, KLM-4	15	
865		Sao Paulo	1439	BSAA-2	2	
866		Villa Cisneros	2473	Iberia-2	2	
867	Nauru	Port Moresby	1500	QEA-1	1	
868	Nduli (Tan.)	So. Highlands	56	EAAC-2	2	
869	New Orleans (U.S.)	San Salvador	1107	TACA El Salvador-4	4	
870	New York (U.S.)	Philadelphia	95	AOA-7, TWA-5	12	
871		San Juan (P.R.)	1612	PAA-58	58	
872		Santa Maria	2605	PAA-7	7	
873		Shannon	3081	AOA-8	8	
874		Toronto	351	TCA-56	56	
875		Washington	215	PAA-2, PIA-4, TWA-6	12	
876	Niamey (Fr. W. Af.)	Zinder	457	Air France-2	2	1 (Fr.)
877	Nice (Fr.)	Paris	424	Air France-4	4	
878		Rome	294	Air France-4, SAS-8	12	

1	2	3	4	5	6	7
879	Nice (Cont'd)	Tunis	562	Aigle-Asur-7	7	
880	Norfolk Island	Nouméa	425	NZNAC-3	3	
881	Noumea (New Cal.)	Suva	788	PAA-4, QEA-2	6	
882		Sydney	1232	PAA-4, QEA-2	6	
883	Ocotopeque (Hond.)	San Salvador	51	TACA de Honduras-4	4	
884		Santa Rosa	34	TACA de Honduras-4	4	
885	Okinawa	Shanghai	510	PAA-2	2	
886	Oran (Alg.)	Oujda	102	Air Atlas-12	12	
887		Paris	931	Air France-8, TAI-1	9	
888		Perpignan	531	Air Atlas-2	2	
889		Rabat	363	Air France-14	14	
890		Tangier	295	Air Atlas-12	12	
891		Toulouse	556	Air France-2	2	
892	Oruro (Bol.)	Uyuni (Bol.)	175	PANAGRA-4	4	
893	Oslo (Nor.)	Prestwick	661	AOA-2, SAS-12	14	
894		Reykjavik (Ice.)	1110	AOA-2	2	2 (Ice.)
895		Stavanger	203	BEA-6, SAS-28	34	
896		Stockholm	247	AOA-4, SAS-20	24	
897	Ottawa (Can.)	Syracuse (U.S.)	159	Colonial-14	14	
898	Palembang	Singapore	393	KLM-6	6	
898-A	Palermo	Tunis	200	Sicula-2	2	
899	Panama (Pan.)	San Jose	316	TACA El Salvador-14	14	
900	Paramaribo (Suri.)	Port-of-Spain	538	Aerovias Brasil-4, KLM-6, Air France-1	11	
901	Parana (Arg.)	Reconquista	186	ALFA-2	2	
903	Paris (Fr.)	Praha	547	CSA-14, Air France-6	20	
904		Rome	691	IRANAIR-2, Air France-4, Avio-linee-10	16	
905		Shannon	565	Air France-14, TWA-30	44	
906		Tunis	914	Air France-6, TAI-2	8	2 (Fr.)
907		Warsaw	849	LOT-4	4	
908		Zurich	297	Air France-6, Swissair-14	20	

1	2	3	4	5	6	7
909	Parrita (C.R.)	San Isidro	53	LACSA-4	4	
910		San Jose	34	LACSA-4	4	
911	Pelotas (Braz.)	Porto Alegre	141	VARIG-6	6	
912	Peshawar (W.Pak.)	Rawalpindi	195	ORIENT-10	10	
913	Philadelphia (U.S.)	Washington	120	AOA-7, TWA-1	8	
914	Phnom-Penh (Fr. I.C.)	Saigon	130	Air France-1	1	
915	Podgorica (Yugos.)	Tirana (Alb.)	83	JAT-6	6	
916	Port Bell (Uganda)	Victoria Falls	125	BOAC-4	4	
917	Port Moresby	Townsville	900	QEA-6	6	
918	Port-of-Spain (Trin.)	San Juan	631	PAA-17	17	
919		St. Lucia	220	PAA-6	6	
920	Porto Alegre (Braz.)	Sao Paulo	523	Cruzeiro-6, FAMA-6, PAA-18, VARIG-6	36	
922	Praha (Czech.)	Rome	569	CSA-6, Aviolinee-1	7	
923		Shannon	1014	PAA-1	1	
924		Sofia	635	CSA-2, BVS-2	4	2 (Bulg.)
925		Vienna	149	PAA-14	14	
926		Warsaw	317	CSA-2, LOT-6, Swissair-2	10	
927		Zurich	324	CSA-12, LOT-4, Swissair-8	24	
928	Frestwick (U.K.)	Reykjavik	845	Icelandic Airways-2	2	11 (Ice.)
929		Shannon	262	AOA-4	4	
930		Stavanger	438	SAS-8	8	
931		Sydney (Can.)	2473	TGA-12	12	
932	Puerto Suarez (Bol.)	Robore	134	PANAGRA-4	4	
933		Santa Cruz	363	PANAGRA-4	4	
934	Quetta (W.Pak.)	Tehran	1000	Orient-6	6 *	

* Proposed

1	2	3	4	5	6	7
935	Rabat (Mor.)	Tangier	134	Air Atlas-14	14	
936	Rangoon(Burma)	Singapore	1201	BOAC-6	6	30 (U.K.)
937	Recife (Braz.)	Rio de Janeiro	1162	Air France-4, FAMA-2, PAB-6, SAS-4	16	
938	Reconquista(Arg.)	Resistencia	122	ALFA-2	2	
939	Reunion Island	Tananarive	541	Air France-2	2	
940	Rio de Janeiro (Braz.)	Sao Paulo	226	Cruzeiro-6, FAMA-6, PAA-18, PAB-4, VARIG-6, BSAA-2	42	
941	Riyadh (Saudi Arabia)	Taif (Saudi Arabia)	455	Saudi Arabian-2	2	
942	Robore (Bol.)	San Jose	75	PANAGRA-4	4	
943	Rockhampton (Austr.)	Townsville	372	QEA-6	6	
944	Rome (It.)	Trieste	266	SISA-14	14	
945		Tunis	365	Air France-6, KLM-6	12	
946		Valetta	425	BEA-4	4	
947	Saigon (Fr.I.C.)	Singapore	700	CNAC-2	2	
948		Tourane	372	Air France-1	1	
949	Salta (Arg.)	Tucuman	144	PANAGRA-6, FAMA-4, ZONDA-7	17	
950		Uyuni	310	PANAGRA-4, FAMA-4	8	
951	San Francisco (U.S.)	Vancouver (Can.)	795	BCPA-4	4	
952	San Ignacio de V. (Bol.)	San Jose	105	PANAGRA-4	4	
953	San Juan (P.R.)	St.Thomas (Virgin Is.)	75	PAA-28	28	
954	San Salvador (El Salvador)	Tegucigalpa	131	PAA-14, TACA de Costa Rica-14	28	
955	Sault Ste Marie (U.S.)	Toronto	303	TCA-28	28	
956	Seattle (U.S.)	Vancouver	122	United-42	42	
957		Victoria (Can.)	75	TCA-28	28	
958		Whitehorse	1046	PAA-4	4	

1	2	3	4	5	6	7
959	Seville (Sp.)	Tangier	112	Iberia-12	12	
960	Shanghai (China)	Taipeh (Formosa)	433	CNAC-10	10	
961		Tokyo	1099	Northwest-6, CNAC-4, BOAC-2	14	
962	Shannon (Ire.)	Sydney (Can.)	2309	TCA-4	4	
963	Shinyanga (Tan.)	Tabora (Tan.)	104	EAAC-2	2	
964	Singapore	Soerabaya	850	QEA-6, BOAC-6	12	
965		Tanjung Pinang	390	KIM-2	2	
966	St. John (Can.)	Yarmouth	100	TCA-14	14	
967	St. John's (Leeward Is.)	St. Lucia	239	PAA-6	6	
968		St. Thomas	226	PAA-6	6	
969	St. Kitts (Leeward Is.)	St. Martin (Cur.)	52	KLM-2	2	
970	Stockholm (Swed.)	Visby	116	SAS-4	4	
971	Suva (Fiji Is.)	Sydney	1977	BCPA-4	4	5 (U.S.)
972		Togatau	510	NZNA-2	2	
973	Tanga (Tan.)	Zanzibar	69	EAAC-22	22	
974	Tangier (Mor.)	Tetuan (Sp.Mor.)	31	Iberia-12	12	
975	Tobago (Windward Is.)	Port-of-Spain	53	BIA-10	10	
976	Tokyo	Wake Island	1987	PAA-2	2	3 (U.S.)
977	Toronto (Can.)	Windsor	200	TCA-14	14	
978	Tripoli (Lybia)	Tunis	324	Air France-3	3	
979	Vaaldam	Victoria Falls	1000	BOAC-4	4	
980	Visby (Swed.)	Warsaw	383	SAS-4	4	
981	Zadar (Yugos.)	Zagreb	123	CSA-4, JAT-4	8	

MILES OPERATED PER WEEK IN DOMESTIC SERVICES
by Regions and Countries
As of June 1, 1948

DISTANCES EN MILES PARCOURUES HEBDOMADAIREMENT
POUR DES SERVICES INTERIEURS
par régions et pays
(en date du 1 juin, 1948)

DISTANCIAS EN MILLAS RECORRIDAS SEMANALMENTE
EN LOS SERVICIOS INTERIORES
(hasta el 1 de Junio de 1948)

Region Région Región	Country Pays País	Scheduled Miles Milles services réguliers Millas servicios regulares	Non-Scheduled Miles Milles services non réguliers Millas servicios no regulares
Africa	Algeria	6.790	
	Anglo-Egyptian Sudan	6.470	1.000
	Angola	4.422	
	Bechuanaland	-----	
	Belgian Congo	17.904	
	British Somaliland	-----	
	Cameroons	-----	
	Egypt	25.670	
	Eritrea	-----	
	Ethiopia	2.448	
	Fernando Po	-----	
	French Equatorial Africa	2.410	2.777
	French Somaliland	-----	
	French Togoland	-----	
	French West Africa	6.236	5.449
	Gambia	-----	
	Gold Coast	4.000	1.000
	Ifni	-----	
	Kenya	17.378	4.500
	Liberia	-----	
	Libya	-----	

Region Région Región	Country Pays País	Scheduled Miles Milles services réguliers Millas servicios regulares	Non-Scheduled Miles Milles services non réguliers Millas servicios no regulares
Africa (Cont'd)	Madagascar	13.400	
	Mauritius		
	Morocco	7.396	72.896
	Mozambique	6.992	
	Nigeria	3.556	1.000
	Northern Rhodesia	10.500	2.500
	Nyasaland		
	Reunion Island		
	Rio de Oro		
	Rio Muni		
	Ruanda-Urundi		
	Sierra Leone	4.000	1.000
	Southern Rhodesia	10.500	2.500
	South-West Africa		
	Spanish Morocco	1.644	
	Tanganyika	10.500	2.500
	Tangier		
	Tunisia		
	Uganda	10.500	2.500
	Union of South Africa	87.280	15.000
	Zanzibar		
Asia	Aden		
	Afghanistan		
	Bahrein Island		
	Burma		
	Ceylon		
	China	782.540	
	Cyprus	2.500	500
	Formosa		

Region Région Región	Country Pays País	Scheduled Miles Milles services réguliers Millas servicios regulares	Non-Scheduled Miles Milles services non réguliers Millas servicios no regulares
Asia (cont'd)	French Indochina	9.750	
	Hong Kong	25.000	2.500
	India	122.968	
	Iran	16.630	
	Iraq	8.832	
	Japan	-----	
	Kamaron Island	-----	
	Kuwait	-----	
	Lebanon	-----	
	Malayan Union	21.200	200
	Outer Mongolia	-----	
	Pakistan	46.298	
	Palestine	440	
	Philippines	78.261	
	Saudi Arabia	4.800	600
	Siam	-----	
	Singapore	-----	
	Syria	8.000	
	Trans-Jordan	-----	
	Turkey	31.452	
	Union of Soviet Socialist Republics	-----	
Australasia	Australia	630.766	
	Netherlands Indies	118.000	
	New Guinea	801	
	New Zealand	70.000	3.000
Europe	Albania	-----	
	Austria	-----	
	Azores	662	
	Belgium	-----	

Region Région Región	Country Pays País	Scheduled Miles Milles services réguliers Millas servicios regulares	Non-Scheduled Miles Milles services non réguliers Millas servicios no regulares
Europe (cont'd)	Bulgaria	4.566	1.400
	Czechoslovakia	20.916	
	Denmark	7.126	
	Finland	14.112	
	France	85.500	
	Germany	-----	
	Gibraltar	-----	
	Greece	11.056	
	Hungary	-----	
	Iceland	19.060	9.000
	Ireland	4.148	
	Italy	65.000	20.000
	Luxembourg	-----	
	Malta	-----	
	Netherlands	16.000	
	Norway	20.771	
	Poland	21.788	
	Portugal	3.150	
	Rumania	22.572	
	Spain	19.988	
	Sweden	33.000	8.000
	Switzerland	-----	
	Trieste	-----	
	Union of Soviet Socialist Republics	-----	
	United Kingdom	245.000	120.000
	Yugoslavia	16.994	
Middle America	Bahamas	1.400	500
	British Honduras	500	750
	British West Indies	25.000	5.000

Region Région Región	Country Pays País	Scheduled Miles Milles services réguliers Millas servicios regulares	Non-Scheduled Miles Milles services non réguliers Millas servicios no regulares
Middle America (cont'd)	Canal Zone		
	Costa Rica	25.856	
	Cuba	46.232	
	Curacao	5.000	
	Dominican Republic	3.192	
	El Salvador		
	Guadeloupe	695	
	Guatemala	1.394	
	Haiti	2.346	
	Honduras	20.693	
	Mexico	242.246	
	Nicaragua	11.541	
	Panama	3.618	
	Puerto Rico/ Virgin Islands	7.575	
North America	Alaska	112.500	112.500
	Bermuda		
	Canada	315.315	
	Newfoundland		
	United States	6.689,428	
Oceania	Canton Island		
	Fiji Islands		
	Guam		
	Hawaiian Islands	44.219	
	Kwajalein		
	Midway Island		
	New Caledonia	1.710	
	Okinawa		
	Wake Island		

Region Région Región	Country Pays País	Scheduled Miles Milles services réguliers Millas servicios regulares	Non-Scheduled Miles Milles services non réguliers Millas servicios no regulares
South America	Argentina	131.540	
	Bolivia	13.780	
	Brazil	367.965	
	British Guiana	535	
	Chile	72.740	
	Columbia	111.462	
	Ecuador	10.873	
	French Guiana	-----	
	Paraguay	2.570	
	Peru	38.436	
	Surinam	-----	
	Uruguay	4.406	
	Venezuela	92.282	

The figures listed above represent mileage operated per week in domestic services only, and are in addition to the international services reported in Table I and shown on the International Air Route Map.

Les chiffres figurant ci-dessus représentent les distances en milles parcourues hebdomadairement, pour les services intérieurs seulement; ils s'ajoutent à ceux du Tableau I, qui sont indiqués sur la carte des routes aériennes internationales.

La cifras arriba indicadas sólo representan las distancias en millas recorridas semanalmente en función de los servicios interiores y complementan las cifras del cuadro I y del Mapa de Rutas Aéreas Internacionales.

ANNEX 4. TO THE FINAL REPORT COMMITTEE 6 C

1) Revision of Flights Tables. Table No.1

The following routes have undergone transfer in whole or part from the classification of Major World Air Routes and must now be considered as Regional traffic. They are listed by Index Numbers with associated remarks where necessary.

1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 18, 19, 20, 21, 23, 24, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, (add one France under column 6), 46, 48 (add ten France under column 6) 49, 51, (under column four transfer 20 of the 26 Air-France flights to Regional traffic and amend TAI flights to total four / 2 Regional, 2 Major World/. This gives a figure of 8 in column 5 instead of 29. In column 6 of the 14 French flights transfer 8 to Regional traffic), 52, 54, 55, 56, 57, 58, 59, 60, 61, 62, 64, 65, 66, 67, 68, 70, 71, 73, 74, 75, 77, 78, 79, 80, 81, 82, 83, (under column 4 transfer 6 flights of KLM to Regional making the figure under column 5 now 18), 87, 91, 92, 94, 95, 96, 97, 98, 99, 101, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 122, 123, 124, 125, 126, 127, 128, 129, (under column 4 transfer Air-France-1, CSA-2 and KLM-4 to Regional traffic, amending under column 5 figure 25 to 18) 130, 131, 132 (under column 4 transfer CSA-2 to Regional traffic, annexing the figure 4 under column 5 to 2) 141, 142, 143, 144, 145, 146, 147, 148, 149, 151, 152, 155, 156, 157, 158, 161, 164, 166, 167, 170, 171, 172, 173, 174, 175, 181, 184, 185, 186, 187, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203 (under column 4 transfer PAA-14 to Regional traffic, making under column 5, 2 instead of 16 flights) 205, 206, 207, 208, 209, 210, 211, 212, 215, 216, 217, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 234, 235, 236, 237, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, (add 1 French under column 6), 276, 277, 278, 281, 282, 285, 287, 288, (under column 4 transfer BEA-22 to Regional traffic. Amend 26 to 4 under column 5) 289, 292, 293, 294, 299, 300, 301, 304, 305, 308, 310, 311, 312, 313, 314, 315 (increase SABENA to 4 and transfer 2 of these to Regional traffic, leaving 2 under column 5), 316, 317, 318, 319, 320, 321, 323, 324, 325, 326, 327, 328, 331, 332, 333, 334, 335, 336, 337, 338, 339, (transfer ALFA-20, CAUS A-18 under 14 of PAA-32 to Regional traffic. Amend IBERIA-4 to 2. The figure 90 now becomes 36 under column 5) 340, (amend ALFA-10 to 6 under column 4 and 10 to 6 under column 5), 341, 342, (under column 4 CRUZEIRO-4 and 4 of FAMA-10 go to Regional traffic and add to column 4 ALI-1. Under column 5 alter 18 to 11), 343, (under column 4 FAMA-14 and LAN-14 are transferred to Regional traffic. Under column 5 alter 44 to 16) 345, 347, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, (under column 4 alter SYRIAN-7 to 3, making 11 instead of 15 under column 5) 360, 361, 362, (add SEUDIAN-1 to column 4 making 5 instead of 4 in column 5) 368 (under column 4 transfer MISR-4 to Regional traffic making 4 instead of 8 under column 5) 369, 370, (under column 4 SABENA-1 and Air-France-1 go to Regional traffic. Add ALI-2 making 10 instead of 12 in column 5) 374, 375, 376, (amend TAA-4 to 6, making 26 instead of 24 in column 5) 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 398, 399, 400, 401, (under column 4 KLM-24 and two of PAA-30 are transferred to Regional traffic. This reduces 5 to 2 under column 5) 407, 408, 409, 410, (add 1 French to column 6) 411, (transfer 14 of Air-France-24 and 1 of TAI-2 to Regional traffic, reducing 26 to 11 under column 5) 412, 414, 416, 417, 418, (under column 4 reduce PAA-6 to 4, and transfer Air-France-1 to Regional traffic, reducing figure 7 to 4 in column 5), 419 (under column 4 transfer KLM-4, and 27 of PAA-29 to Regional traffic, reducing

33 to 2 in column 5), 420, 422, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 438, 439, 440, 442, 443, 444, 445, 446, 447, 448, 450, 451, 452, 454, 455, 456, 457, 458 (under column 4 Airway-2 is transferred to Regional traffic, reducing 12 to 10 in column 5), 461, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 478, 479, 480, 481, 482, 483, 484, 489, 490, 493, 494, 495, 498, 499, 505, 506, 508, 509, 510, 511, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 533, 534, 536, 537, 539, 540, 541, 542, 543, 544, 545, 546, 548, 549, 550, 551, 552, 553, 555, 557, 558, 559, (under column 4 transfer CSA-2 and BEA-10 to Regional traffic, reducing 26 to 14 in column 5), 561, 562, 563, 565, 566, 567, 572, 573, 574, 575, 576, 577, 578, 580, 581, 582, 583, 584 (in column 4 transfer Air-France-14 and Swissair-14 to the Regional traffic and reduce 44 to 16 in column 5), 585 (in column 4 transfer KLM 6 and SAS-1 to Regional traffic and reduce 25 to 18 in column 5), 588, 589 (in column 4, transfer BIA-6 to Regional traffic and amend PAA-6 to PAA-4, this reduces 12 to 4 in column 5), 591, 592, 593, 594, 595, 597, 598, 599, 600, 601, 602, 603, 609 (transfer 6 of PAA-20 to Regional traffic and reduce 20 to 14 in column 5), 610 (transfer 21 of PAA-28, TACA-1, Salvador-14 to Regional traffic, reducing 42 to 7 in column 5), 611, 612, 614, 615, 616, 617, 618, 619, 620, 622, 625, 626, 628, 629, 630, 632, 633, 634, 638, 640, 641, 642, 643, 644, 645, (transfer Clanways-2 to Regional traffic and reduce 4 to 2 in column 5) 646, 647, 648, (transfer Aero-24, BEA-2 and SAS-18 to Regional traffic, reducing 50 to 6 in column 5), 649, 650, 651, 652, 658, 660, 665, 666, 668, 669, 670, 671, 672, 676, 677, 678, 681, 682, 683, 686, 688 (transfer 4 of BOAC-6 and SAA-4 to Regional traffic; reduce 10 to 2 in column 5), 693, 694, 695, 696, 697, 698, 703, 704, 706, 708, 709, 710, 711, 712, 713, 714, 715, 716, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 741, 742, 743, 744, 745, 746, 747, (DTA-2 transfer to Regional traffic, reducing 3 to 1 in column 5), 748 (transfer SABENA-4 to Regional traffic, reducing 5 to 1 in column 5), 750, 751, 752, 753, 754, 755, 759, 765, 766, 767, 769, 773, 774 (transfer Air-France-56, BEA-84 to Regional traffic, reducing 144 to 4 in column 5) 775 (transfer BFA-14, CSA-14 to Regional traffic, reducing 29 to 1 in column 5), 777, 779 (transfer ALI-6 to Regional traffic, reducing 80 to 74 in column 5), 780, 783, 788, 789, 791 (transfer MEA-6 and MISR-4 to Regional traffic, reducing 12 to 2 in column 5), 792, 798 (transfer IBERIA-2 and add ALI-1 and transfer this to Regional traffic, reducing 10 to 8 in column 5), 799, 801, 802, 803, 804, 808, 809, 810, 811 (transfer BEA-20 and MEA-2 to Regional traffic, reducing 24 to 2 in column 5), 813, 814, 815, 816, 817, 818, 820, 821, 823, 824, 826, 827, 828, 829, 830, 833 (transfer Eastern-14 to Regional traffic and increase PAA-14 to 16, reducing figure of 28 to 16 in column 5), 835, 836, 837, 838, 840, 847, 848, 850, 851, 852, 853, 854, 855, 856, 857, 858, 860, 861, 862, 868, 869, 870, 874, 875, 876, 877, 878, 879, 883, 884, 886, 887, 888, 889, 890, 891, 892, 895, 896 (transfer SAS-20 to Regional traffic and reduce 24 to 4 in column 5), 897, 898, 899, 900 (transfer Brasil-4 and Air France-1 to Regional traffic, reducing 11 to 6 in column 5), 901, 903, 904 (transfer IRANAIR-2, Avio-linee-10, and 2 of Air France-4 to Regional traffic, reducing 16 to 2 in column 5), 907, 908, 909, 910, 911, 912, 913, 914, 915, 919, 920 (transfer Cruzeiro-6, FAMA-6, 14 of PAA-18 and VARIG-6 to Regional traffic, reducing 36 to 4 in column 5) 922, 923, 925, 926, 927, 932, 933, 934, 935, 938, 940 (transfer Cruzeiro-6, FAMA-6, 10 of PAA-18, PAB-4, VARIG-6 to Regional traffic, reducing 42 to 10 in column 5) 941, 942, 943, 944, 945, 946, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 963, 965, 966, 967, 968, 969, 970, 973, 974, 975, 977, 978, 980, 981.

- 2) The following additions to Major World Air Routes were handed in before 5 p.m. June 25th, 1948. They are listed by means of supplementary Index Numbers.

(Annex 4 to Aer-Doc.198-E)

4 A Abadan-Bahrein	-	BOAC - 6
17 A Addis-Abbaba-Cairo	-	EAL - 2
88 A Anchorage-Amchitka	-	Northwest - 8
134 A Actutaki-Samoa	-	
134 B Actutaki-Ranotonga	-	
155 A Baires-Lima	-	
182 A Bangkok-Shanghai	-	KLM - 1
218 A Batavia-Balakpapam	-	KLM - 2
238 A Belem-Laguara	-	
240 A Belem-Natal		
315 A Brussels - Athens		
329 A Brussels - Tripoli		
339 A Buenos-Aires - Natal		
370 A Cairo-Teheran		
397 A Canton-Island - Samoa		
432 A Christmas Island - Palymara		
479 A Curacao - Lima		
484 A Dakar - Lagos		FAMA - 2
491 A Damascus - Karachi		PAA - 2
536 A El Paso - San Francisco		
538 A Espirito Santo - Noumea		1 Non schedule
571 A Gander - Paris		
612 A Guatemala - Guayaquil		
635 A Hamilton - Havana		
635 B Hamilton - Miami		
659 A Honiara - Port Moresby		
662 A Honolulu - Palmyra		
664 A Honolulu - Wake Island -	{	PAA 8, CNAC - 2
	{	PAL - 4
	{	Non schedule - 10
	{	BOAC - 2
675 A Iwakuri - Shanghai	(
742 A Laguayra - Natal		
746 A Las Palmas - Natal		
746 B Las Palmas-Madrid		
747 A Leopoldville - Lagos	-	FAMA - 2
757 A Lima - Mexico City		
783 A Lord Howe Island - Sydney		
808 A Marqueta - Miami		
826 A Mexico City - El Paso		
827 A Mexico City - San Francisco		
829 A Mexico - Miami		
835 A Mogadiscio - Nairobi	-	BOAC - 2
880 A Norfolk Island - Sydney		
898 A Palermo - Tunis	-	SICULA - 2 (Regional traffic, (not Major World)
917 A Port Sudan - Wadi Halfa-		BOAC - 2
950 A Samoa - Tongatapu	-	(NCNAC - 1
	(Non schedule - 1

3) Alterations to Traffic Figures are as follows.

- 48 Include in column 6 - 10 (French)
- 153 In column 6 reduce 56 (UK) to 20 (UK)
- 154 In column 6 reduce 50 (UK) to 16 (UK)
- 170 In column 6 add 1 (French)
- 171 In column 6 add 2 (French)
- 172 In column 6 add 1 (French)
- 240 In column 4 increase PAA-12 to PAA-28, amend column 5
- 275 In column 6 add 1 (French)
- 279 In column 6 reduce 25 (UK) to 8 (UK)
- 283 In column 6 reduce 25 (UK) to 8 (UK)
- 364 In column 6 reduce 28 (UK) to 10 (UK) and alter figure outside of the
brackets from 29 to 11
- 371 In column 6 reduce 84 (UK) to 30 (UK)
- 377 In column 6 reduce 25 (UK) to 8 (UK) and alter figure outside of the
brackets from 27 to 10
- 379 In column 6 reduce 25 (UK) to 8 (UK)
- 406 In column 6 increase 2 (French) to 3 (French)
- 410 In column 6 add 1 French (Regional traffic)
- 441 In column 6 reduce 5 (UK) to 1 (UK)
- 569 In column 6 add 15 (Iceland)
- 574 In column 6 add 1 (French)
- 575 In column 6 add 1 (French)
- 604 Delete in toto
- 607 In column 6 delete 5 (US)
- 631 Delete in toto
- 657 In column 6 reduce 5 (UK) to 2 (UK)
- 667 Delete in toto
- 720 In column 6 alter 28 (UK) to 10 (UK) and amend figure outside brackets
from 29 to 11
- 782 In column 6 reduce 84 (UK) to 31 (UK)
- 787 Delete in toto
- 876 In column 6 add 1 (French)
- 880 In column 6 add 1
- 880A In column 6 add 2
- 894 In column 6 add 2 (Iceland)
- 902 Delete in toto
- 917 Insert one in column 6
- 921 Delete in toto
- 928 In column 6 insert 11 (French)
- 936 In column 6 reduce 30 (UK) to 8 (UK)
- 961 In column 4 increase Northwest from 6 to 8 and add CNAC - 4, BOAC - 2,
making a total of 14 in column 5
- 964 In column 4 delete QEA - 6 and reduce 12 to 6 in column 5
- 971 In column 4 reduce BCPA - 4 to 3, amend column 5 accordingly
- 972 In column 4 reduce NZNA - 2 to 1 and insert 1 in column 6.



**Documents of the International Administrative Radio Conference for
Aeronautical Communications (1st Session) (Geneva, 1948)**

Document No. 72 – International Air Route Map

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15 June, 1948

Working Group 6E

POLISH DELEGATION

OBSERVATIONS ON THE ALLOCATION OF HIGH FREQUENCIES
TO THE SPECIAL AERONAUTICAL METEOROLOGICAL SERVICE

In Article 5 (Table of Frequency Allocations) of the Atlantic City Radio Regulations only the following bands are allotted to the Meteorological Service:

MF - 2045 - 2065 kc/s	Region 1, meteorological aids	see table.
HF - 27500- 28000 kc/s	Region 1, meteorological aids	see table.
VHF - 94.5- 95 Mc/s	Great Britain, France, India, meteorological aids	No. 190
VHF - 151 - 154 Mc/s	Region 1, meteorological aids	No. 197
UHF - 400 - 420 Mc/s	World-Wide, meteorological aids (radio-sonde)	No. 208
UHF - 1660 - 1700 Mc/s	Region 2, meteorological aids (radio-sonde)	see table.
UHF - 1700 - 1750 Mc/s	Regions 1 and 3, meteorological aids	No. 219
UHF - 2700 - 2900 Mc/s	World-Wide meteorological aids	No. 222
SHF - 6900 - 7050 Mc/s	U.S.S.R. meteorological aids	No. 229

As a result, there is, in the Atlantic City Radio Regulations, only one band in the decametric waves (HF), that of 27500-28000 kc/s, which is assigned to the auxiliary meteorological services.

From the point of view of frequencies, meteorological messages and correspondence may be classified as follows:

1. Meteorological warning messages (No. 1050, Art. 45 of the Radio Regulations) which are preceded by the Safety signal and transmitted on the frequencies indicated under No. 946:

"The safety signal and the message which follows it are sent on the distress frequency (500 kc/s) or on one of the frequencies which may be used in case of distress (see 868 to 871)".

This category of meteorological service messages is thus provided with well defined frequencies. It is not possible to assign to it new



frequencies in the HF bands while the Atlantic City Radio Regulations remain in force.

2. The assignment of frequencies in the HF bands to the following categories of meteorological messages must be carried out by the P.F.B.:
 - A - For all communications and messages of the General National Meteorological Service (excluding the aeronautical meteorological service proper).
 - B - For meteorological emissions and messages (CQ "to all stations") intended for stations of the Aeronautical Mobile Service which do not require communications with aircraft: (See Nos 1049 and 1052 of the Atlantic City Radio Regulations).
 - C - Aeronautical meteorological messages and correspondence which require direct communication between the airports of international or national lines.
3. New assignments within the range of decametric waves will have to be authorized for aeronautical meteorological messages emitted by ground stations for aircraft in flight and vice-versa, but only in the case of stations of airports serving a great number of lines.

Airports with a low volume of traffic desiring to send meteorological messages to aircraft in flight, may use their radio direction finding stations; these messages are then transmitted on the frequencies assigned to the latter.

Radio direction finding stations are directly linked (by telephone) to the correspondence offices of the airports which handle the meteorological correspondence mentioned under point 2 above.

Assuming that each airport possesses two radio direction-finding stations (MF and HF) and that one radio direction-finding station can serve 6 aircraft, it may be supposed that about twelve aircraft (equipped with MF and HF apparatus) can be served from the point of view of both the mobile aeronautical service and the aeronautical meteorological service.

If the number of aircraft to be served is greater than twelve, it would be necessary to have available for service one or several additional channels in the range of decametric waves on which the correspondence office of the airport would work directly with the aircraft in flight. These special channels would be exclusively assigned to the meteorological service. In this way, every aircraft would always be able to exchange meteorological messages, either with radio direction-finding stations, or directly with the correspondence offices of the airports.

In short, it is recommended that the Conference should:

- 1 - entrust to the P.F.B. the consideration of the problems of allocating high frequencies to the meteorological correspondence services mentioned under point 2.
- 2 - determine the frequencies to be assigned in the range of decametric waves to airports serving more than twelve lines, and the total number of these frequencies.

2 July, 1948

Final Report of Joint Working Group on Utilization
of unalloted Space

Representatives of Committee 6F and of Committee 7 convened at 8:30 p.m.,
June 28th, in room 121, Hotel Beau-Rivage.

Those present were:

Mr. P. de Calan	France
Mr. E. G. Betts	Australia
Mr. P. J. Greven	I.C.A.O.
Mr. J. D. Flashman	U.S.A.

In accordance with the respective terms of reference of Committees 6 F and 7, the representatives of the Joint Working Group considered the question of utilization of the space between the R and OR bands shown in document 112 as unalloted. The recommendations of the Joint Working Group are shown in Appendix "A".

As an after agenda item, although not contained in the terms of reference of all of the representatives, the Joint Working Group also considered the question of channelization of the band 21850-22000 kc/s, shared between aeronautical fixed and aeronautical mobile R and the band 23200-23350 kc/s, shared between aeronautical fixed and aeronautical mobile OR.

Recommendations in this respect are contained in Appendix B.

The Joint Working Group, recognizing that opportunity exists for the fulfillment of some of the aeronautical mobile OR service requirements in shared bands below 23 Mc/s, recommends that proposals concerning channelization in such shared bands be left entirely to the discretion of Committee No. 7.



A P P E N D I X 'A'

Band	: Separ- : ation	: Unallotted Space : R OR	kc/s: Fractional Channel Total: Width	: Proposed allocation : R Common OR	: Remarks
2850-3155	: 7	: 6.5 3.5	: 10 : 0.93	: 0.5 :- A3(10 kc/s)	: - : centered : at 3023.5
5480-5730	: 7.5	: 4.75 4.25	: 9 : 0.633	: 0.566:- A3(9 kc/s)	: - : centered : at 5680
6525-6765	: 7.5	: 1.75 4.25	: 6 : 0.232	: 0.566:-	: 2A-1: centered : at 6685 : and 6687.5
8815-9040	: 8.5	: 4.75 6.25	: 11 : 0.56	: 0.735: A-1	: A3 : centered : at 8961.5 : and 8967
11175-11400	: 9.5	: 0.75 4.25	: 5 : 0.079	: 0.447:	: A1 : centered : at 11273
15010-15100	: 10.0	: (8)*	: (0.8)*:-	: 2A-1: centered : at 15092.5 : and : 15096.5	
17900-18030	: 10.0	: 8.5 8.5	: 17.0 : 0.85	: 0.85 : A3	: A1 : centered : at 17966.5 : and 17975

Total 27 kc/s 29 kc/s 3.284 channels 3.664

*15010-15100 kc/s exclusively 'OR' therefore these figures not included in totals.

SUMMARY : For Common 2 A3 channels
For R Service 1 A3 and 1 A1 channel
For OR Service 1 A3 and 4 A1 channels

A P P E N D I X 'B'

1.

Band 21850 - 22000 kc/s Aero fixed
Width 150 kc/s Aero mobile R
Spacing 12 kc/s between channels

21850 kc/s Tolerance at lower band edge 0.0274

First frequency	21859	
	71)	
	83)	
	95)	
	907)	
	919)	12 channels Total
	931)	
	943)	
	955)	
	967)	
	979)	
Last frequency	991	

22000 kc/s Tolerance at upper edge 0.0272

Adjacent bands	Lower edge	Fixed
	Upper edge	Maritime Mobile

Note: The above frequency allocations are those which, in accordance with the recommendations of Committee 4, would be applicable if the whole of this band were to be made available solely for the aeromobile R service.

A P P E N D I X 'B'

2.

Band 23200 - 23350
Width 150 kc/s
Channel spacing 12 kc/s

Aero fixed
Aero mobile OR

23200 kc/s

Tolerance at lower edge -- 0.026

First frequency	23209)	
	21)	
	33)	
	45)	
	57)	
	69)	12 channels Total
	81)	
	93)	
	305)	
	17)	
	29)	
Last frequency	41)	

23350 kc/s

Tolerance at upper edge 0.026

Adjacent bands	lower edge	Fixed
	upper edge	Fixed and land mobile

Note: The above frequency allocations are those which, in accordance with the recommendations of Committee 4, would be applicable if the whole of this band were to be made available solely for the aeromobile OR service.

Report of Working Group 6 C (2)

2 July, 1948

Terms of reference:

1. Prepare a statement of operational requirements for long distance communication to provide operational control and terminal flight information.
2. Prepare a statement in connection with the higher order of frequencies to be used on the major world air routes with particular reference to the 22 Mc/s band.

Item 1

I.C.A.O. has stated a requirement, as follows, for the provision of aeronautical mobile frequencies to be used for flight information and operational traffic with aircraft entering, leaving and flying within the EU-MED (I.C.A.O.) Region:

Recommendation No.22

"The Committee recommends that one common group of high frequencies comprising one channel in each of the bands at 6,8,11 or 12 and 17 Mc/s should be allotted, when available, for long and medium distance air-ground communications in the Region.

Recommendation No.23

"The Committee recommends that H.F. communications be provided as required at appropriate locations in the Region for the exchange of flight information and Airline Operating Agencies operational traffic over medium and long distance. In the interim it is recommended that the following frequencies be used

In order to enable European Administrations, where necessary, to make separate provision for this class of traffic, it is recommended that one family of frequencies be allotted. The family to include frequencies of the orders:

5.6 9 13 18 22 Mc/s

Consideration, as to likely loading, etc., indicated that 2 to 3 families of frequencies would be needed to fully satisfy the requirements of this service; nevertheless, in view of the shortage of available frequencies, the group decided that not more than one family could be allotted. It wishes to stress, however, that any reduction in the size of the family recommended would prevent the application of a workable plan.

The group assumes that elsewhere in the world this class of traffic will continue to be confined to the air traffic control channels.



Item 2

By a majority view the working group recommends that provision be made for the allotment of 22 Mc/s frequencies to the Major World Air Route Areas in those cases where frequencies of the order of 18 Mc/s are known to be inadequate.

It further recommends that Sub-Committee 6C take early steps to work out the detailed requirements in order that the P.F.B. may be notified accordingly.

Committee 6

Working Group E

Final Report of Working Group 6 E

1. This Working Group convened four times. Its terms of reference were given in Aer-Doc. N° 95-E, paragraph 7, re : Meteorological Broadcasts, for recommending to Committee 6 :
 - a) the necessary megacycle order of frequencies,
 - b) the number of necessary frequencies in each megacycle order, and
 - c) the areas in which the use of these frequencies may be duplicated.
2. The following delegations and organizations were present most of the time :

Argentina	Pakistan
Brazil	Poland
Chile	Protectorate of Tunisia
Cuba	Union of South Africa
Egypt	United Kingdom
France	United States of America
Ireland	I.A.T.A.
Italy	I.C.A.O.
Netherlands	
3. The Polish delegation presented Aer.Doc.N° 110, re : "Observations on the Allocation of High Frequencies to the Aeronautical Meteorological Service", but it was considered that the information contained in this document was not in accordance with the Working Group 6-E terms of reference.
4. After thorough discussions Working Group 6-E agreed to study the matter under consideration in the following manner :
 - a) Study of the I.C.A.O. Regional Manuals for the different areas of the World to find the actual requirements.
 - b) Form small groups among the delegations present, with common area interests.
 - c) These groups were to study the following areas :

Africa - Middle East - India - Pakistan
European Mediterranean
North Atlantic
Caribbean
South America and South Atlantic
North Pacific
South Pacific
Southeast Asia

- d) After the groups rendered the necessary information by areas, a small coordinating group composed of : United Kingdom, France, Egypt, I.A.T.A., and I.C.A.O. arranged the data on a World Map and found the following requirements :
5. EUMED For Area Broadcast : 2(3.5 - 6.6 - 11.4) Range 2000 kms.
Sub-Area Broadcast : 4(4.6 - 8.8) Range 1600 kms.
- AFRICA For Area Broadcast : 2(3.5 - 6.6 - 11.4) Range 1600 kms.
Middle East Sub-Area Broadcast : 3(4.6 - 8.9) Range 1000 kms.
- NORTH ATLANTIC For Area Broadcast : 1(3 - 4.7 - 6 - 9 - 13) Range 2400 kms.
- CARIBBEAN For Area Broadcast : 1(3 - 6 - 11) Range 1000 kms.
- SOUTH AMERICA 1(6 - 9 - 11 - 13) Range 2400 kms.
and For Area Broadcast : 1(4 - 8 - 11) Range 1500 kms.
SOUTH ATLANTIC 1(5 - 9 - 11) Range 1500 kms.
- NORTH PACIFIC For Area Broadcast : 1(3 - 6 - 8 - 13) Range 2400 kms.
- SOUTH PACIFIC For Route Broadcast : 1(4.6 - 6) Range 1600 kms.
- SOUTHEAST ASIA : Area Broadcast : 1(5 - 8 - 11) Range 1600 kms.
Sub-Area Broadcast : 1(4 - 6) Range 1000 kms.
1(5 - 8) Range 1000 kms.
6. The question of the areas in which the use of these frequencies might be duplicated : the Working Group 6-E decided that the necessary information was not available and to let this matter be decided by Committee 6.
7. For information of Committee 6 there is included in Annex 1 excerpts taken from the Final Report of the MET Committee from the ICAO EUMED Regional Air Navigation Meeting, held in Paris, May 1948 (I.C.A.O. DOC-EM/103 MET/EM/17, 13/5/48).
8. A map showing graphically the areas around the world where this service of Meteorological Broadcasting is in use, or expect to use it in the near future has already been brought under the notice of Committee 6 at its 14th meeting.

The Chairman, Committee 6 - E

Ernesto E. TABIO

1.3. Exchange of Aeronautical Meteorological Messages.

1.3.1. For aeronautical purposes a system of area and sub-area meteorological broadcasts has been organized for the European-Mediterranean Region. A general description of this system is given in the paragraphs below.

1.3.1.1. Details as to stations, contents, times and frequencies are given in Tables III and IV. Charts III and IV show the networks of area and sub-area broadcast stations throughout the European-Mediterranean Region.

1.3.1.2. Where possible, transmissions should be made on automatic equipment.

1.3.2. Area Meteorological Broadcasts

1.3.2.1. The European Mediterranean Region has been organized into nine meteorological broadcast areas. One station within each area has been, or will be, designated as the broadcast centre for that area. Each of the nine designated area centres will broadcast once every three hours in an established sequence on a common set of three high frequencies. Each area broadcast centre is allotted not more than twenty minutes in order that all nine broadcasts may be made in every three hour period.

1.3.2.1.1. Details as to stations, contents and frequencies of these area broadcasts are given in Table III. Chart III shows the geographic territory assigned to each of the nine area broadcast centres.

1.3.2.2. Each of the area meteorological broadcasts will consist of the contents given below, and will be transmitted in the following order :

- 1) Terminal forecasts.
- 2) Area or route forecasts.
- 3) Main terminal reports to the extent permitted by the remaining transmitting time.

1.3.2.5. The power of each of these area meteorological broadcast centres should be sufficient to provide satisfactory reception over the whole of the European-Mediterranean Region and adjacent territory.

1.3.2.6. Each of the area meteorological broadcasts should be transmitted on three radio frequencies simultaneously (i.e. 3957, 6975 and 12818 kc/s).

1.3.2.7. Each country will arrange for the collection of meteorological information within its national boundary and arrange for the delivery of this information to the area meteorological centres.

1.3.3. - Sub-Area Meteorological Broadcasts

1.3.3.1. The European-Mediterranean Region has been organized into eighty meteorological broadcast sub-areas. One station within each sub-area has been designated as the broadcast centre for that sub-area. Each of the sub-area centres broadcasts for three minutes at half-hourly intervals on one medium frequency, and also broadcasts for three minutes at hourly intervals on two high frequencies. The high frequency broadcasts made once each hour from each sub-area broadcast centre is always transmitted simultaneously with one of the two medium frequency broadcasts made each hour from the same sub-area centre (i.e. with those medium frequency broadcasts which contain terminal forecasts).

1.3.3.2. In order to permit the maximum use of the six medium frequencies and the eight high frequencies now allotted to sub-area meteorological broadcasts in the European-Mediterranean Region the eighty sub-area centres have been organized into eight networks, each consisting of a maximum of ten sub-area centres.

1.3.3.3. The schedule of broadcasts and the allotment of frequencies to all eighty sub-area meteorological broadcast centres has been arranged to provide maximum utilization of available frequencies and minimum possibility of interference, and at the same time be of optimum value to aeronautical interests.

1.3.3.4. Each of the ten sub-area broadcast centres in any one of the eight networks uses the same medium frequency for three minutes each half-hour, and uses the same two high frequencies for three minutes each hour.

1.3.4. - Sub-Area Meteorological Broadcasts on Medium Frequencies

1.3.4.1. Each of the sub-area meteorological broadcasts which are made on one medium frequency will be made in an established sequence for three minutes at half-hourly intervals.

1.3.4.2. The contents of these sub-area broadcasts on medium frequency only at alternate half-hours are given below, and should be transmitted in the following order :

- 1) one main terminal report
- 2) one alternate terminal report
- 3) a maximum of three auxiliary terminal reports
- 4) repeat of first main terminal report.

1.3.4.3. The contents of the Sub-Area Broadcasts on MF and HF at the other alternate half-hours are given below, and will be transmitted in the following order :

- 1) one main terminal report
- 2) one alternate terminal report
- 3) one main terminal forecast
- 4) one alternate terminal forecast
- 5) repeat of first main terminal report, if time permits.

1.3.4.6. The power of each of these Sub-Area Meteorological Broadcast stations using medium frequencies should be sufficient to provide satisfactory reception up to distance of 600 kilometers (400 miles).

1.3.4.7. Each Sub-Area Meteorological Broadcast station will be assigned for three minutes of each half-hour the use of one of the six medium frequencies reserved for the Sub-Area Meteorological Broadcasts in the European-Mediterranean Region. (i.e. either 279, 281, 283, 285, 287 or 289 kc/s).

1.3.4.8. Details as to stations, contents, times and frequencies of these Sub-Area Broadcasts on medium frequencies are given in Table IV.

1.3.5. - Sub-Area Meteorological Broadcasts on high frequencies

1.3.5.1. Each of the Sub-Area Meteorological Broadcasts which are made on two high frequencies simultaneously will be made in an established sequence for three minutes in each hour. The contents of these Sub-Area Broadcasts are given below, and will be transmitted in the following order :

- 1) one main terminal report
- 2) one alternate terminal report
- 3) one main terminal forecast
- 4) one alternate terminal forecast
- 5) repeat main terminal report, if time permits.

1.3.5.2. The power of each of these Sub-Area Meteorological Broadcast stations using two high frequencies simultaneously should be sufficient to provide satisfactory reception up to distances of 1600 kilometers (1000 miles).

1.3.5.3. Each Sub-Area Meteorological Broadcast station will be assigned for three minutes of each hour the exclusive use of two of the eight high frequencies reserved for the Sub-Area Meteorological Broadcasts in the European-Mediterranean Region (i.e. 3953 and 8492, or 3961 and 8515, or 3969 and 8561, or 3977 and 8546).

1.3.5.4. Details as to stations, contents, time and frequencies for these Sub-Area Broadcasts on high frequencies are given in Table IV.

TABLE III
AREA BROADCASTS

FREQUENCIES : 3957, 6975, 12818 kc/s

Hours and Minutes past each synoptic hour	Area No	Area	Countries	Area or Alternate Area Centre	Call Sign	Contents of Broadcasts	
						Terminal Forecasts/Terminal Reports	Area Forecasts Route Forecasts
00-20	1	Central Europe	Czechoslovakia Germany, Austria Poland	Praha	OKL	Frankfurt, Praha, Berlin (Tempelhof) Wien (Tulln), Warszawa, München, Berlin (Gatow), Bratislava, Hamburg, Gdansk	AREA 1
20-40	2	Scandinavia	Sweden, Norway, Denmark, Finland	Stockholm	SMA	Stockholm, Köbenhavn, Fornebu, Helsinki, Göteborg, Gardermoen, Sola, Aalborg	AREA 2
40-1.00	3	United Kingdom	England, Scotland Ireland, Netherlands, Belgium	London	MZL	London Airport, Shannon, Prestwick, Amsterdam, Bruxelles, Calshot, Hurn, Northolt, Renfrew	AREA 3
1.00-1.20	4	Western Europe	France, Switzerland	Paris	FNB	Orly, Marseilles, (Marignane), Bordeaux, Geneva, Zurich, Bourget, Lyon, Bâle	AREA 4
1.20-1.40	5	Western Mediterranean	Spain, Portugal Algeria, Morocco Tunisia	Algiers	FOG2	Lisboa (Portela), Tunis, Madrid, Casablanca, Algiers, Marrakech, Oran, Barcelona, Gibraltar	AREA 5
1.40-2.00	6	Central Mediterranean	Italy, Malta, Libya	Rome	IKO	Rome (Ciampino), Tripoli, Catania, Malta, Cagliari/Elmas, Brindisi, Benghazi, Napoli, Milano, Venezia	AREA 6
2.00-2.20	7	Near East	Egypt, Palestine, Syria, Lebanon Cyprus	Cairo	SUC	Farouk, Lydda, Mariut, El Adem, Beyrouth, Nicosia, Almaza	Route Rome-Farouk Route Benghazi-Farouk
2.20-2.40	8	Aegean	Greece, Turkey	Athens or Ankara	SWA	Athens, Istanbul, Ankara, Heraklion Izmir	AREA 8
2.40-3.00	9	Southeastern Europe	Yugoslavia, Albania Bulgaria, Hungary Rumania	Belgrade	...	Budapest, Zagreb, Sofia, Tirana, Beograd, Bucarest, Cluj	AREA 9

- 6 -
(Aer-154-E-Annex I)

NOTE

- (1) Terminal Forecasts listed above will always be transmitted and they will be sent in the order shown.
- (2) When transmission time does not permit the inclusion of all the terminal reports listed, as many as possible will be included. The order of priority for inclusion in the transmission is the order of the list specified in each area.

TABLE IV

FREQUENCIES		A 00-03 30-33	B 03-06 33-36	C 06-09 36-39
Every half hour on 287 kc/s <u>First</u> half hour <u>also</u> on 3953 kc/s 8492 kc/s	1	AMSTERDAM MP EINDHOVEN MP Twente M Eldo M Zuid Limburg M	RENFREW MP EDINBURGH MP Aberdeen M Inverness M Sumburgh M	PRESTWICK MP BELFAST MP Stornoway M Tiree M
Every half hour on 289 kc/s <u>Second</u> half hour <u>also</u> on 3953 kc/s 8492 kc/s	2	LULEA MP KIRUNA MP Vannas M Boden M Malmberget M	FORNEBU MP GARDEMOEN MP Kjevik M Trondheim M	STAVANGER MP HERDIA MP Haugesund M Alesund M
Every half hour on 279 kc/s <u>First</u> half hour <u>also</u> on 3961 kc/s 8515 kc/s	3	TEMPELHOF MP GATOW MP Wasserkuppe M	HAMBURG MP BUCKENBURG MP Bremen M Wunsdorf M Schleswig M	KOLN MP
Every half hour on 285 kc/s <u>Second</u> half hour <u>also</u> on 3961 kc/s 8515 kc/s	4	Reserved	STRASBOURG MP BALE MP Nancy M Lille M Tours M	LE BOURGET MP ORLY MP Cormeille M Coulommiers M Beauvais M
Every half hour on 283 kc/s <u>First</u> half hour <u>also</u> on 3969 kc/s 8561 kc/s	5	TIRANA MP	SOFIYA MP	BEOGRAD MP
Every half hour on 287 kc/s <u>Second</u> half hour <u>also</u> on 3969 kc/s 8561 kc/s	6	ATHENAI MP SALONIKI MP Araxos M Yanina M Lemnos M	HERAKLION MP CALATO MP	NICOSE MP LIMASSOL MP
Every half hour on 289 kc/s <u>First</u> half hour <u>also</u> on 3977 kc/s 8546 kc/s	7	MADRID MP SALAMANCA MP Valladolid M Albacete M	BILBAO MP VITORIA MP Santander M Logrono M Burgos M	BARCELONA MP Zaragoza MP Calamocha M Reus M Montseny M
Every half hour on 281 kc/s <u>Second</u> half hour <u>also</u> on 3977 kc/s 8546 kc/s	8	FIRENZE MP PISA MP	CAGLIARI MP ELMAS MP ALGHERO MP Olbia M	ROME (Ciampino) MP NAPOLI MP Roma Urbe M Guidonia M Centocelle M

SUB AREA

BROADCASTS

D 09-12 39-42	E 12-15 42-45	F 15-18 45-48	G 18-21 48-51
MANCHESTER MP SPEKE MP Birmingham M Leeds M	RONALDSWAY MP BLACKPOOL MP Newcastle M Carlisle M	EASTLEIGH MP CALSHOT MP St Eval M Whitchurch M Jersey M	LONDON MP HURN MP Bovingdon M Blackbushe M
GOTEBORG MP KARLSTAD MP Satenas M Stromstad M Varberg M	AALBORG MP AARHUS MP Blavand M Karup M	KOBENHAVN MP MALMO MP Jönköping M Kalmar M Rönne M	STOCKHOLM MP NORRKOPING MP Visby M Orebro M Uppsala M
FRANKFURT MP WIESBADEN MP Stuttgart M	MUNCHEN MP ERDING MP Fürstenfeld- -brück M	WIEN-TULLN MP SCHWECHAT MP Horsching M Klagenfurt M	BRATISLAVA MP KOSICE MP Zliac M Prescv M
RENNES MP NANTES MP Brest M Cherbourg M Dinard M	BORDEAUX MP LIMOGES MP Cognac M Cazaux M Mont de Marsan M	TOULOUSE MP PAU MP Perpignan M Lezignan M	AJACCIO MP BASTIA MP Cap Corse M
ZAGREB MP	BUDAPEST MP	CLUJ MP	BUKARESTI MP
BEYROUTH MP DAMASCUS MP Homs M	LYDDA MP HAIFA MP Aamman M Ramalla M	CAIRO MP (Farouk) CAIRO MP (Almasa) Luxor M	MERSA MATRUH MP ALEXANDRIA (Mariut) MP Port Said M
PALMA MP VALENCIA MP Formentara M Alicante M Mahon M	MELILLA MP MALAGA MP Larache M Tetuan M	CASABLANCA MP MARRAKECH MP Rabat-Sale M Port-Lyautey M Fez M	GIBRALTAR MP TANGER MP
BRINDISI MP BARI MP Foggia M Lecce M	CATANIA MP PALERMO MP Calabria M Marsala M	TUNIS MP BONE MP Gabes M Sfax M	ALGER MP BLIDA MP Miliana M

H 21-24 51-54	J 24-27 54-57	K 27-30 57-60	Observations
NORTHOLT MP CROYDON MP Manston M	SHANNON MP DUBLIN MP Valentia M Middleton M	BRUXELLES MP COXYDE MP Evere M St Hubert M Courtrai M	M = METAR P = (Forecast) MF = Medium Frequency HF = High Frequency <u>Typeform</u> <u>LONDON</u> = Terminal transmitting METAR <u>every half hour</u> ; and forecast every hour when MF and HF are used simul- taneously. <u>Visby</u> = Terminal transmitting METAR every hour on that half hour when only MF is used. <u>NOTE</u> : All trans- missions shall be made at the time and in the order shown in the table. The first report shall be repeated at the end of the transmission. In the event of one transmitter being used for more than one Sub-Area Centre, each individual block must be transmitted in exact adherence to the schedule shown in the table.
HELSINKI MP TURKU MP Marieham M Juväskyla M Pori M	WAASA MP KEMI MP Kuppio M Oulu M	SUNDSVALL MP OSTERSUND MP Söderhamn M Nordmaling M	
PRAHA MP BRNO MP Budejovice M Ostrava M Zlin M	WARSZAWA MP POZNAN MP Kracov M Lodz M Lwow M	GDANSK MP SZCECIN MP	
MARIGNANE MP NICE MP Montpellier M Toulon M Istres M	LYON MP DIJON MP Grenoble M Clermont- Ferrand M Montélimar M	ZURICH MP GENEVE MP Basel M Berne M	
ISTAMBUL MP ISMIR MP Bursa MP Etimesut M	ANKARA MP ADANA MP Konya M Antalya M	Reserved	
BENGASI MP EL ADEM MP	TRIPOLI MP	MALTA MP	
SEVILLA MP FUEBOVEJUNA MP San Pablo M Santo Elena M Monesterio M	LISBON MP (Portela) PORTO MP (Pedras Rubras) Coimbra M Portalegre M Braganca M	LUGO MP LEON MP Santiago M	
ORAN MP ORLEANSVILLE MP Oudja M	MILANO MP TORINO MP Turbigo M Venegrono M Passo Cisa M	VENEZIA MP BOLOGNA MP Treviso M Udine M Monte Cimone M	

4. - RESOLUTIONS AND ADDITIONAL RECOMMENDATIONS.

4.1. Broadcasting NOTAMS in Area Broadcasts

At the request of the COM Committee, the MET Committee examined the possibility of providing time for the transmission of NOTAMS on the area meteorological broadcast channel. The MET Committee recognized that a satisfactory method of disseminating NOTAMS could be guaranteed by their inclusion in the nine area meteorological broadcasts and gave fullest consideration to the possibility of assigning several minutes in each 20-minute broadcast.

Examination of the minimum meteorological requirements has shown however, that there will be no time available when the full area plan comes into operation. In fact it has been determined that the provision of adequate meteorological service to aviation will necessitate a duplication of the present plan which will require the assignment of 3 additional frequencies. A portion of the additional broadcast time made available under this arrangement could be permanently allocated to the NOTAM service.

The Meteorological Committee recognized however, that some time must elapse before the present plan is put in operation by all nine area centres and it considers that, in view of the importance of the NOTAM service, one of the 20-minute periods not availed of at the present time should be temporarily allocated to the NOTAM service.

Recommendation No 9

It is recommended that in view of the impossibility when the present plan for area meteorological broadcasts is fully implemented, of providing, by this means, the volume of meteorological information required for meteorological service to aircraft, in the form best adapted to the operators requirements, and in view of the lack which may then exist of any means of broadcasting NOTAMS, the Council take appropriate action to secure as soon as possible the assignment of three additional frequencies suitable for region-wide dissemination of meteorological information and NOTAMS.

It is further recommended that when these frequencies have been assigned action be taken to establish a new plan for three hourly area broadcasts from the nine European-Mediterranean areas based upon the use of the existing 3 frequencies and the assignment of two periods of twenty minutes to each area centre, the first period being assigned solely to the transmission of meteorological information and the second to consist of a 15-minute period for the transmission of meteorological information followed by a 5-minute period for the transmission of NOTAMS.

In the meantime, as a temporary measure, it is recommended that the periods allocated to one of the centers not at present broadcasting under the existing area broadcasting plan should be utilized for the broadcasting of NOTAMS until such time as the periods are actually required for the issue of meteorological information.

RESOLUTION ADOPTED BY COMMITTEE 6 IN CONNEXION
WITH THE USE OF THE TWO COMMON CHANNELS 3023,5
AND 5680 kc/s.

"IT IS RECOMMENDED ; that the common channels centred at 3023,5 and 5680 kilocycles be authorized worldwide for the following uses :

- a) Aboard aircraft for
 - (1) communication with approach and aerodrome control.
 - (2) communication with aeronautical stations when other frequencies are either unavailable or unknown.
- b) At aeronautical stations for aerodrome and approach control under the following conditions :
 - (1) for approach control with the power limited to a value that will produce 20 μ v/m at 100 km and in any case no more than 20 watts in the antenna circuit.
 - (2) for aerodrome control with the power limited to a value that will produce 20 μ v/m at 40 km and in any case no more than 20 watts in the antenna circuit.
 - (3) attention should be paid to the polarization used in order to avoid harmful interference
- c) For use for intercommunication between aircraft, mobile surface vehicles and ships engaged in coordinated search and rescue operations at the scene of a disaster.
- d) The specific applications of these common channels for these purposes may be decided at regional aeronautical conferences.
- e) With respect to the use of the 5680 kilocycles for approach and aerodrome control, it is recognized that it is not an appropriate frequency for that purpose and that it should be abandoned as soon as possible and that it should be used with careful regard to its propagation characteristics.

IT IS FURTHER RECOMMENDED that these channels be available for A1 or A3 emission in accordance with regional arrangements and that it be not subject to subdivision".

22 July, 1948

COMMITTEE 6

SUMMARY OF RECOMMENDATIONS

1. Frequency Allocation Plan (Aer-document No. 98, paragraph 10)

"It is recommended that the plan of frequency allocation as developed by the Preparatory Committee be adopted with the clear understanding that due consideration must be given to present and indicated future requirements and that the plan may be modified for instance with respect to the treatment of the equatorial zone or the regional frequency allocation plan, but without changing other basic principles as the work of the Committee progresses. In carrying out this plan, the Committee recognises the principle that the greatest freedom possible must be given to the respective administrations concerned to provide whatever system of communication they feel will best meet the needs of the aircraft operating agencies."

(In favour	18
Against	11
Abstentions	0)

2. Allocation of frequencies (Doc. 107 Para. b)

"This Conference should allot frequencies to serve specific Major World Air Route Areas but must not attempt to dictate which aeronautical ground stations shall be assigned these frequencies. It is essential that the administrations and regions concerned have full responsibility for determining which ground stations shall serve an operation for which frequencies have been provided. It is most important that this concept should not be lost sight of and that it should form part of the final report of Committee 6."

Adopted unanimously.

3. Provision for future developments in aircraft services (Doc. 127 Page 3)

"As far as Committee 6C is concerned, no special account shall be taken of future developments in aircraft services except in those cases where a development of major magnitude is likely to occur within the next three months and materially affect the rational allocation of frequencies to areas.

Relative information must be supplied in appropriate form to Working Group 6C by Friday June 25th, 1948."

Carried unanimously with 6 abstentions.

4. Non-scheduled Loading (Doc. 127 as amended in Doc. 128)

"THE COMMITTEE RECOMMENDS that the number of flights in column 5 in the Flight Information Tables (Doc. 71) be increased by 33 1/3% to represent the probable total loading (scheduled plus non-scheduled flights, including military traffic) which will have to be accommodated on the air

routes indicated except in a very limited number of special cases as determined by Committee 6C where the number of non-scheduled flights is so large and of such regular character that it will definitely have a bearing on the number of families of frequencies to be allotted."

(For	15
Against	1
Abstentions	13)

5. Peak loading within Major World Air Route Areas (Doc. 128 page 4).

"THE COMMITTEE CONSIDERS that the following formula is satisfactory for general application on the Major World Air Route Areas but that it may be necessary to determine another "Probable Concentration Factor" in estimating probable peak densities in cases where a number of low density routes or areas are served by one frequency or family of frequencies:

N = number of aircraft per hour (probable peak loading) =

K $\left(\frac{\text{Route miles} \times \text{scheduled flights per week}}{200 \times 7 \times 24} + \% \text{ allowed for non-scheduled operations} \right)$

K is the "probable concentration factor" = 2.4 for inter-continental routes.

This formula is subject to review by Committee 6 if found necessary.

(For	21
Against	1
Abstentions	12)

Reservations: U.S.S.R., Yugoslavia, Poland.

6. Utilization of Space between R and OR Bands (Doc. 142 and 153)

The Committee unanimously adopted the following recommendations in connection with the utilization of the space between the R and OR bands.

Band	Separation	Unallotted Space			Fractional Channel Width		Proposed allocation	Remarks
		R	OR	Total				
					R	OR	R Common OR	
2850-3155	7	6.5	3.5	10	0.93	0.5	- A3(10kc/s)-	centered at 3023.5
5480-5730	7.5	4.75	4.25	9	0.633	0.566	- A3(9kc/s)-	centered at 5680
6525-6765	7.5	1.75	4.25	6	0.232	0.566	- 2A-1	centered at 6685 and 6787.5
8815-9040	8.5	4.75	6.25	11	0.56	0.735	A-1 A3	centered at 8961.5 and 8967
11175-11400	9.5	0.75	4.25	5	0.079	0.447	- A1	centered at 11273
15010-15100	10.0	(8)*			(0.8)*-		2A-1	centered at 15092.5 and 15096.5
17900-18030	10.0	8.5	8.5	17.0	0.85	0.85	A3 A1	centered at 17966.5 and 17975

Total 27 kc/s 29 kc/s 3.284 channels 3.664

*15010-15100 kc/s exclusively OR therefore these figures not included in totals.

SUMMARY: For Common 2 A3 channels
For R Service 1 A3 and 1 A1 channel
For OR Service 1 A3 and 4 A1 channels

- 1) In connection with the common channels 3023.5 and 5680 kc/s, the decision as to the type of emission which may be used on these channels, namely A3 and A1 or A3 and A1 mixed, will be made at a later date of the Conference.
- 2) In connection with the 17966.5 high capacity channels, it is agreed that the general decision regarding the use of the different emissions on other high capacity channels is applicable also to this channel.
- 3) It is necessary that the equipment having a high degree of stability be used on the A1 channel at 8961.5 kc/s.

7. Use of Common Channels (3023.5 and 5680 kc/s) (See also Doc. 169 adopted by P.S.)

"IT IS RECOMMENDED that the common channels centred at 3023.5 and 5680 kilocycles be authorized worldwide for the following uses:

- a) Aboard aircraft for
 - (1) communication with approach and aerodrome control.
 - (2) communication with aeronautical stations when other frequencies are either unavailable or unknown.
- b) At aeronautical stations for aerodrome and approach control under the following conditions:
 - (1) for approach control with the power limited to a value that will produce 20 $\mu\text{v/m}$ at 100 km and in any case no more than 20 watts in the antenna circuit.
 - (2) for aerodrome control with the power limited to a value that will produce 20 $\mu\text{v/m}$ at 40 km and in any case no more than 20 watts in the antenna circuit.
 - (3) attention should be paid to the polarization used in order to avoid harmful interference.
- c) For use for intercommunication between aircraft, mobile surface vehicles and ships engaged in coordinated search and rescue operations at the scene of a disaster.
- d) The specific applications of these common channels for these purposes may be decided at regional aeronautical conferences.
- e) With respect to the use of the 5680 kilocycles for approach and aerodrome control, it is recognized that it is not an appropriate frequency for that purpose and that it should be abandoned as soon as possible and that it should be used with careful regard to its propagation characteristics.

IT IS FURTHER RECOMMENDED that these channels be available for A1 or A3 emission in accordance with regional agreement but that they be not subject to subdivision."

Adopted unanimously.

8. Meteorological Broadcast Frequencies (Doc. 172)

It is proposed to provide two families of frequencies from the R bands for ground/air meteorological broadcast - each family to consist of no more than three frequencies of the approximate order of 3, 6 and 9 Mc/s.

The primary assignments of these frequencies to be as follows:

- (a) one family to serve Major World Air Routes traversing the Pacific Ocean Area
- (b) one family to serve Major World Air Routes traversing the Atlantic Ocean Area

Duplication of these primary families for the purpose of meteorological broadcast through other parts of the world to be based on accepted frequency separation standards and possible time channel arrangements.

In any case, because of the particular requirements of the European Area the family of frequencies assigned to the Pacific Ocean Area to be made available to ground/air meteorological broadcasts in the European Major World Air Route Area.

(For	24
Against	7
Abstentions	3)

9. Lowering of Standards: (Doc. 184)

"Whereas it is evident that it will not be possible for the Committee to prepare a frequency allotment plan which will satisfy the minimum requirements of the regions and the Major World Air Route Areas using the standards recommended by Committee 4;

"Committee 6 agrees that it will be necessary to lower these recommended standards in respect of the Protection and or Channel loading factors to the extent necessary to provide satisfactorily the Regions and Major World Air Route Areas requirements."

Adopted unanimously.

10. Proposal regarding a method of approach to the definition of Major World Air Route Areas (Doc. 144 para. 4)

- 1) Working Groups to define the geographical limits of the Major World Air Route Areas.
- 2) That a Major World Air Route Area be established for Europe.
- 3) That frequencies be allotted to the European Major World Air Route Area on the same basis as for other areas.
- 4) That for loading purposes aircraft operations in adjoining areas extending into the European area will be charged to the adjoining area to the point of first landing in the European Area.

Loading will be applied to the European area from the point of first landing within that area to any point within the European area.

- 5) In establishing the boundaries of the Major World Air Route Areas the areas of authorized frequency utilization be overlapped to the extent operationally required.
- 6) The extent of the overlap to be kept as small as possible consistent with operational requirements, so that the necessity for protection of the frequency in the area will not destroy the possibility of duplication elsewhere in the world.

The resolution was approved unanimously with the following delegations stating that they reserved their opinion for the future and were abstaining: Yugoslavia, Albania, Bielorussia, and the U.S.S.R.

11. Major World Air Route Areas (Doc. 152)

"That we accept the boundaries as now outlined on the Globe except that to the Eu-Med frequency protection areas now provided for Major World Air Routes entering Europe, we add Copenhagen, Oslo and Stockholm.

The boundaries of the various Major World Air Route Areas may be extended by means of regional agreements to the extent that these modifications do not interfere with the possibilities of frequency repetition as derived from initial boundaries."

(For	24
Against	4
Abstentions	1)

12. Long Distance Communications (Doc. 180 page 3)

"Whereas a requirement exists for long distance communications between aircraft and their terminal locations in certain areas, for the carrying out of operational control and obtaining terminal flight information.

"And whereas in certain areas the existing Aeronautical Fixed Service is inadequate and cannot at present meet the operational requirement.

"It is recommended that two adjacent channels in the 22 Mc/s bands, each of bandwidth of 12 kc/s, be made available and afforded worldwide protection, for use by those administrations requiring such facilities.

"It is believed that the requirement will no longer exist when a satisfactory world wide aeronautical fixed service is provided.

"It is recommended that the P.F.B. be notified for information."

Mr. Jouk (Bielorussia) requested that a decision on this subject be deferred until a later meeting.

Mr. Rowland (U.K.) proposed that the document be adopted subject to any later remarks by the delegate of Bielorussia.

The Chairman, in the absence of any objections, ruled that the document was adopted, provisionally, subject to any later remarks of the delegate of Bielorussia.

COMMITTEE 6
PROPAGATION GROUP
INTERIM REPORT

1. Working members to 27.7.48

Chairman : G. Searle	New Zealand
J. Boctor	Egypt
A.C. De Vincenti	Italy
S.A. Sathar	Pakistan
A. Souto Cruz	Portugal
T.S.A. Gavrilitsa	U.S.S.R.
L.M. Layzell	I.A.T.A.

2. Work in hand :

2.1. The sharing of frequencies between regions and sub-regions.

2.2. The sharing of frequencies between major world air routes themselves and between major world air routes and regions.

3. Basic provisions which govern the method of approach are as follows :

3.1. Sharing between regions :

Latitudes		Frequencies Protected	
		Night	Day
40° S - 0 - 35° N	Europe	3, 3.5, 4.7 Mc/s	Remainder
40° S - 0 - 40° N	Far East/Middle East + Americas	3, 3.5, 4.7 Mc/s	Remainder
greater than 40° S - 35° N	Europe	3, 3.5 Mc/s	Remainder
greater than	Far/Middle East + Americas	3, 3.5 Mc/s	Remainder

The Europe limitation is imposed by longitudes 60° E and 20° W.

3.2. Sharing between major world air routes

FREQUENCIES GIVEN

DAY TIME PROTECTION : 9, 10, 11.3 Mc/s

FREQUENCIES GIVEN

NIGHT TIME PROTECTION : 3, 3.5, 4.7, 5.6, 6.6 Mc/s

3.3 Sharing between major world air routes and regions : as in 3.1.

3.4. Protection given : The repetition distance which is the sum of the interference range and the service range has been computed from the 15 db curves and data arising from the work of Committee 4.

3.5. Night time sharing : Based on work performed by 6C sub-group devoted to propagation, shown in Table I attached. The column for 15 db has been used.

3.6. Day time sharing : Based on work performed by 6C sub-group devoted to propagation shown in Table II attached. The column for 15 db has been used.

4. Method of approach to the problem.

The Propagation Group decided at its first meeting that it was necessary to have a permanent record of all work done in order that a check could be made at any stage on previous work. Hence it was determined to adopt a method based on the use of transparencies.

The following action was therefore instituted :

- 4.1. A transparent sheet was prepared showing the outline of each major world air route, it being understood that those entering Europe would stop at the point of entry into Europe.
- 4.2. Another transparency was prepared showing the overlap of all the major world air routes carried into Europe.
- 4.3. Around the outlines shown in 4.1. and 4.2. were drawn repetition range contours for each of the frequencies allotted to the respective world air routes based on the data in 3.2 and 3.4.
- 4.4. Transparent sheets were next prepared showing the repetition range contours around a point for various latitudes based on the data in 3.1 and 3.4.
- 4.5. In order to share a frequency between major world air routes all that is necessary is to slide the charts in 4.3 and select the routes which may be shared. At the same time it is possible to say in what regions the frequency may be repeated.

- 4.6. In order to share between regions, all that is necessary is to slide the various contours for each frequency (para. 4.4) around the limits of each region and select the other regions in which the frequency may be repeated using a similar method of approach and rejecting those which are within the repetition distance.
- 4.7. The various possibilities are then summed up into regions and major world air routes.
- 4.8. In the approach to the regional problem a commencement was always made from regions where existed the greatest requirement for frequencies.

5. Findings.

There was some interest in determining whether the greatest availability of frequencies was obtained by :

- 5.1. the greatest sharing between major world air routes meaning that few frequencies remained for regions, or
- 5.2. a limitation on sharing between major world air routes meaning that more frequencies were available to regions.

The findings of the Group were that there is not a great deal of difference between the two methods, and for the sake of convenience and other reasons, an endeavour has been made to obtain maximum repetition between major world air routes.

6. Further data.

In order to prepare the contours referred to in 4 above, it has been necessary to convert certain of the distances shown in tables I and II to degrees of latitude and longitude.

This data has been prepared in tabular form and is shown in tables III, IV, V, VI, VII attached to this interim report.

In these tables, the following abbreviations are used :

- S. R° = Service range in degrees.
- I. R° = Interference range in degrees.
- P. D° = Protection distance in degrees.

7. Nomenclature.

The plan referred to above is known to the Propagation Group as Plan I. Another plan, Plan II is in the course of formulation for presentation to Committee 6 at the same time as the results of Plan I are presented.

TABLE I - TABLEAU I - TABLA I

INTERFERENCE RANGES (NIGHT) Noise Grade (3.0)
 PORTÉES DE BROUILLAGE (NUIT) Degré des parasites atmosphériques (3,0)
 ALCANCE DE INTERFERENCIA (DE NOCHE) Grado de ruido (3.0)

Frequency Fréquence Frecuencia	Max. service range (km) Portée de service max. (km) Area max. de servicio (km)	Protection Ratio Rapport de protection Factor de protección			
		15 db	20 db	25 db	30 db
		Interference Range (km) Portée de brouillage (km) Región de interferencia (km)			
3.0 Mc/s	500	3500	5500	7500	11500
3.5 Mc/s	800	4000	6000	8500	12500
4.7 Mc/s	1400	5500	7000	11000	15000
5.6 Mc/s	1800	6500	9000	12500	15000
6.6 Mc/s	2200	8000	12000	15000	15000
9.0 Mc/s	3400	11000	15000	15000	15000

TABLE II - TABLEAU II - TABLA II

INTERFERENCE RANGES (DAY) Noise grade (3.0)
 PORTEES DE BROUILLAGE (JOUR) Degré des parasites atmosphériques (3,0)
 ALCANCE DE INTERFERENCIA (DE DIA) Grado de ruido (3.0)

Frequency Fréquence Frecuencia	Max. service range (km) Portée de service max. (km) Area de servicio (max.)	Protection Ratio Rapport de protection Factor de protección			
		15 db	20 db	25 db	30 db
		Interference Range km. Portée de brouillage km. Región de interferencia km.			
3.0 Mc/s	100	700	1100	1500	1800
3.5 Mc/s					
4.7 Mc/s	350	1200	1400	1700	2000
5.6 Mc/s	450	1500	1900	2400	3200
6.6 Mc/s	650	1900	2400	3000	4200
9.0 Mc/s	1000	3800	5800	9200	10000
10.0 Mc/s	1250	5500	8000	10000	10000
11.3 Mc/s	1500	6000	8500	10000	10000
13.3 Mc/s	1900	7700	10000	10000	10000
18.0 Mc/s	2600	10000	10000	10000	10000

TABLE III - TABLEAU III - TABLA III

Aer-Do-211

DAY TIME
JOUR
DE DIA

25 DB

Protection Ratio
Rapport de protection
Factor de proteccion

LAT	9.0 Mc/s						10.0 Mc/s					
	N - S			E - W			N - S			E - W		
	SR	IR	RD	SR	IR	RD	SR	IR	RD	SR	IR	RD
0°	9	82.5	91.5	9	82.5	91.5	11.3	90	101.3	11.3	90	101.3
10°	9	82.5	91.5	9.1	83.5	92.6	11.3	90	101.3	11.4	91	102.4
20°	9	82.5	91.5	9.6	88.5	98.1	11.3	90	101.3	12	96	108
30°	9	82.5	91.5	10.4	96	106.4	11.3	90	101.3	13	104	117
40°	9	82.5	91.5	11.7	108	119.7	11.3	90	101.3	14.7	117	131.7
50°	9	82.5	91.5	14	130	144	11.3	90	101.3	17.6	140	157.6
60°	9	82.5	91.5	18.2	168	86.2	11.3	90	101.3	22.7	180	202.7

LAT	11.3 Mc/s						13.3 Mc/s					
	N - S			E - W			N - S			E - W		
	SR	IR	RD	SR	IR	RD	SR	IR	RD	SR	IR	RD
0°	13.5	90	103.5	13.5	90	103.5	17.1	90	107.1	17.1	90	107.1
10°	13.5	90	103.5	13.6	91	104.6	17.1	90	107.1	17.3	91	108.3
20°	13.5	90	103.5	14.4	96	110.4	17.1	90	107.1	18.3	96	114.3
30°	13.5	90	103.5	15.7	104	119.7	17.1	90	107.1	19.8	104	123.8
40°	13.5	90	103.5	17.7	117	134.7	17.1	90	107.1	22.4	117	139.4
50°	13.5	90	103.5	21.2	140	161.2	17.1	90	107.1	26.8	140	166.8
60°	13.5	90	103.5	27.2	180	207.2	17.1	90	107.1	34.6	180	214.6

LAT	18.0 Mc/s					
	N - S			E - W		
	SR	IR	RD	SR	IR	RD
0°	22.5	90	112.5	22.5	90	112.5
10°	22.5	90	112.5	22.7	91	113.7
20°	22.5	90	112.5	24	96	120
30°	22.5	90	112.5	26	104	130
40°	22.5	90	112.5	29.4	117	146.4
50°	22.5	90	112.5	35.6	140	175.6
60°	22.5	90	112.5	45.5	180	225.5

NIGHT TIME
NUIT
DE NOCHE

25 DB

Protection Ratio
Rapport de protection
Factor de protección

LAT	3 Mc/s						3.5 Mc/s					
	N - S			E - W			N - S			E - W		
	SR	IR	RD	SR	IR	RD	SR	IR	RD	SR	IR	RD
0°	4.5	67.5	72	4.5	67.5	72	7.2	76.7	83.9	7.2	76.7	83.9
10°	4.5	67.5	72	4.6	68.3	72.9	7.2	76.7	83.9	7.3	77.4	84.7
20°	4.5	67.5	72	4.8	72.2	77	7.2	76.7	83.9	7.7	81.6	89.3
30°	4.5	67.5	72	5.2	78.2	83.4	7.2	76.7	83.9	8.3	88.5	96.8
40°	4.5	67.5	72	5.9	88.3	94.2	7.2	76.7	83.9	9.4	100	109.4
50°	4.5	67.5	72	7.0	105.8	112.8	7.2	76.7	83.9	11.2	112	123.2

LAT	4.7 Mc/s						5.6 Mc/s					
	N - S			E - W			N - S			E - W		
	SR	IR	RD	SR	IR	RD	SR	IR	RD	SR	IR	RD
0°	12.6	99	111.6	12.6	99	111.6	16.3	112.5	128.8	16.3	112.5	128.8
10°	12.6	99	111.6	12.8	100	112.8	16.3	112.5	128.8	16.4	114	130.4
20°	12.6	99	111.6	13.5	105.8	119.3	16.3	112.5	128.8	17.3	120	137.3
30°	12.6	99	111.6	14.6	114.5	129.1	16.3	112.5	128.8	18.8	130	148.8
40°	12.6	99	111.6	16.5	129.5	146	16.3	112.5	128.8	21	147	168
50°	12.6	99	111.6	19.8	155	174.8	16.3	112.5	128.8	25.5	176	201.5

LAT	6.6 Mc/s					
	N - S			E - W		
	SR	IR	RD	SR	IR	RD
0°	19.8	135	154.8	19.8	135	154.8
10°	19.8	135	154.8	20	136.5	156.5
20°	19.8	135	154.8	21	144	165
30°	19.8	135	154.8	23	156	179
40°	19.8	135	154.8	26	176	202
50°	19.8	135	154.8	31	211	242

DAY-TIME
JOUR
DE DÍA

15 DB

Protection Ratio
Rapport de protection
Factor de protección

LAT	9.0 Mc/s						10.0 Mc/s					
	N - S			E - W			N - S			E - W		
	SR	IR	RD	SR	IR	RD	SR	IR	RD	SR	IR	RD
0°	9	34.3	43.3	9	34.3	43.3	11.3	49.5	60.8	11.3	49.5	60.8
10°	9	34.3	43.3	9.1	34.5	43.6	11.3	49.5	60.8	11.4	50	61.4
20°	9	34.3	43.3	9.6	36.5	46.1	11.3	49.5	60.8	12	53	65
30°	9	34.3	43.3	10.4	38	48.4	11.3	49.5	60.8	13	57.5	70.5
40°	9	34.3	43.3	11.7	44.8	56.5	11.3	49.5	60.8	14.7	64.5	79.2
50°	9	34.3	43.3	14	53.5	67.5	11.3	49.5	60.8	17.6	78	95.6
60°	9	34.3	43.3	18.2	69	81.2	11.3	49.5	60.8	22.7	100	122.7

LAT	11.3 Mc/s						13.3 Mc/s					
	N - S			E - W			N - S			E - W		
	SR	IR	RD	SR	IR	RD	SR	IR	RD	SR	IR	RD
0°	13.5	54	67.5	13.5	54	67.5	17.1	69	86.1	17.1	69	86.1
10°	13.5	54	67.5	13.6	54.5	67.6	17.1	69	86.1	17.3	70	87.3
20°	13.5	54	67.5	14.4	58	72.4	17.1	69	86.1	18.3	74	92.3
30°	13.5	54	67.5	15.7	63	78.7	17.1	69	86.1	19.8	80	99.8
40°	13.5	54	67.5	17.7	71	88.7	17.1	69	86.1	22.4	91	113.4
50°	13.5	54	67.5	21.2	85	106.2	17.1	69	86.1	26.8	108	134.8
60°	13.5	54	67.5	27.2	109	136.2	17.1	69	86.1	34.6	140	174.6

LAT	18.0 Mc/s						6.6 Mc/s					
	N - S			E - W			N - S			E - W		
	SR	IR	RD	SR	IR	RD	SR	IR	RD	SR	IR	RD
0°	22.5	90	112.5	22.5	90	112.5	5.8	17	22.8	5.8	17	22.8
10°	22.5	90	112.5	22.7	91	113.7	5.8	17	22.8	5.8	17	22.8
20°	22.5	90	112.5	24.0	96	120.0	5.8	17	22.8	6.3	18.1	24.4
30°	22.5	90	112.5	26.0	104	130.0	5.8	17	22.8	6.8	20	26.8
40°	22.5	90	112.5	29.4	117	136.4	5.8	17	22.8	7.7	22	29.7
50°	22.5	90	112.5	35.6	140	175.6	5.8	17	22.8	9.2	27	36.2
60°	22.5	90	112.5	45.5	182	227.5	5.8	17	22.8	11.8	35	46.8

TABLE VI - TABLEAU VI - TABLA VI

Aer-Doc.Nº 211

NIGHT TIME
NUIT
DE NOCHE

15 DB

Protection Ratio
Rapport de Protection
Factor de protección

LAT	3 Mc/s						3.5 Mc/s					
	N - S			E - W			N - S			E - W		
	SR	IR	RD	SR	IR	RD	SR	IR	RD	SR	IR	RD
0°	4.5	31.5	36	4.5	31.5	36	7.2	36	43.2	7.2	36	43.6
10°	4.5	31.5	36	4.6	32	36.6	7.2	36	43.2	7.3	36.5	43.8
20°	4.5	31.5	36	4.8	33.6	38.4	7.2	36	43.2	7.7	38.0	45.7
30°	4.5	31.5	36	5.2	36.5	41.7	7.2	36	43.2	8.3	42.0	50.3
40°	4.5	31.5	36	5.9	41	46	7.2	36	43.2	9.4	47.0	56.4
50°	4.5	31.5	36	7.0	49	56	7.2	36	43.2	11.2	56.0	67.2

LAT	4.7 Mc/s						5.6 Mc/s					
	N - S			E - W			N - S			E - W		
	SR	IR	RD	SR	IR	RD	SR	IR	RD	SR	IR	RD
0°	12.6	50	62.6	12.6	50	62.6	16.3	58	74.3	16.3	58	74.3
10°	12.6	50	62.6	12.8	50	62.8	16.3	58	74.3	16.4	60	76.4
20°	12.6	50	62.6	13.5	53	66.5	16.3	58	74.3	17.3	63	80.3
30°	12.6	50	62.6	14.6	57	71.6	16.3	58	74.3	18.8	68	86.8
40°	12.6	50	62.6	16.5	65	81.5	16.3	58	74.3	21	76	97
50°	12.6	50	62.6	19.8	77	96.8	16.3	58	74.5	25.5	92	117.5

LAT	6.6 Mc/s					
	N - S			E - W		
	SR	IR	RD	SR	IR	RD
0°	19.8	72	91.8	19.8	72	91.8
10°	19.8	72	91.8	20	73	93
20°	19.8	72	91.8	21	77	98
30°	19.8	72	91.8	23	83	106
40°	19.8	72	91.8	26	94	120
50°	19.8	72	91.8	31	111	142

TABLE VII - TABLEAU VII - TABLA VII

DAY-TIME }
 JOUR }
 DE DIA }

15 DB

{ PROTECTION RATIO
 { RAPPORT DE PROTECTION
 { FACTOR DE PROTECCION

4.7 Mc/s

LAT.	NS.			EW.		
	SR°	IR°	RD°	SR°	IR°	RD°
40°	3.15	10.8	14	4.2	14.1	18.3
50°	3.15	10.8	14	5	17.0	22
60°	3.15	10.8	14	6.4	22.0	28.4

5.6 Mc/s

LAT.	NS.			EW.		
	SR°	IR°	RD°	SR°	IR°	RD°
40°	4	13.4	17.4	5.3	17.6	22.6
50°	4	13.4	17.4	6.4	2.2	27.55
60°	4	13.4	17.4	17.4	27.4	34.4

GENEVA, 1948

2 August 1948.

COMMITTEE 6

Propagation Group

Report No. 2

Constitution of Sub-Working Groups and a Description of Plan II
for the repetition of frequencies.

1. Arising out of the 24th meeting of Committee 6, Aer-Doc. 209, two working groups were formed, the first to continue to its logical conclusion the application of Plan I, and the second, to provide another plan which would take care, to some extent, at least, of the frequency bands where Plan I gave inadequate repetition possibilities.
2. The second plan (II) has been developed largely by Mr. Gavrilitsa of the U.S.S.R. delegation and will be presented to Committee 6 by the Propagation Group based purely on technical argument. Operational and safety needs will require to be fully and finally decided by Committee 6.
3. The following are members of the two groups working on Plans I and II:

Plan I

L.M. Layzell, I.A.T.A. (Leader)
S.A. Sathar, Pakistan
J. Boctor, Egypt
W.E. Weaver, U.S.A.
A. Souto Cruz, Portugal

Plan II

S.P. Gavrilitsa, U.S.S.R. (Leader)
M.R. Szuzurek, Poland
P.J. Greven, I.C.A.O.

4. In the event of some portions of the results of Plan I being unacceptable to Committee 6, no doubt portions of Plan II will be able to be substituted in lieu thereof. This will require to be decided by Committee 6.
5. The data on which Plan I is based is described in the Interim Report of the Propagation Group (Document 211), and given hereafter is a description of the basis of Plan II.
6. Description of Plan II.

Since the most difficult problem in the allocation of frequencies takes place in 3 and 3.5 Mc/s in Region No. 1 (Europe), it is advisable to compare the difference between protection ratios calculated for night and day time operation for two points separated by a certain distance.

For a radiated power of 1 kW maximum service, range in all latitudes at 3 Mc/s for day time at one point 30° from day/night line is less than 200 Km. The night time maximum service range is approximately 500 Km. (See Tables I and II, Aer-Doc. 211). The following table shows the interference ranges for different protection ratios at 200 Km. or 500 Km. maximum ranges:

Day Protection Ratios	15 dB	20 dB	25 dB	30 dB
Interference (a) 200 Km. range for:	1050	1300	1600	1900
A service range of: (b) 500 Km.	1300	1500	1800	2100
Interference range for 200 Km. service range	1050	1300	1600	1900
Night prot. ratio	7 dB	8 dB	10 dB	11 dB
Interference range for 500 Km. S.R.	1300	1500	1800	2100
Night protect. ratio	6 dB	7 dB	9 dB	10 dB

For the above refer to P.C. Aer-Doc. 5.

Frequencies higher than 6.6 Mc/s have been allocated on 15 dB day time protection ratio. Thus the value of 10-11 dB night protection ratio obtainable for 3 Mc, with the separations described in the above tables seems to be acceptable since by proper reduction of power, radiated during night time it will be possible to maintain a desirable protection ratio not lower than 15 dB.

Bearing these figures in mind it was decided to find the possible allocation of frequencies for Regions 1, 2, 3, 4, 5, and 6, in order to obtain more frequency duplication for these regions in the 3 and 3.5 Mc/s bands. For this purpose repetition distances of 1800, 2100 and 2600 Km. and day protection ratio of 25 and 30 dB were used.

It is desirable to state further that the same method of selecting regions and subregions where frequencies may be repeated has been used for Plan II as for Plan I. This method involves the use of contoured transparencies as described in Aer-Doc. 211.

7. Power Rating.

It is understood from Mr. de Haas' working group that a general analysis of the transmitters in use in Europe on regional services indicates that a power of 500 watts is most common. Presumably this is the power delivered to the antenna, and also refers to mean carrier power. In the event of this being the case, it would be possible to assume an antenna efficiency of 40% and use as a basis for repetition the figure of 200 W. as an average power radiated. It must, of course, be admitted that in many cases the actual power radiated will be less than this figure, while in many others the power radiated will be greater.

The basis of Plan I includes a figure of 1 kW mean radiated carrier power - 4 kW peak power (A_2), so that if a figure of 200 W, mean radiated carrier power is accepted there will be a decrease in service range as follows:

<u>Day</u>	28%
<u>Night</u>	4.2%

These reductions are based on the fact that 1 dB decrease in power decreases the service range by 4% (approx.) by day and by 6% (approx.) by night.

It will be noted that the above reductions refer to service range. A check which has been made indicates that the same general reductions apply to the interference ranges. Accordingly, there are three possibilities:

- (a) Decrease all distances by the factors described thereby relating both day and night protection ratios to the figure of 200 W. radiated.
- (b) Decrease only night distances by the factors described, thereby relating day protection to 1 kW and night protection to 200 W.
- (c) Arrange a combination of (a) and (b) above, by taking a limited number of frequencies from each band where Plan I fails to satisfy the requirements and allocating them to the region employing the methods proposed in Plan II. This means that for each region some frequencies of each order would have a higher night time protection ratio than others.

G. SEARLE (NEW ZEALAND)

Chairman.

THE PROBLEM OF ASSIGNMENT OF FREQUENCIES
TO INDIVIDUAL AERONAUTICAL STATIONS

(Statement presented by the Representative of ICAO)

Of all the services which utilize radio telecommunications, the aeronautical mobile R service is perhaps unique in one respect, namely, the safety and regularity of the service is dependent on the aid and comfort of an efficient radio telecommunications service without which civil air operations cannot be conducted without endangering human life. The rapid expansion of civil air operations in the past few years has resulted in a growing difficulty for radio telecommunications to keep pace, particularly as regards the availability of frequencies for the aeronautical services, a difficulty which will undoubtedly become aggravated in the course of time owing to the limited spectrum space and the increasing demands thereon by all the services.

Furthermore, increase in the speed of aircraft requires in general a corresponding increase in the speed of handling traffic, while the density of air traffic over any route or any particular point calls for a more efficient supporting telecommunication service. In the various parts of the world where air transport has developed intensively, it has been necessary to establish highly efficient air traffic control services, whose primary objective is the prevention of collision between aircraft in flight. These services cannot provide such protection without the aid of correspondingly efficient radio communications service. The growth of international air navigation has forced governments to make provision for proper coordination between the communications service and air traffic control, in particular, and with the other ancillary services such as meteorology, search and rescue, navigational aids, operational control, etc.

In those parts of the world remote from the centres of population where the operational requirements of the aeronautical services are small or where, due to the geographic location, adequate frequencies are available by duplication, it should be possible to provide a satisfactory allotment of frequencies to meet all normal needs.

In regions of high air traffic density, such as Western Europe, or other regions where a number of states are involved, the problem of allotment and assignment of frequencies is extremely complex and can only be solved when all operational requirements have been studied in detail by all the states concerned. Factors such as the lack of uniformity in operational procedures and standards, the lack of coordination in planning air navigation facilities, and competition among states for the exclusive use of

extremely limited spectrum space, make the problem of equitable distribution of frequencies difficult, if not impossible. The fact is that there simply are not enough frequencies to meet the requirements placed before this Conference by the governments, and therefore some plan which will utilize frequencies more efficiently than would be possible by a national distribution must be agreed. The International Telecommunication Conference at Atlantic City evidently foresaw the necessity for such a plan, since it allocated spectrum space for the exclusive use of the aeronautical mobile R service, as stated in para. 256 of the Radio Regulations.

The problem fundamentally is to secure the greatest possible utilization of the frequencies available to the aeronautical service generally. It must be emphasized that aeronautical telecommunications in Western Europe, or in other regions of high air traffic density is not a national problem, - the propagation of high frequencies knows no national boundaries. For this reason it is considered that the assignment of frequencies and the organization of air routes in such regions must be dealt with as regional problems.

Civil air operations require a network of Communications Centres, located at points which will enable the aircraft to maintain continuous contact in all foreseeable conditions of flight with these Centres in the interests of safety and regularity. The consideration of the utilization of frequencies demands a knowledge of the various purposes for which the frequencies will be used, their relative importance, their relation to one another and the problem of distribution of air traffic. Aeronautical communications cannot be considered apart from their use as the instrument of air traffic, operational control, search and rescue, and meteorology. Therefore, the planning of communications requires the participation by experts in all relevant technical aspects of civil air operations, and it is these experts who must make the critical decision on the distribution and use of the available frequencies. The assignment of frequencies to individual stations can only take place after the decision has been taken on the number, location and type of aeronautical stations which will be required and the purposes for which these stations will be utilized.

Before the last war, the governments were merely required to notify the Bern Bureau regarding the frequencies they intended to use. The needs of the aeronautical services were examined at various conferences convened under the auspices of the International Commission for Air Navigation, whose responsibilities ICAO has since taken over on a larger scale, and the recommendations of ICAO so reached were recognized by the ITU at Madrid in 1932, Lucerne in 1933, Cairo in 1938, and Montreux in 1939. It has been long recognized that international civil aviation is unique in that it can only function with the full cooperation of governments interested in using this form of transport. ICAO has been concerned thus far primarily with the standardization of the technical problems concerned to facilitate the movement of aircraft from one country to another. Only by establishing uniform rules, standards and procedures can the safety of flight and the development of international air lines be advanced. In the meetings convened by ICAO, experts of the world have come together for the three past

years to codify and standardize the practice of their governments in these matters. Regional meetings have been held in most parts of the world and plans for air navigation facilities considered essential or desirable have been drawn up, systems of navigational aids have been recommended and all the other arrangements required for the functioning of specific routes have been specified.

Unless provision is made to implement the recommended facilities by assigning to them the necessary frequencies, these plans drawn up to protect international flight may have to be modified to the detriment of international air transport. This Conference is therefore urged to consider very carefully the two basic principles which it is believed are essential to protect the interests of international civil aviation. These proposals call for a degree of international collaboration among the states concerned more advanced than has thus far been undertaken, but the logic of international civil aviation cannot be avoided : if we desire to have international air routes they can only be realized by international collaboration. Such collaboration is already taking place among the 51 member states of ICAO but to realize its full benefit the cooperation of the ITU must now be secured, as provided by the drafters of the International Telecommunication Convention at Atlantic City in Article 27 of the Convention.

It is therefore believed the following steps should be taken :

- (1) In the various air navigation regions of the world the governments located therein should agree to pool the use of the allotted frequencies in order to secure their maximum and optimum operation; and
- (2) Recommendations for the assignment of frequencies to individual stations should be drawn up on the basis of operational requirements by the authorities responsible for the safety and efficiency of aircraft operation on the established air routes at regional air route area conferences, where all states concerned will be represented on a basis of equality.

3 August, 1948

COMMITTEE 6

REPORT BY WORKING GROUP IN CONNECTION WITH THE
REQUIREMENTS FOR THE MAJOR WORLD AIR ROUTE AREAS.

(COMMITTEE 6)

1. **Introduction**

1. The working group extracted from the tabulated information prepared by Committee 6 - C the loading data applicable to each order of frequencies for all Major World Air Route Areas.
2. The information extracted regarding peak loading, order and number of frequencies allotted to each MWARA has been tabulated and is presented as annex 1 to this report.
3. Careful consideration was given to the total loading in each order of frequencies and the working group attempted to achieve every economy in the use of frequencies by reducing wherever possible, the number of channels or, in other cases, by sharing with other MWARAs.
4. In this connection, the delegates with local knowledge of particular MWARAs were consulted to ensure that no requirements or circumstances particular to the MWARA concerned were overlooked.

2. The results of the discussions are summarized below:

1. It is suggested that the Propagation Group be asked to investigate whether any economy in frequencies might result from consideration of the following rearrangements:
 - a) Sharing the 13 Mc/s channel in NSA - 2 with ME.
 - b) Using a common 13 Mc/s channel in NSAM-1 and 2. It should be noted that it is necessary to provide for NSAM-2 a total of two 9 Mc/s and one 10 Mc/s channels. If it should prove entirely impracticable to provide two 9 Mc/s channels, one 9 Mc/s and one 10 Mc/s would be accepted as a last resort.
 - c) Sharing of an FE-2 13 Mc/s with SP.
 - d) Sharing of the N.P. family of frequencies with one of the NA families of frequencies.
 - e) The French delegation agreed that Fort-de-France station could operate on SA frequencies on a secondary basis so that for duplication purposes the western boundary of the SA region can be drawn as a straight line from 25°N, 25°W to Natal.
 - f) In order to ease the situation in the 10 and 11 Mc/s bands, it was agreed that one 10 Mc/s and one 11 Mc/s could be discontinued in C E P if provision could be made for two additional 13 Mc/s channels thus making a total of three 13 Mc/s channels.

3. It was agreed by all interested parties concerned that the following reductions in the number of channels required in the various Major World Air Route Areas could be made in order to achieve maximum economy in the use of frequencies.

- a) In NSAM-2 one 11 Mc/s channel to be deleted.
- b) In FE-1 one 3.0 Mc/s and one 5.6 Mc/s channel to be deleted.
- c) In EU, the 13 Mc/s channel to be deleted.

International Administrative
Aeronautical Radio Conference
GENEVA, 1948

Annex 1 to Aer-Document No. 219-E
(Revised August 14th)

Conférence internationale administrative
des Radiocommunications aéronautiques
GENEVE, 1948

Annexe 1 au Aér-Document No 219-F
(Révisé le 14 août)

Conferencia Administrativa Internacional
de Radiocomunicaciones Aeronáuticas
GINEBRA, 1948

Anexo 1 al Documento Aer. No. 219-S
(Revisado, 14 de agosto de 1948)

Families and orders of frequencies for Major World Air Route Areas.

Familles et ordres de grandeur de fréquences pour les zones de passage des lignes
aériennes mondiales principales.

Familias y órdenes de frecuencias para las áreas de Rutas Aéreas más importantes
del mundo.

Freq. MWARA	3.0	3.5	4.7	5.6	6.6	9	10	11.3	13.3	18
SP	1	-	-	1	-	1	-	-	1	1
NP	1	-	-	1	-	1	-	-	1	1
CEP	-	4	-	2	2	2	2	2	2	1
CWP	1	-	-	1	-	1	-	-	1	1
FE1	1	-	-	1	-	2	-	-	1	1
FE2	1	-	-	1	-	1	-	-	1	1
ME	-	2	-	1	1	1	1	-	1	1
NSA2	1	-	-	1	-	1	-	-	1	1
NSA1	-	1	-	1	-	1	-	-	1	1
EU	2	2	2	1	2	2	-	1	-	1
NA	4	-	-	4	-	4	-	-	4	1
SA	1	1	-	-	3	2	1	-	1	1
NSAM2	2	1	-	2	1	2	1	1	1	1
NSAM1	1	-	1	-	1	1	-	-	1	1

Note: Peak loadings for each frequency order are given on page 2.

Note : Les charges maximum pour chaque ordre de grandeur des fréquences sont données à la page 2.

Nota : En la página 2 se detallan las cargas máximas para cada orden de frecuencias.



ANNEX 1, Aer-Doc. 219
ANNEXE 1, Aér-Doc. 219
ANEXO 1, Aer-Doc. 219

Frequency Allotment - Major World Air Route Areas

(Peak Loading for each frequency order required by the various route segments to provide for communication up to the half-way points.)

Attribution de fréquences - Zones de passage des lignes aériennes mondiales principales

(Charge maximum requise pour les différents ordres de grandeur de fréquences et pour les différents tronçons de lignes, en vue de permettre les liaisons jusqu'au milieu de chaque tronçon.)

Distribución de Frecuencias - Areas de Rutas Aéreas Más Importantes del Mundo

(Carga máxima para cada orden de frecuencias que los diversos segmentos de ruta requieren a fin de facilitar las comunicaciones hasta los puntos centrales del segmento.)

MWARA	3	3.5	4.7	5.6	6.6	9	10	11.3	13.3	18
EU	22.7	28.78	19.09	29.45	14.73	20.24	-	7.30	-	-
NSAM-2	38.08	-	2.03	36.17	1.2	35.14	0.97	11.50	9.45	4.09
CEP	54.1	-	-	54.1	-	54.1	-	-	54.1	54.1
NSAM-1	17.36	.93	8.50	8.50	8.42	7.67	4.45	2.64	.38	-
NA	48.77	4.58	-	53-35	-	53.27	-	-	47.90	2.65
SA	28.65	3.92	8.97	23.60	8.97	23.35	2.54	9.82	11.98	1.25
NSA-1	13.359	2.216	.59	16.340	-	14.080	-	-	9.115	.39
NSA-2	11.837	1.51	-	12.337	.99	10.484	-	.92	3.464	.69
ME	30.048	-	-	30.048	-	28.981	-	-	8.33	2.132
FE-1	15.57	3.68	-	19.09	-	18.12	-	-	9.49	0.87
FE-2	12.53	-	-	12.53	-	12.43	-	-	3.48	-
SP	10.15	-	-	10.15	-	8.77	-	-	6.33	1.8
CWP	9.04	-	3.65	5.39	3.65	5.32	-	3.52	5.32	.5
NP	4.48	-	1.31	3.17	1.31	3.17	-	1.31	-	-

Frequency Order Mc/s. Ordre de grandeur de fré- quences Mc/s. Orden de frecuen- cias.	N° of channels used. Nombre de voies utilisées. N° de cana- les utili- zados.	N° of MWARA's. Nombre de lignes. N° de rutas aé- reas más import- tantes del mundo.	N° of channels per MWARA. Nombre de voies par ligne. N° de cana- les per ruta.	N° of MWARA per channel. Nombre de lignes par voie. N° de MWARA por canal.
3	8*	16	0.5*	2.00*
3.5	6*	11	0.55*	1.83*
4.7	3*	3	1 *	1.0 *
5.6	10*	17	0.6 *	1.70*
6.6	8*	10	0.8*	1.25*
9	11*	22	0.5*	2.00*
10	3*	5	0.6*	1.66*
11.3	3*	4	0.75*	1.33*
13.3	9*	17	0.53*	1.89*
18	5*	14	0.36*	2.80*

NOTE - * indicates certain sharing possibilities also available to regions and sub-regions.

NOTE - * indique qu'il existe certaines possibilités de répétition pour les régions et sous-régions.

NOTA - * indica la existencia de determinadas posibilidades de compartición para las regiones y subregiones.

INTERNATIONAL ADMINISTRATIVE
AERONAUTICAL RADIO CONFERENCE
GENEVA, 1948.

Aer-Document N°226 - E

August 5, 1948

PROPOSAL SUBMITTED BY THE DELEGATE OF PAKISTAN IN CONNECTION WITH
METEOROLOGICAL BROADCAST FREQUENCIES.

With reference to paragraph 8 of Aer-document 192-E, to meet the meteorological requirements of the Middle East Major World Route Area, it is necessary for a family of 3, 6 and 9 Mc/s frequencies to be made available to this area. In view of this the following proposal is made :

"The family of frequencies primarily assigned to the Atlantic ocean area be made available to the ground/air meteorological broadcasts in the Middle East Major World Air Route Area with the 3 Mc/s frequency available by night and the 6 and 9 Mc/s frequencies by day only".

From the propagation aspect, the proposal is also sound.

S.A. SATHAR

Delegation of Pakistan.

- E -



International Administrative
Aeronautical Radio Conference.
GENEVA, 1948.

Aer-Document 240-E.
16 August, 1948

PROPOSAL SUBMITTED BY THE DELEGATION OF EGYPT
MINIMUM FREQUENCY REQUIREMENTS OF A COUNTRY IN THE ROUTE
AERONAUTICAL MOBILE BANDS FOR DOMESTIC FLYING.

Due to the fact that some countries did not submit figures for their weekly domestic mileage flown, the Egyptian Delegation feels that each of these countries should be allotted the following frequency channels as a minimum for domestic operations in the Route Aeronautical Mobile Bands :

1. One family of frequencies for day and night operation for telephony emission.
2. One family of frequencies for day and night operation for telegraphy or high capacity means of communication.

The composition of the family should be based upon the maximum distance within the territory of the respective country. Consideration should also be given to peculiarities such as abnormally high noise levels, etc.

J. BOCTOR

THE EGYPTIAN DELEGATION



COMMITTEE 6

SUMMARY OF RECOMMENDATIONS ADOPTED BY COMMITTEE 6.

The following summary of recommendations approved by Committee 6 is supplementary to the list contained in Aer-Document 192 and has been prepared for the guidance and convenience of Committee 6.

1. Regional and Domestic Air Route Areas (Aer-Document 214).

(a) The Committee adopted the following titles:

(English) "Regional and Domestic Air Route Areas"

(French) "Zones des lignes aériennes régionales et nationales"

(Spanish) "Areas de rutas aéreas regionales y nacionales".

(b) The map bearing the above title and appearing as appendix II to Aer-Document 241 was approved.

2. Extension of MWARAS over Europe (Aer-Document 214, paragraph 7).

The working group under Mr. Souto Cruz decided by majority vote that:

"One family of the following Major World Air Routes

NA, SA, ME, NSA1, NSA2

will enter into Europe;

the other families will stop at the first terminal point within the European Region.

The results of this proposal will be reviewed if it is found that the plan is unsatisfactory from the regional viewpoints.

The following are the terminals at which the several MWARA frequencies will be stopped:

NA: Stavanger
Prestwick
Shannon
Paris
Madrid
Lisbon
Casablanca

SA: Algiers
Madrid
Lisbon

NSA-1: Casablanca
Algiers
Tunis

NSA-2: Tripoli
Benghazi
Mersa Matruh
Alexandria
Cairo

ME: Sollum
Alexandria
Cyprus
"

The delegate of France requested the following insertion into the minutes:

"That the French delegation has no objection to the Committee adopting this proposal provided it is limited only to the use of A3".

3. Restriction on use of SA Frequencies at Fort de France (Doc. 236, para. 4)

"In order to increase the possibilities of frequency repetition within the SA region, it is suggested that the station Fort de France remain included within that region, but that it use the corresponding frequencies only on a secondary basis; if this resulted in harmful interference, Fort de France would then use frequencies of the NSAM-2 region."

4. Protection Ratios (Doc. 214, para. 13).

The propagation group under Mr. Searle was given the following directives as to protection ratios:

(a)

Mc/s	Between MWARA and MWARA	Between MWARA and Regions	Between Regions
3.0	Night	Night	Night
3.5	Night	Night	Night
4.7	Night	Night	Night (only between 40°N and 40°S); remainder*
5.6	Night	Night	Day
6.6	Night	Day	Day
9.0	Day	Day	Day
10.0	Day	Day	Day
11.3	Day	Day	Day

*Note: In Europe only 3.0 and 3.5 Mc/s have night time protection and it was agreed that the propagation group would, where practicable, duplicate 4.7 Mc above 35° on day protection as it is considered that from the practical viewpoint propagation conditions will permit this procedure.

(b) Repetitions for 6.6 Mc/s frequencies for sharing between MWAR areas are so based on the protection distances given by 5.6 Mc/s frequencies at night time, assuming a protection ratio of 15 db (See Doc. 236, para. 22).

5. At the time of preparation of this paper the following resolution is awaiting consideration (Annex A, Doc. 236):

UK PROPOSAL FOR THE ALLOTMENT OF FREQUENCIES FOR
AERODROME CONTROL AND APPROACH CONTROL

1. Considering:

that the two common channels, namely, 3023.5 and 5680 kc/s, already available for the Aerodrome and Approach Control functions,

will be insufficient to meet all the demands of these services in the Eastern Hemisphere, it is

Recommended:

that two additional frequencies from the 3 or 3.5 Mc/s bands be set aside for use in the Eastern Hemisphere for Aerodrome and Approach Control, under the conditions:

- (a) for approach control with the power limited to a value that will produce 20 $\mu\text{V/m}$ at 100 Km. and in no case more than 20 watts in the antenna circuit;
 - (b) for approach control with the power limited to a value that will produce 20 $\mu\text{V/m}$ at 40 Km. and in no case more than 20 watts in the antenna circuit.
2. The frequencies so allotted may be used, also, for any other aeronautical mobile function on the condition that no harmful interference be caused thereby to stations employing them for aerodrome and approach control purposes.

6. Meteorological broadcasts for the Middle East Area (Doc. 226 and para. 11, Doc. 236).

With reference to paragraph 8 of Aer-Document 192-E, to meet the meteorological requirements of the Middle East Major World Air Route Area, it is necessary for a family of 3, 6 and 9 Mc/s frequencies to be made available to this area. In view of this the following proposal is made:

"The family of frequencies primarily assigned to the Atlantic ocean area be made available to the ground/air meteorological broadcasts in the Middle East Major World Air Route Area with the 3 Mc/s frequency available by night and the 6 and 9 Mc/s frequencies by day only".

From the propagation aspect, the proposal is also sound.

The Committee agreed to the adoption of this proposal subject to examination by the Propagation Group.

E.G. Betts
Chairman

COMMITTEE 6

REPORT OF THE COMMITTEE ON THE ALLOTMENT OF "R" FREQUENCIES

(Committee 6)

30th Meeting - 27th August, 1948

(Forenoon session)

1. The meeting was opened by the chairman, Mr E.G. Betts (Australia) at 9.20 a.m. Countries represented were as follows :

Argentina	Nicaragua
Australia	Philippines
Bielorussian S.S.R.	Poland
Brazil	Portugal
Bulgaria	Roumania
Canada	Czechoslovakia
Chile	United Kingdom and Colonies
Colombia	Ukrainian S.S.R.
France	U.S.A. and Territories U.S.A.
India	U. S. S. R.
Mexico	Yugoslavia
Netherlands	I. F. R. B.
Netherlands Indies	I. C. A. O.
New Zealand	I. A. T. A.

2. The Chairman directed the attention of the Committee to Document No 236 which was adopted with some amendments.
3. The Chairman directed the attention of the Committee to Document No 219.
- 3.1. Mr de Haas (Netherlands Indies) advised that this Document had been previously introduced, that the information had been turned over to the Propagation Working Group and that the Chairman of the Propagation Working Group could more properly advise of action taken with respect to the suggestions for effecting economy in numbers of frequencies used which were included in this Document.
- 3.2. Mr Searle (New Zealand), Chairman of the Propagation Working Group, pointed out that discussion of the economy effected would necessitate consideration of Document No 239, which was premature at this time.
- 3.3. Mr Coffey (Canada) suggested that the Committee refer back to Document No 219 at such time as Committee 6 considered Document No 239.



(Aer 258-E)

- 3.4. In answer to the question of Mr Lebel (U.S.A.), the Chairman advised that the 2 pages of Annex 1, superceded and replaced the 14 pages included with Doc. No 219.
- 3.5. There being no further comment, the Chairman ruled that reference will be made to this Document again when Document No 239 is considered.
4. The Chairman directed the attention of the Committee to Document No 242.
- 4.1. In introducing this Document, Mr de Haas (Netherlands Indies) advised that the Working Group had been unable to find a means for reducing requirements. In many cases there was insufficient data to estimate if it was necessary to fulfill the stated requirements to a high or low percentage. In an effort to find a basis for reducing the stated requirements -- for use by either this or a later Conference -- the Working Group had tabulated types of information or data believed to be required for establishment of this equitable basis.
- 4.2. In stressing the complexities of the problem, Mr de Haas stated that the principle aimed at was equitable allotment of frequencies to all services, including MWARA as well as Regional and Domestic, that it would have been fine had this Group been able to find such a basis. This Group did not have sufficient data for establishment of a common factor or factors which could be used in allotment of frequencies between Regions on an equitable basis. Some countries have submitted no information as to their requirements -- in a few cases information of such operations has been obtained from representatives from adjacent or neighboring countries. In conclusion, Mr de Haas pointed out that, in view of the lack of information, it was impossible to prepare other than a rough guide for use by the Propagation Working Group.
- 4.3. The Delegate of Poland with reference to the last part of the last sentence of paragraph 4.1, Page 2, stated that the statements of the countries relative to their requirements must be accepted as being accurate, that this applies equally to Regional, Domestic and MWARA, that statements of requirements under MWARA had been accepted and, likewise, statements relating to Regional and Domestic must be accepted.
- 4.3.1. The Delegate of Poland, referring to Doc. No 242, Annex 1, Sub Area C, advised that the manner of listing provides only a summary of stated requirements and suggested that a clearer picture would be provided by listing the requirements of each country by Sub Areas.
- 4.3.2. In answer to this suggestion, Mr de Haas concurred that this was true, however, the Group had provided the answer required by the Propagation Working Group. Precise listing of all requirements was not possible since some countries were not represented at this Conference and additionally, in view of the light loading on some frequencies it was necessary to combine prior to presentation to the Propagation Working Group.

(Aer 258-E)

4.3.2.1.

Mr de Haas pointed out that the Regional requirements could be estimated with more reasonable accuracy than the Domestic requirements - by integration the Domestic requirements can be reduced, - in the mean time the Regional requirements will have to be increased to a certain extent - insufficient data is available to approach this problem.

4.4.

Mr Jarov (U.S.S.R.) referring to Page 2, Annex 1, under "Common 4, B and C", called attention to two errors : under "13 Mc/s" the "2" should be changed to "1" and under "18 Mc/s" the "1" should be deleted.

4.5.

Mr Rowland (United Kingdom) advised there were omissions in the lists relating to territories of the United Kingdom and requested permission to discuss with Mr de Haas with a view towards inclusion. This was granted by the Committee.

4.6.

The Delegate of India also requested authority to contact Mr de Haas for the same purpose. This was granted. In addition Mr Sundaram advised :

"I notice that in Page 6 of Annex 1 of Doc. 242 E, under Item 10, the mileage given is 222,000 route miles per week. This figure is, I regret, not correct. India has submitted corrected mileage figures and these should be taken into account. The figure is 244,000.

"Besides Sub Area 6 A includes the whole of Burma and East and West Pakistan in addition to Northern India. But the figures given under flight miles concern only those of India. This gives an erroneous underestimate of the number of miles per channel. To obtain a correct picture, the flight miles of Burma and Pakistan should be added to the total.

"Similarly Sub Area 6 E includes Ceylon and a corresponding increase in the mileage should be made.

"There is another point which I wish to raise. It will be noticed that in all domestic requirements each Sub Area has been separated. Unfortunately, in the case of Sub Areas 6 A and 6 E these have been grouped together. As countries other than India are included in these Sub Areas, it is necessary to assess the requirements of each Sub Area separately; of course a special group of frequencies will be necessary for use between Sub Areas.

"If you have no objection I shall discuss these points with Mr de Haas after the meeting.

"I shall be glad if you can record my objection in the minutes of this meeting.

4.7.

Mr Barajas (Mexico) commented it was his understanding that Doc. 242 included a study applicable exclusively for the Eastern Hemisphere. The minutes of this meeting should show that this Document applies strictly

(Aer 258-E)

to the Eastern Hemisphere. He believed that this Conference was the best place to determine the requirements of the Areas - in making this suggestion Mexico was endorsing Mexico's own proposal previously submitted. In addition, Mr Barajas pointed out that sufficient data is available with which to carry out a study of Regional requirements. In conclusion, he advised that if Document 242 related solely to the Eastern Hemisphere no objection thereto was offered. If, on the other hand, this information was to go to a Regional Conference, additional comments would be made.

- 4.7.1. In answer to Mr Barajas, Col. Costa (Brazil) advised that the Western Hemisphere Group did not additionally assume the task of preparation of a parallel document and that this was not agreed by the Group as a whole. It was felt that a detailed study on this basis would not illuminate the solution to the problem and that the Group had too little information which could be applied to all Areas. This type of document would not help in solving the immediate problem - it would only bring out what the Western Hemisphere Group already knew. The real difficulty in the Western Hemisphere exists between Area 11, Area 12 and part of Area 10. A study on the basis of route mileage shows an un-balance between these Areas. For example, Area 11 has route mileage of over 6,000,000, while Area 12 has approximately 1,000,000; Area 11 has 48 frequencies where Area 12 has 80 frequencies. In emphasis, Colonel Costa stated that preparation of a parallel document would not help the Western Hemisphere Group. The report for the Eastern Hemisphere was made by a special group and required two or three weeks to prepare. The Western Hemisphere Group could not take on a like project and prepare, at the same time, a Regional allotment plan. This was made impossible due to there only being 8 Delegates from the Western Hemisphere, only 3 or 4 of whom were available to assist in the work.

- 4.8. Mr de Haas (Netherlands Indies) called attention of the Committee to page 4, parag. 6.3.3, advising that some of the group felt no fixed service communications should be handled on the aeronautical mobile frequencies.

- 4.8.1. After extensive discussion the Committee agreed the following wording to replace the present wording of 6.3.3. :

"6.3.3. Whether due to special temporary circumstances fixed service traffic has to be passed over the aeronautical mobile service channels and the proportion of this traffic."

- 4.9. Mr Mitrović (Yugoslavia), referring to Document 242, Page 1, Parag. 3, 3rd sentence, stated that he did not agree that this represented an "absolute minimum", that about one month ago attention had been directed to a contradiction existing in computation of frequencies for MWARA wherein a loading of 10 to 12 aircraft had been established for A 1. emission and that this same loading had been used for A 3. emission. Earlier considerations included A 3. emission in the category of "high capacity", nevertheless, loadings on A 3. channels were computed on the basis of the number of aircraft which could be handled using A 1. emission. The question appears to be : is A 3. a "high capacity" means of communication ? If A 3. is not a "high capacity" means of communication then the results of the Committee's efforts are wrong and should be changed.

- 4.9.1. Mr Mitrović pointed out that for this reason the frequencies allocated to MWARA are not an "absolute minimum"; as an example, the "NA" route presently uses 3 A 1. families of frequencies. Committee 6 has, on the basis of A 1., allocated 8 families, or two and one half times more than presently used, the same being true for other parts of the world. Additionally, it will be necessary to reconsider the loading factor used for A 3. channels, if Committee 6 wants to establish an "absolute minimum".
- 4.9.2. Referring to Page 3, parag. 4.2.3, Mr Mitrović advised that the comparison per channel per week in MWARA and RDARA is not a happy one, that in a region like Europe the frequencies will be duplicated 2 or 3 times, so that the number of miles per frequency per week will increase.
- 4.9.3. With further reference to Mr de Haas' Group report, Mr Mitrović pointed out that the demand for information with which to assess Regional requirements is more detailed than that required for MWARA under Page 4, parag. 6.2.1 - that the same was not requested for MWARA. With reference to 6.2.2, the same has not been requested for MWARA; that the same is true for 6.2.5, 6.2.6, 6.2.8, 6.3.1 and 6.3.2.; that, had this been done for MWARA, the Committee would have arrived at a figure much lower than that which has been indicated.
- 4.9.4. In connection with the statistical data proposed for RDARA, Mr Mitrović advised that even the elementary route mileage was not satisfactory at all as a basis for determining the needs, as it appears from the report of the chairman of the Western Hemisphere Group.
- 4.9.5. In conclusion, Mr Mitrović stated that for the above reasons, he felt that the Eastern Hemisphere Group report should be reworded and that also the detailed informations as proposed were not all necessary. Additionally, route mileage per week for Yugoslavia had been submitted; however, doubt existed that this had been included. Mr Mitrović asked Mr de Haas if this route mileage for Yugoslavia had been considered.
- 4.9.6. The Chairman drew the attention of the Committee to the point that the loading factor had been discussed in other meetings, naming specifically Document No 197.
- 4.9.7. Mr Rowland (United Kingdom) concurred with the Chairman, pointing out that in earlier discussions Mr Mitrović had specified a figure of 6 aircraft per channel for Domestic service, whereas the figure used in MWARA computations was 10 to 12. Mr Rowland asked Mr Mitrović if he would state the number of high frequencies now being used for aeronautical mobile service in Yugoslavia.
- 4.9.8. In answer to Mr Rowland, Mr Mitrović advised that :

(Aer 258-E)

a) his proposal for the revision of the loading factor for MWARA was not at all based on any practical experience, but only on existing contradiction. Reference to the loading factor called attention to a contradiction in the work of the Conference, wherein earlier, in Committee 4, it had been stated that A 3. was a "high capacity" means of communication, whereas in Committee 6 low capacity loading factor was used for A 3. emissions.

b) he was convinced that A 1. would be used in the next 5 to 10 years. This was the reason why the frequency allotment plan for MWARA should be reconsidered on the basis of A 1. service channel separation and not on the basis of A 3.

c) for the Regional/Domestic services we have not made a study of the loading factor; Yugoslavia can accept no more than 8 aircraft, because in the regions there is no provision for Met. broadcast frequency. Besides, if the factor is lower for the Regional/Domestic services, it is because the number of contacts per hour are higher than for MWARA.

d) The number of frequencies now used for aeronautical mobile service communications in Yugoslavia is 11, exactly the number now required.

4.9.9. The Chairman again drew the attention of the Committee to consideration of Document 242, advising that much of the present discussion related to Document 248.

4.9.10. Mr Falgarone (France) asked if, in view of the discussion, Committee 6 considered Document 242 valid for consideration by the Propagation Working Group, that on the conclusion on page 3, par. 5, particularly par. 5.3, it appeared that the Eastern Hemisphere Group did not consider the paper satisfactory for use by the Propagation Working Group.

4.9.11. The Chairman advised that it was his understanding that the Propagation Working Group had already used the information included in Document No 242.

4.9.12. Mr Coffey (Canada) sympathized with the Chairman's desire to restrict the discussion to Document No 242. However, he expressed the feeling that Yugoslavia's objection to paragraph 3 should be answered since it was valid and had been conscientiously presented; advising further that it was not a question of A 1. loading versus A 3. loading; that there was also a problem of change-over from A 1. to A 3. The North Atlantic had already started preparation for the change from A 1. to A 3. and that it was anticipated that it would be some time before this could be completed. Such a change-over on shorter distance routes would be comparatively easy. The same is not true for longer distance routes. In addition, some time would elapse before the A 3. channels would be made available, plus the inability to mix A 1. and A 3. on the same channel.

(Aer 258-E)

Continuing, Mr Coffey advised it was his belief that 4 families were the absolute minimum which could be provided for the "NA" route. On the other hand, all countries should rest assured that no more than the minimum number of channels would be used at any time - that if A 3. requires a fewer number of channels the economy will dictate that this minimum will be used. Present operations over the North Atlantic east, at the ground station, between ten and fifteen thousand dollars per frequency per ground station. The over-all cost can be reduced by reduction of the total number of channels used - this in itself assures use of a minimum number of channels. In conclusion, Mr Coffey stated that during the interim between this and the next Conference, the present number of channels allocated to MWARA are an absolute minimum.

4.9.13. Mr Jouk (Ukrainian S.S.R.) advised that the arguments of Mr Coffey would be fair if there were enough frequencies for all of the aeronautical mobile services - whereas actually, we have a shortage of frequencies. Under these circumstances it is necessary to apply the most economical method of frequency allotment; that this method must meet the needs of all branches of aeronautical mobile service communications. If such a method (A 3.) requires more spectrum space, then it is not acceptable. In view of the fact that Mr Coffey's system (A 3.) requires more spectrum space, it cannot be accepted.

5. The Chairman interrupted the discussion at this point for some lunch, adjourning the meeting at 12. 40, noon.

Reporter

W.E. Weaver

The Chairman

E.G. Betts

COMMITTEE 6

REPORT OF THE COMMITTEE FOR THE ALLOTMENT OF R FREQUENCIES

(Committee 6)

30th meeting

Friday, 27th August, 1948 - Afternoon Meeting

Chairman : Mr. E. G. BETTS (Australia)

1. The meeting was opened at 2.45 p.m. by the Chairman.

The following countries and organizations were represented:

Australia	New Zealand
Bielorussian S.S.R.	Philippines
Brazil	Poland
Bulgaria	Portugal
Canada	Roumania
Chile	U.S.A. and Territories
Cuba	U.K. and Colonies
France	U.S.S.R.
India	Yugoslavia
Mexico	I.A.T.A.
Netherlands	I.C.A.O.
Netherlands Indies	

AER-DOCUMENTS Nos. 242 AND 219

2. The first item of the agenda was the discussion of Aer-Document 242, discussion that had already been started in the forenoon of the meeting.
3. Mr. de HAAS (Netherlands Indies), Chairman of the working group made a few remarks in order to clarify some points of Aer-Document No. 242. He explained how the knowledge of the exact position of the stations, especially in congested areas, could be usefully used to achieve the maximum number of repetitions of the same frequency. He discussed one by one, all the questions contained in paragraph 6 and the reasons why they were considered essential. He strongly emphasized the importance of the information requested in sub-paragraphs 6.2.6. and 6.2.7. without which it would be extremely difficult to complete the final allotment of frequencies.

He also pointed out how the information requested in sub-paragraph 6.2.8. could be used to determine how many and what stations need their frequencies with night time protection, and the increase in sharing possibilities resulting thereby.

After these explanations he moved the adoption of Aer-Document No. 242. The delegate of the U.S.A. supported the motion.



4. The CHAIRMAN answered some questions raised by Mr. FALGARONE (France) about the loading factor resulting, both for MWARA* and RDARA** from the reduction in the number of requirements introduced by the working group.
5. Mr. JAROV (U.S.S.R.) said: "The delegate of the Netherlands East Indies has devoted a considerable amount of time to the word "equity" in his report on Document 242. In actual fact, this word has long been used in speeches and even in the official documents of the Conference. But, obviously, the term is understood in different ways, for we continue even now to be faced with an inequitable distribution of frequencies between the individual categories of the Aeronautical Mobile Service.

Some delegates reduce the conception of equity to a matter of formal statistics. In para. 5.3 of Document 242 even the idea of an equitable distribution of frequencies is not admitted without the statistics set out in the following paragraphs. Even if one were to speak of equity from a statistical point of view, the requirements recommended by Document 242 for acceptance for the domestic services place these services in an inequitable position by comparison with the World Air Routes. By the conception of "an equitable allotment of frequencies to the individual air service", the Soviet delegation understands the formulation of such a plan as would satisfy the first-line, vitally important needs of the individual countries and whose methods and technical principles would not give any preference or superior position to certain services over others.

If frequencies are insufficient, then all categories of the aeronautical services must reconcile themselves with these difficulties on an equal basis. If the conference wishes to treat the word "equity" with respect then this wish must be proved in practice in the remainder of the work of the conference.

This wish has not been reflected in Documents 219 and 242. These documents give rise to even greater difficulties and place the airline operating of individual countries under disadvantageous conditions."

6. Mr. A. L. LEBEL (U.S.A.) stated that probably the word "equitable" was originally used in its general sense and without any thought that it would lead to this hair-splitting analysis. If "equitable" is to be given the meaning of "mathematically proportionate", then an "equitable apportionment" among the claimants may theoretically be one in which all claimants will have an equal share of the frequencies, but where each share would be too small to be practically usable. That is something which, of course, is yet far from being clear. In the meantime, in order to avoid a waste of time arguing the value of words, perhaps we had better find a better expression.
7. Mr. de HAAS (Netherlands Indies) then explained that all the work of his group had been undertaken with the sole purpose of giving to the propagation group the necessary data, as accurate as possible to be used as a guide in their work. He still felt, however, that if the working group had complete data about the domestic needs, the economy achieved in the number of frequencies would be perhaps greater.

* MWARA = Major World Air Route Areas

** RDARA = Regional and Domestic Air Route Areas.

8. The delegate of Poland expressed his views about the methods used in the study and allotment of R frequencies. He felt that the Committee could start its work, trying to satisfy in the first place the regional and domestic requirements. The remaining frequencies would be allotted afterwards to the MWARA. He felt that this method of approach was as fair as any other.
9. The delegate of Yugoslavia asked two questions:
 - a) Should Aer-Document 242 be considered only as data for the propagation group? or
 - b) Was the purpose of this document to state that the MWARA's requirements had been reduced to an absolute minimum?
10. The CHAIRMAN explained that that document was the result of the work undertaken by a working group whose terms of reference were to determine the minimum number of requirements of all kinds of R services.

These services could be divided in 3 general categories: domestic, regional and MWARA. To produce an allotment plan it was necessary to know the minimum requirements of each one of these 3 categories. They knew only the minimum requirements of the MWARA's. The regional problems still needed a lot of coordination. These were the conclusions, in his opinion, of the document under discussion.
11. Mr. BARAJAS (Mexico) said that this document only referred to the Eastern Hemisphere and in this case it seemed useless to continue the discussion on this subject. He felt that the delegates from the Western Hemisphere countries must abstain from discussion or voting on that document.
12. The CHAIRMAN explained that the document was the report of a working group. Therefore Committee 6 must approve or reject the conclusions contained therein.
13. Mr. FALGARONE (France) felt that the adoption of the document under discussion would only mean that the Committee recognized the lack of complete information and nothing more.
14. Mr. BARAJAS (Mexico) wished to state that in his opinion the conclusions contained in Document 242 cannot be applied to the Western Hemisphere and therefore Mexico could not be bound in any way by them.
15. Mr. LEBEL (U.S.A.) stated that this document dealt with MWARA and that to that extent it clearly concerned the countries interested in MWARA, regardless of what hemisphere they were situated in.
16. Mr. JOUK (Bielorussian S.S.R.) made the following formal statement:

"The delegations of the U.S.S.R., Bielorussian S.S.R., Ukrainian S.S.R. voted against the adoption of Document No. 242 due to their disagreement with many statements and conclusions of that document, especially on the question of the estimation of requirements for major world air routes as the absolute minimum, as well as on the submission of detailed statistical and other data, and reserved their position with regard to Document No. 242 as a whole."

17. The Committee then voted on the approval of the Aer-Document No. 242. The results of the vote were as follows:

For : 19 against : 9 abstaining : 6

The Chairman ruled therefore that Aer-Document No. 242 had been adopted by the Committee.

18. The delegate of Poland said that the problem of allotting frequencies to the Major World Air Routes and to the regional and domestic services in both hemispheres, was closely bound up with the question of sharing frequencies between Major World Air Routes and regions. The two questions could not be considered separately. Therefore the delegations of Poland and Czechoslovakia would vote against adoption of Aer-Document No. 242; and would reserve their right to revert to the matter under discussion at a later date.

19. The delegate of Yugoslavia voted against and reserved all his rights for the future in regard to the conclusions of Aer-Document No. 242.

The delegates of Bulgaria and Roumania made similar reservations.

The delegate of Mexico stated once more that the conclusions of Aer-Document No. 242 were not applicable to the Western Hemisphere.

AER-DOCUMENT No. 199

20. The CHAIRMAN declared that Aer-Document No. 199 with the Annex and Corrigenda was under discussion.

21. Mr. JOUK (Bielorussian S.S.R.) made a few remarks regarding Aer-Documents 241 and 199. The printing was not very good and sometimes it was impossible to read the numbers. In the map the boundaries between regions 2 and 3 were not correct. However the description in Aer-Document No. 199 was correct.

22. The document was unanimously adopted.

AER-DOCUMENT No. 206.

23. The CHAIRMAN declared that Aer-Document No. 206 was under discussion.

24. Mr. BARAJAS (Mexico) proposed the following amendment:
On page 8, sub-area 12 C, second line from the bottom delete: "18° N 115° W" and insert "16° N 116° W".

25. Mr. COFFEY (Canada) stated that the description of all the sub-areas 10 A to 10 E was correct but the description of Area 10 needed small amendments. He would furnish these amendments to the Chairman later.

26. Aer-Document No. 206, as amended, was unanimously adopted.

AER-DOCUMENT No. 198

27. The CHAIRMAN declared that Aer-Document No. 198 was submitted to Committee 6, in order to determine if the description was in accordance with the boundaries of MWARA traced on the map.

28. The delegate of New Zealand requested the following amendment:
On page 8 of Aer-Document No. 198, Major World Air Route Area SP. delete "Auckland" and "Wellington" and insert "New Zealand".

29. The delegate of Chile, acting on behalf of the delegate of Uruguay, requested that on page 3, the boundaries of MWARA "SA" were modified to close this area on the south, in Recife, Natal. The aim of this modification was to give to the Uruguayan domestic services more available channels.

It was agreed that this modification would be presented at a later date, if necessary as a formal proposal.

30. The delegate of Brazil suggested that the boundaries of MWARA "SA" could be modified in Europe in order to include Rome, as this modification was of no importance for sharing possibilities.
31. Mr. SEARLE (New Zealand) Chairman of the Propagation group, explained that he felt that the modification suggested had no effect on the regional and domestic sharing possibilities.
32. The Committee unanimously agreed that Aer-Document No. 198 was in accordance with the MWARA boundaries traced on the map.

AER-DOCUMENT No. 234.

33. The CHAIRMAN, in introducing Aer-Document No. 234, explained that this document was a mere declaration of the activities of the Western Hemisphere group and therefore no special action was needed in regard to this document.

The delegates of Mexico and Cuba suggested several minor amendments to the text. It was agreed that the members of Western Hemisphere group could meet at 5 p.m. to introduce in Aer-Document No. 234 the draft amendments that were deemed necessary.

34. The CHAIRMAN adjourned the meeting at 4.38 p.m.

Reporter :
A. SOUTO CRUZ

Chairman :
E. G. BETTS

COMMITTEE 6

EXTRACT

5. Resolution in connection with future work of Conference.

The following resolution originally submitted by the Delegate of Brazil was adopted by majority vote, by the Committee at its 33rd meeting.

Resolution submitted by Delegate of Brazil :

That all documents related to the preparation of an R frequency allotment plan, specifically documents 239, 249, 250 and 265, be adopted provisionally by Committee 6 and forwarded to the Plenary Assembly with the following recommendations :

- (1) That no final decision (for implementation) be taken at this stage with regard to all documents of this Conference related to the preparation of an R frequency allotment plan.
- (2) That these documents be referred to the administrations for use as a basis for the study which they are requested to undertake in connection with the plan involved having in mind that the administrations shall not be bound by the documents.
- (3) That the Conference at this stage will suspend its work and shall reconvene when it will be possible for the purpose of completing its work in regard to the drawing up of a frequency allotment plan in the R bands before the opening of a Special Conference which has to approve the new frequency list.
- (4) That before suspending its work the Conference set forth the procedure by which recommendations would be transmitted to the administrations and by which the Conference would be reconvened.

Voting : for 24
 against 10
 abstain 4

COMMITTEE 6

REPORT OF THE COMMITTEE FOR THE ALLOTMENT OF R FREQUENCIES

Committee 6

34th meeting

3rd September, 1948 - (Forenoon Session)

1. The meeting was opened by the CHAIRMAN, Mr. E.G. Betts, (Australia) at 9 a.m.

2. The following countries and organisations were represented:

Argentina	Philippines
Bielorussian S.S.R.	Poland
Brazil	Portugal and Port. Colonies
Bulgaria	Rumania
Canada	Switzerland
Chile	Ukrainian S.S.R.
Cuba	United Kingdom and Colonies
France	U.S.A. and Territories
India	U.S.S.R.
Mexico	Yugoslavia
Netherlands	I.F.R.B.
Netherlands East Indies	I.A.T.A.
New Zealand	I.C.A.O.

3. The CHAIRMAN informed the meeting that a meeting of Region 3 was scheduled for 10.30 a.m. and that many of the delegates would have to attend that meeting. In addition, he stated that he had still to convene the working group which had been set up to modify the Major World Air Route Area map to bring it into line with the general description of the areas. Furthermore, due to the fact that the Committee had had some long meetings during the past few days, there were a considerable number of minutes of meetings still to be prepared and checked.

- 3.1 He informed the meeting that in the light of the decision taken at the last meeting in connection with the motion of the delegate of Brazil it would be necessary to set up a small working group to study all the documents of Committee No. 6 with a view to deciding which documents should be considered as relative to the preparation of an R Frequency Allotment Plan.

- 3.2 The Chairman then stated that he intended to adjourn the meeting at 10.30 a.m. to enable delegates concerned to attend the Region 3 meeting and to enable him to attend to some of his outstanding work.

- 3.3 The Chairman then referred to Aer-Docs. 239, 249 and 250.
- 3.4 He stated that the position with respect to these documents was as follows:
- 3.4.1 The documents had been examined by the Committee up to a point where no further questions were forthcoming in connection with clarification of content.
- 3.4.2 It must be assumed therefore that delegates had a thorough understanding of the contents and a proper appreciation of the merits and the shortcomings of the plan.
- 3.4.3 The documents had been adopted by Committee No. 6 at the 33rd meeting for submission to the Plenary Assembly with the recommendation that:
- 3.4.3.1 No final decision for implementation be taken at this stage.
- 3.4.3.2 Together with other pertinent documents relating to the R frequency plan, they be passed to the Administrations for use as a basis in a study which the Administrations are requested to complete.
- 3.4.4. During the discussions prior to the adoption of resolutions regarding the documents it was made clear that the documents would be subjected to further discussion in Committee No. 6 for the purpose of effecting such amendments as may be necessary to correct errors or omissions in the texts and tables. It was also made clear that it is not intended that the substance of the documents should be changed or that any re-working of the plans was necessary in view of the resolution which had now been passed.
- 3.5 The Chairman stated, therefore, that he proposed to deal with corrections first and then call for comments on the substance in order that the opinions of the delegates would be preserved.
- 3.6 The Chairman then referred the Committee to Aer-Doc. No. 239.
4. Mr. SEARLE, Chairman of the Propagation Group, stated that the only corrections not covered by corrigenda were those contained in Aer-Doc. 251, namely the deletion of the abbreviation "Ext" appearing after SA in the 3 and 9 Mc/s columns of tables I and II.
5. At this stage the delegate of the U.S.S.R. requested the floor and made the following statement:

"In the opinion of the Soviet delegation, the inclusion of minor amendments in the basic Conference Documents Aer. 239, 249 and 250 cannot alter the extremely unsatisfactory situation which has arisen over regional and domestic air lines. The method which has been adopted by Committee 6 for the discussion of these documents does not reach the heart of the question or the causes, in consequence of which the Conference has arrived at such an unsatisfactory result.

"The Soviet delegation considers the adoption of such a frequency distribution plan to be completely unacceptable; in this plan,

clearly excessive demands for the Major World Air Routes are satisfied in their entirety, 100%, while the demands of the majority of countries, which are actually minimum ones, are not even half satisfied. The partial acceptance, even temporarily and conditionally, of the draft frequency distribution plan set forth in Documents Aer. 239, 249 and 250 mean:

- 1) the creation of a preferential position for the Major World Air Routes over all other categories of the Aeronautical Mobile Service; this contradicts the fundamental requirement that the safety and regularity of air communications shall be assured, irrespective of the categories of the air lines;
- 2) the acknowledgment of a priority for the frequencies for the world air routes, which cannot be considered correct and just;
- 3) the creation of even greater difficulties and the limitation of the possibilities of satisfying the demands of the air services of separate countries.

"By virtue of the reasons outlined above, which are matters of principle, the Soviet delegation does not consider that it is possible for it to take part in such a discussion on the above-mentioned documents and states that:

- 1) the principles which form the basis for the creation of a plan for frequency distribution in the R band do not offer the practical possibility of satisfying the demands of all categories of the Aeronautical Mobile Service and reflect the interests of the Major World Air Routes only;
- 2) it does not consider that it is possible, temporarily or provisionally, to accept the draft plan for world air routes, and cannot agree to the number of frequencies left for the regions, sub-regions and separate countries;
- 3) it cannot agree that this Conference should be limited to the distribution of frequencies to and the satisfaction of the demands of the world air routes only, while the remaining frequencies are handed over to regional conferences or any other meetings;
- 4) it categorically objects to the convocation of such regional conferences or any other meetings, which will have powers over the planning and distribution of frequencies between countries, powers based only on the frequencies remaining after the demands of the Major World Air Routes have been satisfied."

6. The delegate for Poland then made a statement as follows:

6.1 "At the beginning of our Conference it was agreed that our task was firstly to make the necessary arrangements for the establishing of a list of world wide frequency requirements and, secondly, to prepare

the framework of a draft plan for the allotment of frequencies.

6.2

"In accordance with the above terms, we later established some technical principles, mainly in order to have some common yardstick. At present I do not want to criticise them. This has been done in the past. Some delegations are of the opinion that they are sound, others that they are not. From the beginning of our Conference the technical opinion has been divided, sometimes almost equally divided, but in the final stages of discussion these standards generally speaking were just put to the vote and adopted.

6.3

"On the basis of these technical standards a plan was developed for the allotment of R frequencies, known as Plan No. I. If Plan No. I is not satisfactory to all concerned then it is logical to develop Plans Nos. II or III based on different or revised technical standards. Instead, however, yesterday we discussed and adopted by a majority vote the proposal made by the delegate of Brazil which recommended that provisional Plan No. I be used as a basis for the further revision of our demands and plans by our Administrations. By that, we fixed, to some degree, provisional Plan No. I as a final and basic one and at the same time closed the doors leading to its immediate revision. As a delegation of Poland we cannot agree with such a method of approach to our problems.

6.4

"In accordance with this opinion the Polish delegation fully supports the declaration just made by the delegate of the U.S.S.R. and I ask, with your permission, Mr. Chairman, that the name of the Republic of Poland be recorded as a supporter of the aforementioned declaration."

7.

The delegate of Yugoslavia then made the following statement:

7.1

"Considering, on the one hand, that the plan for the allocation of frequencies in the R bands, as evolved by the Propagation Group, and taking as a basis the principles adopted by Committee 6, does not satisfy regional and domestic requirements, the Yugoslav delegation considers this plan to be entirely unacceptable.

"This delegation declines to accept the plan either partially, provisionally or in any way whatsoever.

7.2

"Considering, moreover, that the documents containing this plan were provisionally accepted at the meeting of Committee 6, on September 2nd, 1948, without any discussion on their substance, the Yugoslav delegation considers the present discussion to be useless, since it can only serve to make entirely insignificant corrections.

7.3

"For the above reasons, the delegation of the People's Federative Republic of Yugoslavia supports without reservations the statement made by the U.S.S.R. delegation and will take no part in the discussions concerning the said documents, with regard to which it makes its own reservations."

8 The delegate of Bulgaria then made a statement as follows:

8.1 "In adopting the proposal of the Brazilian delegation during yesterday's meeting, Committee 6 has adopted and assessed Documents Nos. 239, 249 and 250 prematurely and without discussion. Since these documents comprise a plan of frequency sharing for the mobile aeronautical services in the R bands - a plan which does not satisfy the requirements of the regional and domestic aeronautical services - the Bulgarian delegation concurs in and unreservedly supports the statement made by the U.S.S.R. delegation concerning the above-mentioned documents and abstains from taking part in the further discussion of these documents, as it considers such discussion useless for the formulation of a satisfactory plan in the R bands."

9 The delegate of Rumania then made a statement, as follows:

9.1 "Documents 239, 249 and 250 submitted for discussion show that the technical principles adopted by the present Conference as a basis for a plan of frequency allocations to the R aeronautical services do not provide a solution to the problem in question and do not allow of a solution acceptable to all the mobile aeronautical services (domestic, regional and Major World Air Route Areas).

9.2 "The delegation of the People's Republic of Rumania, considering that the discussion of these documents, from the point of view of both form and substance, would lead only to the same unsatisfactory solution, deems this discussion to be of no avail, and for this reason entirely supports the statement made by the U.S.S.R. delegation."

10 The CHAIRMAN, reverting to Aer-Doc. No. 239, pointed out that 4th para. section 8 should be deleted since it had been agreed at a previous meeting that Table IV should be removed and attached as an annex to Aer. Doc. No. 219.

11 Mr. SEARLE drew attention to the fact that in accordance with the decision taken at a previous meeting, the words "for the Major World Air Route Areas" should be inserted between the words "possible" and "from" in para. 9 at the top of page 5, Aer-Doc. 239.

12. The delegate of Canada drew attention to an error in the French text in Table III.

13. The delegate of France indicated that the French text in the sixth column should read "Total des voies disponibles".

14. The delegate of France stated that, with reference to the last paragraph of the conclusion (Section 9), he did not feel that the principles and standards adopted for that plan were conducive to the most economical solution in the use of frequencies. As it was, the plan had been based on high capacity means of communication which required a large channel width and a high protection ratio, the latter being estimated at 25 db at least. That protection had been lowered to 15 db, which amounted to precluding the use of those high capacity systems. It had therefore become useless to preserve the necessary spacing for a system which it would not be possible to use, while foresaking without any reason a better distribution of frequencies based on the use of A1 emission, the repetition conditions of which were entirely different from those now adopted.

15. The CHAIRMAN called for further comments on Aer-Document No. 239 and in the absence of any further comment from the Committee passed on to Aer-Document No. 249.
16. Mr. SEARLE, Chairman of the Propagation Group, referred to Table XII and stated that with reference to designator J7, Area 2 and Sub-Areas 3A and 3C should be inserted to indicate that sharing was possible in these areas (grouped together) with NSAM1. In addition there would be consequent changes to the statistical table.
- 16.1 He stated that in respect of Table XIII, Channels K6 and K7, the delegate of Canada had raised a query and it was his understanding that the Propagation Group should investigate which areas and sub-areas in the Western Hemisphere could also share these channels. The Propagation Group undertook the study although it was outside their terms of reference and considered that channels K6 and K7 could also share in the following areas and sub-areas:
- 10 D, 11 D, 11 F, 11 G, 12 D, 12 E, 12 F, 12 G,
13 C, 13 D, 13 E, 13 F, 13 G and 13 H
- Arrangements had to be made for sharing between these sub-areas.
- 16.2 He considered, however, that this information should not be included in Table XIII. The manner in which the frequencies were to be shared was a matter for the W Hemisphere Group.
17. The delegate of Canada inquired when the best time would be to negotiate the sharing of these frequencies between Areas 2 and 3 and the Western Hemisphere.
18. Mr. SEARLE stated that in the opinion of his group this was not feasible. The sharing depended upon, apart from propagation characteristics, the amount of traffic handled by the respective areas on the two channels. It would seem that if all the Western Hemisphere were to use the two channels a proportion of the Eastern Hemisphere would require to be restricted. It might be possible to restrict the use of K6 in the Eastern Hemisphere, and K7 in the Western Hemisphere.
19. The delegate of Canada considered that the latter proposal might have merit. If the loading was light, both frequencies could be assigned to each hemisphere.
20. Mr. SEARLE suggested that when the Eastern and Western Hemisphere Reports are combined for submission to the Plenary Assembly that there should be some explanatory matter covering this point.
21. The CHAIRMAN suggested that a footnote be added to Tables XIII in Aer-Documents 249 and 250 to the effect that sharing is possible by arrangement with the Western Hemisphere.
22. The delegate of Mexico drew attention to the fact that Area 12 C had been omitted from the list of areas in which it was possible to share channels K6 and K7.

23. The CHAIRMAN requested Mr. Searle to contact the delegate of Mexico after the close of the meeting and explain the matter to him.

24. The meeting adjourned at 10.30 a.m. to reopen at 2.30 p.m.

The Reporter:

J.G. Adam

The Chairman:

E.G. Betts

COMMITTEE 6

REPORT OF THE COMMITTEE ON THE ALLOTMENT OF "R" FREQUENCIES.

(Committee 6)

31st. Meeting

Tuesday, August 31, 1948, at 2.30 p.m.

Chairman : Mr. Edmund G. BETTS (Australia)

REPORT OF THE 29th MEETING (Aer-Document 246)

Aer-Document 246 was unanimously adopted.

REPORT OF THE GROUP ON THE WESTERN HEMISPHERE.

1. Mr. COSTA (Brazil) said that it had been found necessary to modify some of the tables which were being prepared by his group. He did not, however, see any reason why the Committee should postpone consideration of the documents before them.

THIRD REPORT OF THE PROPAGATION GROUP (Aer-Document 239)

2. The CHAIRMAN said that the important documents now to be examined by the Committee were each of a substantial nature. Certain points of detail might need classification. He would therefore submit each document to the Committee, not, at this stage, for adoption or rejection, but simply in order that these minor matters might be settled. The Committee would then be in a position to consider the merits of each document as a whole.
3. Mr. SEARLE (New Zealand), presenting Aer-Documents 239, 249, 250 and 251, expressed his gratitude to the members of the Propagation Group, who had cooperated loyally in a most arduous and complex task. In addition, the data assembled by the group of Mr. de Haas (Netherlands) had been found most valuable. Since those documents had been issued, it had been found necessary to publish a number of corrections and additions, none of which, however, affected the character of the plan.
4. With regard to Section 9 of Aer-Document 239, he would point out that the group had considered certain factors not directly connected with the question of propagation. Thus, allowance had been made for slight decreases in repetition distances between Major World Air Route Areas, where flights started from and stopped at points under the control of a single administration. In some cases the distances involved were less than the true protection distances.
5. It had been objected that section 5 made no reference to the loading factor used. It was his view that this matter had nothing to do with propagation conditions as such. However, the point had been covered in Aer-Document 219 and might be more appropriately discussed in relation to that document.

6. Mr. COFFEY (Canada) said that in Aer-Document 239, provision had been made not only for a family of meteorological broadcast frequencies in the Atlantic, but also for a family in the Pacific. In the case of air-ground communications, the distance between the NA and CEP areas was rather close for sharing, but it was ample for sharing meteorological broadcast frequencies, since what limited air-ground communications was the fact that a ground station had to pick up a 50 watt aircraft transmission while other ground stations were transmitting with a radiated power of 1 kilowatt. Due to that difference in transmitter power, the interference to reception within an aircraft was 13 db lower than was the case for reception on the ground.

7. It followed, of course, that meteorological broadcasts on the West Coast of North America could be made on the Atlantic meteorological broadcast frequencies. Such a measure would leave the other family of frequencies for regional use in most of the sub-regions of the Western hemisphere. He had discussed this matter with the delegates concerned and it appeared that there would be no difficulty in making such arrangements.

Mr. FARRAJAS (Mexico) said that Table IV, paragraph 8 had nothing to do with propagation conditions, and might well be referred to the group of Mr. de Haas.

8. It was agreed that Table IV of Aer-Document 239 should appear as an Annex to Aer-Document 219 (Report by the Working Group in connection with requirements of the Major World Air Route Areas).

9. Mr. ARCIUCH (Poland) said that Aer-Document 239 made mention of Major World Air Route Areas on every page. In paragraph 9 (Conclusion), however, the expression was not used once. The first sentence of the second subparagraph of paragraph 9 should be modified as follows: "Under such circumstances the Group considers that the plan presented herein is the best possible from the frequency utilization viewpoint, consistent with safe operation, for the Major World Air Route Areas".

This amendment was adopted.

10. Mr. JOUK (Bielorussian S.S.R.) said it was obvious that priority had been given to the Major World Air Routes, and asked whether the Chairman of the Propagation Group would be prepared to admit it. It would also be interesting to know what proportion of Major World Air Route Areas requirements had been satisfied.

11. Mr. SEARLE (New Zealand) said that any plan had to be built up from some starting point. It was a very sound principle to start only from a basis of which one was sure. He could not agree that priority had been given to Major World Air Routes. Certain Major World Air Routes, in the plan, shared frequencies with areas and sub-areas.

12. The only way of determining what proportion of demands for the Major World Air Route Areas had been satisfied would be to analyse the data contained in the Forms 2,

13. Mr. MITROVIC (Yugoslavia) said that the requirements of the Major World Air Route Areas had been determined within Committee 6, not from the Forms 2, but from the data submitted in Aer-Document 71.

In Aer-Document 250 was to be found a table showing the degree to which the requirements of areas and sub-areas had been satisfied. If this could be done for the regions, it could be done also for the Major World Air Route Areas. He would ask Mr. Searle to indicate what was the percentage satisfaction of MWARAS.

14. Mr. SEARLE (New Zealand) said that the group had not prepared any such analysis, since they had not considered it within their terms of reference. The results obtained by the group of Mr. de Haas had been taken as such and applied. However, if such information was considered necessary, nothing would be easier than to set up a working group to prepare it.

15. "In answer to the question relating to the percentage satisfaction of the MWARA, Mr. SEARLE (New Zealand) said that the requirements of the MWARA, as stated by the Group of Mr. de Haas had been fully satisfied. Actually it was not necessary for him to answer this question as a perusal of relative documents would show this to be true. In order to obtain the real percentages of satisfaction for the Major World Air Routes, it would be necessary to analyse Forms 2 as stated previously".

16. Mr. ROWLAND (United Kingdom) said that it was not true that the requirements of the Major World Air Route Areas had been completely satisfied. In fact, the Areas had been obliged to lower their standards. Thus the North Atlantic Area, calling for 5 families, had accepted a reduction of 25%; the "..... European Area, by accepting fewer frequencies than the accepted loading standards warranted, had received approximately 86% satisfaction. That, moreover, the protection ratio on MWAR Areas frequencies had been lowered generally, thus reducing still further the degree of satisfaction given to these services".

The CHAIRMAN said that there was nothing to prevent those delegates interested in doing this analysis from preparing such information themselves.

SIXTH REPORT OF THE PROPAGATION GROUP (Aer-Document 251)

17. Mr. SEARLE (New Zealand) said that the following frequency orders used by the South Atlantic Major World Air Route Area 3, 3.5, 6.6, 9, 10, 13 Mc/s, constituted two families of frequencies. It was now being proposed that the 3 Mc/s and 9 Mc/s frequencies be not extended into Europe. This measure would leave unaffected the distribution of channels into areas and sub-areas, and would make the final assignment of frequencies within Europe somewhat easier. If the proposal were adopted, it would not affect the extension of 1 family of frequencies from each Major-World Air Route Area adjacent to the European Area into the European Area itself.

18. The proposal contained in Aer-Document 251, that the 3 Mc/s and 9 Mc/s frequencies of the South Atlantic Area be not extended into Europe, was unanimously adopted.

FOURTH REPORT OF THE PROPAGATION GROUP (Aer-Document 249)

19. Mr. SEARLE (New Zealand) presenting the report, said that it dealt with the second part of Plan I.

20. Generally speaking, on the basis of the standards agreed to, it had been possible, for areas and sub-areas 1 - 9, to satisfy 50 - 60% of

the requirements as submitted to the group by the group of Mr. de Haas. In addition, the amount of sharing achieved in the 10, 13 and 18 Mc/s bands had been fairly considerable.

It was too much to expect that the requests submitted would be fully satisfied. In that sense the situation, although not very satisfactory, was not excessively bad, especially when it was considered that it was the first time an attempt had been made to allot frequencies in the aeronautical bands by international agreement. The group felt that the possibilities of sharing on the basis of a radiated power of 200 watts should be investigated, since that had been considered a reasonable figure for areas 1 - 9.

21. Mr. MITROVIC (Yugoslavia) said that in sub-paragraph 3 (3) of Aer-Document 211 (Interim Report of the Propagation Group) it was stated that the group would use the same procedure for frequency sharing between Major World Air Route Areas and regions as that used for repetition between the regions themselves. This implied that the 3, 3.5 and 4.5 Mc/s frequencies would be shared under night conditions, others being shared under daytime conditions. But in Aer-Document 249, it appeared that the frequencies in the 5.6 and 6.6 Mc/s bands shared between Major World Air Route Areas and regions had been repeated under night conditions.
22. The CHAIRMAN said that the conditions of repetition, to be found in sub-paragraph 5 (2) of Aer-Document 249, were in accordance with the directives given to the Propagation Group in paragraph 13 of Aer-Document 214.
23. Mr. FALGARONE (France), referring to sub-paragraph 5 (3), asked what was meant by the protection obtained from 80° longitudinal separation. Mr. SEARLE (New Zealand) said that the method of sharing had been taken over from sub-committee 6 C. That method was based on the idea that stations should be separated by at least 80° of longitude, i.e., by a time difference of roughly 4 1/2 hours. The 13.3 Mc/s band would be used only around midday. Therefore if the extremities of areas and sub-areas were so separated quite adequate communications would be possible. Sharing based on 13.3 Mc/s in sunspot maximum years, under midday conditions, would not have been satisfactory. The idea had originated in Sub-Committee 6 C, and personally, he thought it worked fairly well.
24. Mr. GREVEN (ICAO) said that, in sub-paragraph 9 (2) (13 Mc/s), the following should be added : "except in combined areas 2 and 3".
25. Mr. ARCIUCH (Poland) said that Table III, which gave the percentage satisfaction of demands of the areas, was a valuable source of information. It would be useful to prepare a table comparing the extent to which the requirements of the Major World Air Route Areas, and those of the areas themselves, had been met, because the position with regard to the areas was exceedingly unsatisfactory. The requirements of sub-area 1 E, for example, - and that was by no means the most favourable case-, had been satisfied by only 25%.
- 25.1. Mr. ARCIUCH (Poland) asked Mr. de Haas (Netherlands East Indies) whether the requirements of Spain had been taken into consideration. In reply to this question Mr. de Haas answered that no requirements of Spain "had been considered".

26. Since Working Group 6 C had finished its work, his delegation had considerably reduced the requirements of Poland. Had anything like a comparable sacrifice been made by the Major World Air Route Areas ?
27. Mr. DE HAAS (Netherlands) thought that no useful purpose would be served by the comparison suggested. Indeed, the basis for any satisfactory comparison was lacking, since the data on which the requirements of the regions were based were inadequate.
28. Mr. WHITE (United States) said that it was true that the Propagation Group had met all the requirements presented by the working group which had been set up to estimate the requirements of the Major World Air Route Areas. But the Major World Air Routes had had to endure at the hands of Mr. de Haas a considerable reduction in the safety standards they had set for themselves. If their own standards were taken into consideration, it would be nearer the truth to say that the Major World Air Route Areas had obtained about 60% satisfaction. The table of comparisons just demanded would be of little value. To prepare it, they would have to go back to the Forms 2.
29. Mr. FALGARONE (France) said that this situation seemed to him a most extraordinary one. He had always been under the impression that the Conference had decided to obtain data on requirements from Aer-Document 71, on the grounds that the Forms 2 were of no value for the purposes of the Conference.
30. The CHAIRMAN said that there seemed to be little anxiety to form a working group in order to prepare the table suggested; the simplest course would be for delegates interested to make the investigation themselves.
31. Mr. GREVEN (ICAO) said that he had just received information from the ICAO meeting in Seattle to the effect that 1 extra family of frequencies above the seven calculated by the Conference was considered essential for the North Pacific Area.
32. Mr. JOUK (Bielorussian S.S.R.) asked whether the frequency shown as NSAM-1 in column J 7 of Table XII could not be shared elsewhere.
33. Mr. COFFEY (Canada) said that the allocations made to the Eastern hemisphere seemed to have used up the one channel left over from the Major World Air Routes. One 13 Mc/s frequency was needed in the Western hemisphere.
34. Mr. SEARLE (New Zealand) said that he would give these points his attention.

FIFTH REPORT OF THE PROPAGATION GROUP (Aer-Document 250).

35. Mr. SEARLE (New Zealand), presenting the report, said that in investigating sharing between areas and sub-areas on the basis of a radiated power of 200 watts, the group had been exceeding its terms of reference. It had, however, been felt that such an investigation would be useful.
36. Some corrigenda had been issued.
37. It was agreed that the Secretariat should take steps to ensure that sub-paragraph 8.7, in the French text, corresponded to sub-paragraph 8.7 in the English text.

38. Mr. JOUK (Bielorussian S.S.R.) referring to paragraph 8, asked why less frequencies were available for some areas and sub-areas in the reduced power plan (200 W) than in the previous 1 kW plan. This was the case, for example, in area 2 and its sub-areas in the 4.7 and 5.6 Mc/s bands.
39. Mr. SEARLE (New Zealand) said that in the 200 watt plan, more channels were available. Thus, referring to the fifth and sixth columns of Table XVI, it would be seen that a greater number of channels had been allotted on the 200 watt plan. Whereas the requirements of regions 1 - 9 had only obtained 50 - 60% satisfaction, on a radiated power of 1 kW, use of the 200 watt plan would mean an 80% satisfaction. Sub-area 1 D asked for 49 channels, and with the 1 kW plan would have got 5; on the 200 watt plan it would get 12. Other similar cases could be cited.
40. Mr. JOUK (Bielorussian S.S.R.), referring to paragraph 10, said that the recommendation therein contained asserted that only if regional requirements were reduced would a satisfactory allotment plan be possible. Reference to the Tables (region 1 D and 1 C, 3, 3.5 and 4.7 Mc/s) would show that the frequencies allotted were only one-seventh or one-eighth the requirements submitted. Was Mr. Searle of the opinion that regional requirements were eight times more than they should be?
41. Mr. SEARLE (New Zealand) said that adjacent states often duplicated their requests for frequencies.
42. A high proportion of frequencies had been allotted to complete areas. It might be possible, as a result of regional discussions to make more economical use of those frequencies. With the standards adopted by the Propagation Group, there would have to be some coordination of requirements if requests were to be reduced.
43. Mr. JOUK (Bielorussian S.S.R.) said that even with such coordination, it seemed a little extraordinary to suppose that regional requirements would be reduced seven or eight times.
44. Mr. SEARLE (New Zealand) said that the example taken was a particularly unfavourable one. The group had necessarily been bound by the standards set by Committee 6, and he did not feel authorized to express an opinion as to the soundness of those standards. But the plan satisfied 70 - 80% of requirements, and marked a substantial advance since the days of the old Cairo Regulations. Reduction in the standards adopted would surely be a step backward.
45. The group had suggested that more might be got out of the plan by a series of round-table discussions. The Conference had produced some concrete results, and at least an attempt should be made to comply with them.
46. The group submitted a recommendation to the effect that the working material used should be filed. (Sub-paragraph 9.6.1). He would move adoption of that recommendation.

Mr. SOUTO CRUZ (Portugal) seconded the motion.

47. The recommendation contained in sub-paragraph 9.6.1. was unanimously adopted.

48. Mr. MITROVIC (Yugoslavia) said that it had been decided to allot two frequencies in the 3 and 3.5 Mc/s bands for purposes of approach and aerodrome control. This means with radiated power of 5-10 w.

Table II therefore was misleading because it did not make any difference between the frequencies which can be used with 200 w. radiated power, and those used with only 5-10 w. radiated power. It would be necessary to reduce by one the frequency allotment to sub-areas in 3 and 3.5 Mc/s bands.

49. Mr. SEARLE (New Zealand), whilst agreeing that the table might be misleading, said that account must be taken of the note which was to be added to sub-paragraph 8.2 : "It is important to note that the control frequencies of 3 and 3.5 Mc/s are included in each total for sub-areas".

50. The CHAIRMAN, on behalf of the Committee, expressed appreciation of the very considerable work accomplished by the Propagation Group, under the leadership of Mr. Searle.

The meeting adjourned at 6.30 p.m.

Chairman :

Edmund G. BETTS

COMMITTEE 6

REPORT OF THE COMMITTEE ON THE ALLOTMENT OF R FREQUENCIES

(Committee 6)

32nd meeting

Wednesday, September 1, 1948 at 9 a.m.

CHAIRMAN : Mr. Edmund G. BETTS (Australia)

EGYPTIAN PROPOSAL ON MINIMUM FREQUENCY REQUIREMENTS FOR DOMESTIC FLYING
(Aer-Document 240)

1. Mr. de HAAS (Netherlands Indies), introducing the document in the absence of Mr. Bector (Egypt), said that operating conditions in the Middle East were peculiar. Since some aircraft carried operators, while others did not, it was almost impossible to allot channels for either A1 or A3 operation exclusively. Unfortunately, the data available was completely inadequate, and although the proposal was a generous one, it seemed to him impossible to put it into effect.
2. The CHAIRMAN said that in any case the matter had been covered in para. 5 of Aer-Document 242 (Final Report of the Working Group on requirements of the Major World Air Route Areas).
3. It was agreed that the matter contained in Aer-Document 240 had been covered by paragraph 5 of Aer-Document 242.

BOUNDARIES OF MAJOR WORLD AIR ROUTE AREAS (Annex 1 and Map to Aer-Doc 198).
(See Doc. 284 which replaces Doc. 198).

4. Mr. SEARLE (New Zealand), seconded by Mr. WHITE (United States), said as this matter had been thoroughly discussed, and agreement seemed to have been reached between all interested parties, he would move adoption of Annex 1 to Aer-Document 198, as revised to date.
5. Mr. FALGARONE (France) said that there was no mention of Fort-de-France in the South Atlantic area, although it had already been agreed that Fort-de-France should use frequencies of that area on a secondary basis. Fort-de-France should, therefore, be inserted, together with an appropriate explanatory note.
- 5.1 Moreover, the map attached to Annex I was no longer accurate, since the South Atlantic area had changed shape, particularly in its Western half.

6. Mr. BARAJAS (Mexico) said that when he, in the Western Hemisphere Group, had proposed to limit the SA area of MWARA to Natal, his purpose was to increase the possibilities of frequency repetition of this area in the Caribbean region. This was not possible before, because of one weekly flight to and from Fort-de-France. He opposed this extension several times, even on a secondary basis. However, after a private talk with the French delegation, he accepted this extension on a secondary basis, on the condition that, if the number of flights of this route was increased significantly, and affected the use of the SA frequencies in the Caribbean region, the frequencies of the corresponding area have to be used for this service.
- 7.1 It was agreed that Fort-de-France should be inserted in the description of the South Atlantic Major World Air Route Areas, together with an appropriate explanatory note.
- 7.2 It was further agreed that the boundaries of area FE-1 should be modified to include Saigon.
- 7.3 It was agreed that Townsville (Australia) should be indicated in area FE-1.
- 7.4 It was agreed that the description of area NSAM-1 should be amended in accordance with a correction to be submitted by Mr. Costa (Brazil).
- 7.5 It was agreed that the working party charged with amending the map should consider the question of drawing the eastern boundaries of the European area to follow the western boundaries of the Soviet Union.
8. Mr. COSTA (Brazil) proposed that the South Atlantic Major World Air Route Areas should be extended into Europe to include Rome. Traffic in that area was very light, and the change would make very little difference to sharing possibilities.
9. Mr. JOUK (Bielorussian S.S.R.) said that he not only opposed the inclusion of Rome in the South Atlantic area, but objected in principle to any extension of Major World Air Route Areas into Europe.
10. The Brazilian proposal to extend the South Atlantic area into Europe to include Rome was put to the vote and adopted by 23 votes to 9, with 2 abstentions.
11. Mr. ARCIUCH (Poland), said that when the map of the Major World Air Routes was being prepared, he had strongly opposed the extension of Major World Air Route Areas into Europe, and had received an assurance from a representative of the United States delegation that his objection would be taken into account. However, the boundaries of the Major World Air Route Areas had been extended to include the Republic of Poland. The delegations of Poland and Czechoslovakia would therefore oppose any such extension and reserve their position.
12. Mr. LEBEL (United States) said that the United States delegation had agreed not to extend the Major World Air Route Areas into Europe if it could be shown that such an extension would adversely affect possibilities of frequency repetition, but that was not the case.

13. Mr. HARIZANOV (Bulgaria) supported by Mr. BODEAGA(Rumania) and Mr. MITROVIC (Yugoslavia) said it was obvious that the boundaries of the Major World Air Route Areas were drawn in such a way as to be detrimental to domestic and national services.
14. Mr. WHITE (United States) said that on page 1 of Annex II was to be found a statement by the Soviet delegation relative to the Eastern boundaries of the European area. That statement might be modified to take account of the statement just made by the delegate of Poland and used to qualify any extension of Major World Air Routes into Europe.
15. It was agreed that the note on page 1 of Annex II should be so amended.
16. Mr. MITROVIC (Yugoslavia) said that the Propagation Group itself had admitted that the extension of the Major World Air Routes into Europe prejudiced the possibility of frequency repetition. The representative of IATA had suggested that instead of this, the reverse should be done, i.e. that one family of frequencies in Europe should be extended into the Major World Air Routes surrounding the European area. Such a procedure would make frequency repetition within Europe somewhat easier.
17. Mr. ADAM (IATA) said that IATA had originally requested the extension of one European family outside Europe to meet the needs of operational control. However, he had since discussed this matter with the airlines, and it had been agreed that such requirements would best be met by extending into Europe one family of frequencies from each Major World Air Route Area adjoining the EU-MED area.
18. Mr. JAROV (USSR) said that in sub-committee 6C, his delegation had clearly explained why it disagreed with the boundaries adopted for the Major World Air Route Areas. The Soviet delegation wished to protest in emphatic terms against the document as a whole, and in particular against the extension of five Major World Air Route Areas into Europe, which gravely impaired the possibilities of frequency repetition in that area.

Aer-Document 198 should be amended in accordance with the terms of Aer-Document 248 (Soviet proposal on the alteration of principles for an R' frequency allotment plan).
19. The CHAIRMAN said that "in order to help the Committee to come to some decision he would deal with the extension of all the Major World Air Route Areas as proposed into Europe at the same time and requested delegates who were in favour of extension of one family of each area into Europe as proposed to indicate accordingly."
- 19.1 The Chairman's motion to extend the Major World Air Routes into Europe was put to the vote and adopted by 20 votes to 9, with 6 abstentions.
- 19.2 Annex I to Aer-Document 198, as amended, was put to the vote and adopted by 23 votes to 9, with 6 abstentions.
20. Mr. BARAJAS (Mexico) abstained from voting. At a previous meeting it had been agreed to postpone consideration of Aer-Document 198 until the work of the Western Hemisphere group was available, and that decision had not been respected.

21. Mr. JAROV (USSR), Mr. ARCIUCH (Poland) and Mr. MITROVIC (Yugoslavia) disagreed with the boundaries adopted for the Major World Air Routes and reserved their position. Delegations of the following countries voted against adoption of Annex I to Aer-document 198:

People's Republic of Albania, the Bielorussian Soviet Socialist Republic, People's Republic of Bulgaria, Republic of Poland, People's Federative Republic of Yugoslavia, the Ukrainian Soviet Socialist Republic, People's Republic of Rumania, Czechoslovakia, Union of Soviet Socialist Republics.

22. The following group was set up to amend Annex I to Aer-Documents 198, together with the map, in accordance with the decisions recorded above:

Mr. Betts (Australia) - Mr. Aubeire (France) - Mr. Vidal (Argentina) - Mr. Rowland (United Kingdom) - Mr. Mitrovic (Yugoslavia).

It was agreed that the group should endeavour to find appropriate symbols to represent the areas shown on the map.

REPORT OF THE WORKING GROUP IN CONNECTION WITH THE REQUIREMENTS OF THE MAJOR WORLD AIR ROUTE AREAS (Aer-Documents 219).

23. The CHAIRMAN said that in conformity with decisions taken during the thirty-first meeting, Aer-Documents 219 would be considered in conjunction with Table IV of Aer-Documents 239.
24. Mr. ROWLAND (United Kingdom) said that the contents of Aer-Documents 219 had already been thoroughly discussed by the Committee. He would move that it be adopted provisionally and in accordance with the terms of Aer-Documents 200 and 228.
- Mr. OOMEN (Netherlands) seconded the motion.
25. Mr. BARAJAS (Mexico) seconded by Mr. JAROV (USSR) and Mr. QUIJANO (Colombia) moved that consideration of the document be postponed until the Western Hemisphere Group had published its results. The day before it had been stated that the documents of the Propagation Group would not be adopted at this stage, but merely submitted for purposes of clarification. It seemed to him that the United Kingdom motion was in contradiction with that statement. Furthermore, to adopt a document provisionally - whatever that might mean - in accordance with the provisions of two documents not yet considered, was in the highest degree irregular.
26. Mr. WHITE (United States) said that he had been away for a month and the Committee now was no farther advanced than it was then. They had gone as far as they could, and therefore he would support the United Kingdom proposal.
27. The CHAIRMAN, speaking on behalf of the Australian delegation, said that the adoption of this document was provisional in the sense that further consideration must be given to the matter by a competent ICAO organisation, in accordance with Aer-Documents 200.
28. Mr. ROWLAND (United Kingdom) said that to satisfy the objections expressed by the delegates of Mexico and Colombia, he would amend his

motion to read as follows: "That Aer-Document 219, with Table IV of Aer-Document 239, be provisionally adopted".

29. Mr. COFFEY (Canada) said that a provisional adoption of the document was a waste of time. If the plan were approved, the document would be approved automatically.

30. Mr. QUIJANO (Colombia) said that if the Mexican proposal to postpone consideration of Aer-Document 219 were put to the vote, he would demand a vote by nominal roll, in accordance with Article 16 of the Atlantic City Convention.

31.1 The Mexican proposal to postpone consideration of Aer-Document 219 was put to the vote and rejected by 20 votes to 18, with 2 abstentions.

31.2 In favour:

People's Republic of Albania; the Bielorussian Soviet Socialist Republic; People's Republic of Bulgaria; Canada; Chile; Republic of Colombia; Cuba; Ecuador; India; Mexico; Nicaragua; Republic of Poland; People's Federative Republic of Yugoslavia; the Ukrainian Soviet Socialist Republic; People's Republic of Rumania; Czechoslovakia; Union of Soviet Socialist Republics; Oriental Republic of Uruguay - 18 votes.

31.3 Against:

The Argentine Republic; Commonwealth of Australia; Belgium; Brazil; Portuguese Colonies; Protectorates, Overseas Territories and Territories under Mandate and Trusteeship of the United Kingdom of Great Britain and Northern Ireland; United States of America; Republic of Honduras; Netherlands Indies; Ireland; Norway; New Zealand; Pakistan; Netherlands, Curaçao and Surinam; Portugal; United Kingdom of Great Britain and Northern Ireland; Sweden; Switzerland; Territories of the United States of America; Union of South Africa and the mandated territory of South-west Africa - 20 votes.

31.4 Abstentions:

Colonies, Protectorates and Overseas Territories under French Mandate; France - 2.

32.1 Mr. JAROV (USSR) said that not only the votes cast, but the very fact that the question of discussing Aer-Document 219, in itself, had to be put to the vote, was evidence of a serious divergence of view with regard to the matter contained in that document.

32.2 In order to assist the preparation of an R allotment plan, his delegation had on more than one occasion made suggestions designed to ensure a more rational and economical distribution of frequencies. Unfortunately, the Committee had not seen fit to adopt them.

32.3 In Aer-Document 219, the working group on Major World Air Route Area requirements had not succeeded in presenting anything new. Frequencies

were there in the same numbers as before, for the full satisfaction of Major World Air Route requirements, and, as before, the same meagre remainder had been left for the regions and sub-regions.

- 32.4 The United Kingdom motion to approve provisionally the plan for the Major World Air Route Areas was irregular, and he would vote against it. His delegation would reserve its right to revert to this matter later, when a decision was to be taken on Aer-Documents 239, 249 and 250.
33. Mr. FALGARONE (France) said that Aer-Document 219 should be adopted as part of a plan based on the use of A3 emission and high-capacity equipment. Such a plan would remain valid only as long as the countries concerned used such systems.
34. Mr. BARAJAS (Mexico) said that if the document was to be adopted provisionally, that meant, presumably, that its adoption depended on whether Aer-Documents 239, 249 and 250 were adopted later. That being so, there seemed to him to be singularly little point in discussing the document at that stage. Many countries, including his own, wanted to see a plan which would give the maximum possibilities of frequency repetition. He had made every effort to fill the gaps in the plan by suggesting reductions in power, and similar measures, in order to leave the frequencies allotted to the Major World Air Routes intact. However, if the Committee insisted on examining this document without first having considered the results of the Western Hemisphere group, he would be obliged to vote against its adoption.
35. Mr. SCHWERTER (Chile) strongly supported the views expressed by the delegate of Mexico. The motion just adopted was not only a violation of the understanding arrived at in the Committee, but an infringement of an agreement arrived at between the American countries, to the effect that no document dealing with the Major World Air Route Areas would be discussed before the plans for domestic and national services were finished.
36. Mr. COSTA (Brazil) said that delegates had been perfectly well aware for some time that their minimum requirements could not be met. The plan drawn up had been based on principles approved by the Committee, and no further adjustment was possible. If a new plan was to be produced for the Western Hemisphere, it would have to be a complete departure from the old one.
37. Mr. ROWLAND (United Kingdom) said that in accordance with Article 16 of the Atlantic City Convention, he would demand that his motion be put to the vote by nominal roll.
38. The United Kingdom motion for the provisional adoption of Aer-Document 219 was put to the vote and adopted by 20 votes to 16, with 5 abstentions.
39. Mr. HARIZANOV (Bulgaria) said that Aer-Document 219 should have been discussed after the Committee had taken a decision on Aer-Documents 239, 249 and 250. Furthermore, the extension into Europe of the Major World Air Route Areas lessened the possibilities of frequency repetition, and this was prejudicial to regional and domestic air services. His delegation would therefore vote against the adoption of Aer-Document 219 and reserve its rights with regard to the matters therein treated.

40.1 For:

The Argentine Republic; Commonwealth of Australia; Belgium; Brazil; Portuguese Colonies; Colonies, Protectorates, Overseas Territories and Territories under mandate or trusteeship of the United Kingdom of Great Britain and Northern Ireland; United States of America; Republic of Honduras; Netherlands Indies; Ireland; Norway; New Zealand; Pakistan; Netherlands, Curaçao and Surinam; Portugal; United Kingdom of Great Britain and Northern Ireland; Sweden; Switzerland (Confederation); Territories of the United States of America; Union of South Africa and the mandated Territory of South-west Africa - 20 votes.

40.2 Against:

People's Republic of Albania; the Bielorussian Soviet Socialist Republic; People's Republic of Bulgaria; Chile; Republic of Colombia; Cuba; Ecuador; Mexico; Nicaragua; Republic of Poland; People's Federative Republic of Yugoslavia; the Ukrainian Soviet Socialist Republic; ;Czechoslovakia; Union of Soviet Socialist Republics; Oriental Republic of Uruguay; People's Republic of Rumania - 16 votes.

40.3 Abstentions:

Canada; Colonies, Protectorates and Overseas Territories under French mandate; France; India; French Protectorates of Morocco and Tunisia - 5.

41. Mr. MITROVIC (Yugoslavia) said that his delegation would reserve all its rights with regard to Aer-Document 219.

The meeting adjourned at 12.30 p.m.

Chairman:

Edmund G. BETTS

COMMITTEE 6

REPORT OF THE COMMITTEE ON THE ALLOTMENT OF R FREQUENCIES

(Committee 6)

33rd meeting

Thursday, September 2nd, 1948 at 9 a.m.

Chairman : Mr. Edmund G. BETTS (Australia)

DISCUSSION OF A RESOLUTION SUBMITTED BY THE BRAZILIAN DELEGATION.

1. Mr. COSTA (Brazil) as Chairman of the Western Hemisphere Group, said that there had been some divergence of opinion within the group as to how the requirements contained in Aer-Document 234 should be interpreted. Certain delegations had seen fit to change their statements of requirements. Unfortunately it had not yet been possible to present the final report to the group as a whole.
2. Mr. COSTA (Brazil) now speaking for the Brazilian delegation stated the following :
 - 2.1. The Conference has now been at work for four months, and has reached definite decisions on some items of its agenda. As far as the R frequency allotment plan is concerned, it is evident that no agreement was reached but even on this matter the Conference has gathered knowledge and experience which will help future studies. As a result of the work carried on during the last five weeks the Conference has prepared the so-called Plan No. 1 described in Aer-Documents 249 - 250.
 - 2.2. If the plan is rejected, there would be at least six or seven other approaches that might be investigated. This would take four to five months of intensive work, since the Conference would have to start from the beginning by examining the technical principles and after that would have to develop these possible plans into detail in order that the complete results could be compared at the end.
 - 2.3. The Brazilian delegation considers that the information available on domestic or national services is inadequate. Whereas the requirements of the Major World Air Route Areas would be assessed on the basis of precise calculation, all the Conference had by way of information on domestic services were statements of requirements. The application of a formula similar to the one used for MWARA, to compute frequency requirements of RDARA on the basis of regional and domestic air traffic operations was considered impossible due to the lack of information referred above.



2.4. The Brazilian delegation, therefore, was honestly facing the facts and was recognizing that the plan No. 1 was not satisfactory : on the other hand, the Brazilian delegation was strongly in opposition of recommencing the work of the Conference to develop any other single plan along any other single particular method of approach that could be devised by any delegate. It was said before that there are several different methods of approach that must be tried. The work along those lines will have to be developed to the last minute detail before the Conference can decide which of them will provide the best answer to our problem.

2.5. This kind of work, tackling simultaneously or successively, all the methods technically sound that can be suggested, will require not less than another three to four months of work, if all delegates be willing to devote their full time to the Conference.

2.6. At the end, the Conference would still be facing the unavoidable fact that the results obtained had to be compared on a different basis : the MWARA problem on the basis of computed requirements, the RDARA problem on the basis of stated requirements.

2.7. This very fact, Mr. Chairman, has been the seed of dissention of this Conference. It will leave opened the door for future arguments claiming that the MWARA have been given preferential treatment by the Conference.

3. The Brazilian delegation, therefore, would like to submit a resolution in the following terms : "All documents relative to the preparation of an R frequency allotment plan (specifically Aer-documents 239, 249 and 250) shall be adopted by Committee 6 and forwarded to the Plenary Meeting, with the following recommendation :

I. That no final decision on these documents (for implementation) be taken at this stage.

II. That these documents be referred to administrations for use as a basis for study and further planning.

III. That the Conference suspend its work for the present, and reconvene at a later date, for the purpose of completing it.

IV. That, before suspending its work, the Conference set forth the procedure by which recommendations would be transmitted to administrations and by which the Conference would be reconvened".

4. Mr. COFFEY (Canada) referring to the Western Hemisphere plan, said that at least six variants might be worked out. None of them, however, was likely to be very different in character from the one that was about to be presented.

At the Western Hemisphere regional conference in Bogota, it was probable that some 14 - 16 extra frequencies would become available. That would suffice to cover any adjustments to the plan. If the Conference was not going to agree on a final plan, he hoped that Aer-document 265 (Plan 1, with the addition of some limited power sharing) would be referred to Bogota with a strong recommendation that it be followed as closely as possible.

He would suggest that Aer-document 265 be added to the list of documents mentioned in the Brazilian proposal.

5. Mr. COSTA (Brazil) said that the terms of his motion were sufficiently broad to cover Aer-document 265. He would not object, however, to its inclusion.
6. Mr. BARAJAS (Mexico) said that the work of the Western Hemisphere group was far from finished. Aer-document 265 had only just appeared and had not yet been submitted to the group. It was quite possible that the group would be able to suggest means of improving it.
7. Mr. JAROV (USSR) said that the word "adopt", in the preamble, might be misleading. The wording of paragraph 2 might be interpreted to mean that the documents were binding the administrations to which they were referred. Finally the procedure mentioned in paragraph 4 needed clarification.
 - 7.1. Mr. MITROVIC (Yugoslavia) said that in connection with the resolution proposed by Mr. Costa and with the adoption of the Doc. 219, at the previous meeting of Committee 6, he would like to put the following question to the Chair, or to Mr. Rowland (U.K.) the mover of the motion for the adoption of the Doc. 219 : "Was the Doc. 219 adopted in the previous meeting of Committee 6 in the same sense, as it is now proposed by Mr. Costa to adopt the Docs. 239, 249 and 250".
 - 7.2. Mr. ROWLAND (U.K.) in reply to the question said that the Doc. 219 has been adopted in exactly the same sense, as it is now proposed to adopt the Docs. 239, 249 and 250 by Mr. Costa.
8. Mr. COSTA (Brazil) recognized that the word "adopted" was not intended to signify that the conference had reached agreement on those documents mentioned in the Brazilian proposal. Conference procedure, however, required that a document be adopted - the expression did not necessarily imply approval - before it could be referred to another body. The difficulty was a purely linguistic one.

The aim of the proposal was to enlist the aid of administrations. It was clear that the documents could not possibly limit the action of the administrations to which they were referred, and indeed it is always possible to an administration to disregard them entirely. All that was intended was that administrations should make some effort to apply the studies and methods contained in the documents concerned. At the same time, by studying those documents, the administrations would be able to form an accurate idea of the difficulties the Conference was encountering, and might be able to reduce their requirements and to submit to the Conference, when it reconvened, some valuable suggestions.

As far as the remark made by the Soviet delegation with regard to paragraph 4 the idea of the Brazilian delegation was that, in the case its motion is approved, the Plenary Assembly would set up a small working group to draft the recommendations that should be transmitted to the administrations with the documents. There are quite a number of

suggestions on this particular point, as for instance, those contained in Aer-documents 200 and 228. In any case, this is a matter which could be settled by the Plenary Meeting.

9. Mr. ARCIUCH (Poland) said that his Administration had already reduced its requirements three times in the course of the Conference. The plan drawn up was very unsatisfactory - in Region 1 B, 4 frequencies had been allotted to 9 countries - and could hardly be accepted as a basis for planning by his Administration.

10. Mr. LALUNG-BONNAIRE (Overseas France) said that the difficulties which had arisen might be solved by the following drafting amendments :

In the preamble read : "All documents relative to the preparation of an R frequency allotment plan (specifically Aer-documents 239, 249, 250 and 265) shall be provisionally adopted by Committee 6, as a contribution to further study of the problem, and referred to the Plenary Meeting with the following recommendation

In paragraph 2, read : "That these documents be referred to administrations merely as a guide or an example of the plan to be drawn up later. Administrations shall, however, be recommended to follow them as closely as possible".

In paragraph 3, read : "That the Conference then suspend its work, which it will take up again and finish at a later date, before the special conference charged with approving the new frequency list".

11. Mr. JAROV (USSR) said that the preamble, with or without the amendment proposed, would mean that Aer-Documents 239, 249, 250 and 265 would be adopted without discussion. Such a procedure was in the highest degree irregular. He would therefore propose that discussion of the Brazilian motion be deferred until Aer-Documents 239, 249, 250 and 265 had been examined and a decision had been taken with regard to their disposal.

12. Mr. MITROVIC (Yugoslavia) and Mr. ARCIUCH (Poland) seconded the motion.

13. The Soviet motion for deferring discussion of the Brazilian motion until Aer-documents 239, 249, 250 and 265 had been examined was put to the vote and rejected with the following results :

For - 10; against - 21; abstaining - 7

14. Mr. COSTA (Brazil) referring to the French amendment to the Brazilian proposal said that he would agree to the insertion of the word "provisionally" in the preamble ("shall be adopted provisionally by Committee 6").

15. The French amendment to paragraph 2, however : "that these documents be referred to administrations merely as a guide or an example of the plan to be drawn up later, "second to imply that administrations would be expected to play a passive rôle with regard to that plan."

16. Mr. LEBEL (United States) suggested that paragraph 2 might be amended to read as follows : "That these documents be referred to administrations for use as a basis for the study which they are requested to undertake in connection with the plan involved".
This amendment was adopted.
17. Mr. JAROV (USSR) proposed that to paragraph 2 be added the following :
.... "having in mind that administrations shall in no way be bound by these documents".
18. Mr. COSTA (Brazil) said that this addition seemed to him redundant, and, in addition, seemed an invitation to disregard the documents in question.
19. Some discussions took place and Mr. FALGARONE (France) suggested that, instead of the expression "shall in no way be bound" proposed by the Soviet delegation, the expression : "shall not be bound" be used.
20. Mr. COSTA (Brazil) and Mr. JAROV (USSR) agreed in accepting this amendment.
21. After some discussion, it was agreed that paragraph 2 should be amended as follows : "That these documents be referred to the administrations for use as a basis for the study they are requested to undertake in connection with the plan involved, having in mind that administrations shall not be bound by the documents".
22. Agreement was also reached on the following amendment to paragraph 3 :
"That the Conference at this stage will suspend its work, and shall reconvene, when it will be possible, for the purpose of completing its work in regard to the drawing up of a frequency allotment plan in the R bands before the opening of a special conference which has to approve the new frequency List".
23. Mr. JAROV (USSR) proposed that paragraph 1 be amended to read as follows :
"That no final decisions on these documents (for implementation) be taken at this stage, and that all decisions of this Conference, in regard to the plan of frequency allotment, shall have no validity".

23.1. Mr. WHITE (United States) expressed the opinion that although it was technically true that the second session of the Conference could completely reverse decision of this session, emphasis on this point would lead to the wrong impression. The impression should not be that all that we have done is useless but rather that what we have done was on the basis of the information available and that we may have to do over part of our work on the basis of later information.

23.2. Mr. LEBEL made the following statement :

"The Chairman of the Conference felt that after working earnestly and intensely on this problem for nearly five months, we should carefully guard against making statements which would risk giving the Administrations the impression that the result of our work has no validity. Of course, as one speaker has said, the Administrations have the legal power to throw the whole report in the basket if they so choose, because they are sovereign. But the effect of Mr. Jarov's words would be not only to acknowledge that fact, which needs no express acknowledgment, but to bring the basket up to them and urge them to use it. This would obviously be ridiculous on our part. The net situation, as the Chairman saw it, was that we have progressed as far as we can with the material available; up to this point a clear majority of the Conference believe that our conclusions are sound. The only reason for not making these conclusions final now, is that further studies, which cannot be made here, may perchance cause this Conference to alter some phrases of those conclusions later, when it reconvenes. That is almost the reverse of saying that our conclusions have no validity whatever".

24. Mr. COSTA (Brazil) said that although the decisions referred to could not, in any case, be more than tentative, it was undesirable to emphasize that fact. He also said that his motion was intended to be applied only to the documents related to R frequency allotment plan and not to all documents of the conference. He would accept that paragraph 2 be amended to read :

"That no final decision (for implementation) be taken at this stage with regard to all documents of this conference related to the preparation of an R frequency allotment plan".

25. The Brazilian amendment to the Brazilian proposal was put to the vote and adopted by 24 votes to 9.

26. Mr. JOUK (Bielorussian Soviet Socialist Republic) moved that the preamb be replace by the following text :

"Considering,

That although the draft frequency allotment plan for the aeronautical mobile R service submitted by the Propagation Group in two variants (Aer-documents 239, 249 and 250) completely satisfies all wishes with regard to the Major World Air Route Areas, yet does not leave possibilities of meeting to the same degree the needs of other categories of the aeronautical mobile R service,

Committee 6 does not consider it possible to adopt this draft either in the first or second variant, either partially or provisionally, and charges the Working Group with the task of altering this plan on the basis of new principles, which will, for this purpose, be adopted by Committee 6".

27. Mr. MITROVIC (Yugoslavia) and Mr. ARCIUCH (Poland) seconded the motion.
28. Mr. SEARLE (New Zealand) said that if the plan was considered unsatisfactory, it would only be fair to add after "Propagation Group" the words : "in conformity with standards adopted by the Conference". It would also be more appropriate to change "charges the Working Group" to read "requests a working group to fulfil the task "
29. Mr. JOUK (Bielorussian S.S.R.) said he could accept these amendments.
30. Mr. BARAJAS (Mexico) said that the difficulty of producing an equitable plan was lack of information. The question remaining to be settled was how requirements were to be determined. In these circumstances, the Mexican delegation had proposed that the work of the Conference be taken over by regional conferences. Simply to set up a working group to work out a fresh plan would be a waste of time, and therefore he would oppose the second half of the Bielorussian amendment to the Brazilian proposal.
31. Mr. JOUK (Bielorussian S.S.R.) said that the difficulty lay, not in lack of information, but in the technical principles adopted. Committee 7 had no more information than Committee 6, but had produced a plan. The trouble was that certain delegations were trying to maintain a privileged position for the Major World Air Route Areas. The situation would not be improved by referring to work to regional conferences. The only way to produce an acceptable plan was to change the technical principles adopted.
32. Mr. FALGARONE (France) said that at a previous meeting it had been agreed that a decision would be taken on Aer-documents 239, 249 and 250 at a later stage. That meant that the substance of those documents was to be discussed. If the Committee adopted either the Brazilian proposal or the Soviet amendment to it, they would be running counter to that decision, and therefore he was in favour of discussing those documents first.
33. The CHAIRMAN said that as he understood it, the Brazilian resolution was not designed to prevent discussion or amendment of those documents. It was an admission that there would be no ultimate agreement with regard to their substance - indeed that was its principal point. A motion to defer discussion of the proposal had been duly put to the vote and rejected by a majority of those present.
34. Mr. ARCIUCH (Poland) supporting the Soviet amendment to the Brazilian proposal said that, throughout the Conference, preference had been given to the Major World Air Route Areas. The technical principles adopted had been put to the vote after inadequate discussion, but there was still time to change them.
35. Mr. MITROVIC (Yugoslavia) said there was a danger that the Conference when it reconvened would adopt the same technical principles as had led to the present impasse. That danger would be avoided by adoption of the Soviet amendment.

36. The Soviet amendment to the Brazilian proposal was put to the vote and rejected by 9 votes for, to 22 against, with 7 abstentions.

37. Mr. JAROV (USSR) said that as the result of certain errors which had been allowed to occur in the work of the Conference, they were now faced with the necessity of adjourning without having been able to draw up a final frequency allotment plan.

The amendments submitted by the Soviet delegation to this very important proposal had been designed to put possible future conferences on their guard against those errors.

The technical principles on which the plan was based were detrimental to regional and national air services. To adopt the plan provisionally, and simply to refer the relevant documents to administrations without adopting fundamental changes in those principles, would not only be of no assistance to the Conference when it reconvened, but would protract and complicate its work.

The amendments presented by the Soviet delegation went to the root of the matter, but they had been rejected. By so doing, the Committee was confirming the principles adopted by the Conference before its adjournment, and trying to make them binding on administrations.

This meant, on the one hand, that the Committee acknowledged the impossibility at this stage of drawing up a plan which would be acceptable to everybody, and pretended to be willing to work out such a plan. On the other hand, by adopting this resolution, it reduced to nothing its will.

The Soviet delegation well understood the real aims of the resolution and would vote against its adoption. It would reserve its rights to revert to this matter at a later date.

38. Mr. SEARLE (New Zealand) said that they had been listening patiently for many hours to a tortuous discussion. It was obvious that nothing new would be said on the subject. He would move that the Brazilian proposal, as amended, be put to the vote forthwith.

39. Mr. de HAAS (Netherlands Indies) seconded the motion.

40. The New Zealand motion for an immediate vote on the Brazilian proposal was adopted by 25 votes to 10, with 3 abstentions.

41. The Brazilian resolution, as amended, was put to the vote in the following form :

That all documents related to the preparation of an R frequency allotment plan, specifically documents 239, 249, 250 and 265, be adopted provisionally by Committee 6 and forwarded to the Plenary Assembly with the following recommendations :

- (1) That no final decision (for implementation) be taken at this stage with regard to all documents of this conference related to the preparation of an R frequency allotment plan.
- (2) That these documents be referred to the administrations for use as a basis for the study which they are requested to undertake in connection with the plan involved, having in mind that the Administrations shall not be bound by the documents.
- (3) That the Conference at this stage will suspend its work and shall reconvene when it will be possible for the purpose of completing its work in regard to the drawing up of a frequency allotment plan in the R bands before the opening of a special conference which has to approve the new frequency list.
- (4) That before suspending its work the Conference set forth the procedure by which recommendations would be transmitted to the Administrations and by which the Conference would be reconvened.

42. The resolution was adopted by 24 votes to 10, with 4 abstentions.

43. Mr. HARIZANOV (Bulgaria) said that the resolution adopted did not reflect the discussions which had taken place. His delegation considered that to end the Conference in this way, particularly in view of the heavy expenses incurred, was unjustifiable. He had voted against the resolution and would reserve his position.

44. Mr. ARCIUCH (Poland), on behalf of his delegation and that of Czechoslovakia, Mr. MITROVIC (Yugoslavia), on behalf of his delegation and the of Albania, and Mr. BODEAGA (Roumania), said that they had voted against the resolution and would reserve their position.

The meeting adjourned at 18.15 hours.

Chairman :

Edmund G. BETTS

14 September, 1948

COMMITTEE 6

REPORT OF THE COMMITTEE ON THE ALLOTMENT OF R FREQUENCIES

(Committee 6)

37th meeting, Thursday, September 9th, 1948

Chairman: Mr. Souto CRUZ (Portugal)

1. The CHAIRMAN opened the meeting at 2.40 p.m. Outlining the position, he said that it was necessary to discuss how the problems of the Conference should now be dealt with, and to consider what sort of conferences, if any, should help to solve these problems during the recess.
2. The delegate of the United Kingdom said that part of the problem had been settled. The reconvened conference would be a world conference. It was necessary therefore merely to discuss the meetings where study might be continued. There were various possibilities including I.T.U. regional, ICAO or purely national conferences. He felt that I.T.U. regional conferences could do less than the present conference when it reconvened. What was required was more information. In RDARA 1 he thought that, after national study, informal meetings would be the best idea. He said that in all cases arrangements should be as flexible as possible, so that administrations could study the problems, coordinate data and make their own arrangements for any conferences they thought necessary. He felt that it was not helpful to call I.T.U. regional conferences.
3. The delegate of the Netherlands agreed with these principles and, dealing with the problem in Europe, said that it appeared there were two main groups. Firstly, those who conformed to ICAO ideas and secondly those who did not. He advocated separate meetings of these groups which might then come together to produce a coordinated plan for Europe as a whole.
4. The CHAIRMAN enquired whether there were any other Regional views.
5. The delegate of the U.S.S.R. said that before discussing the procedures of calling meetings he wanted to be quite clear on two points:
 - (1) What was the task of the Conference before the recess?
 - (2) What would be the tasks of the meetings during the recess?
6. The CHAIRMAN said that before the Conference adjourned, a document had to be prepared indicating to administrations what they might do during the recess. A Working Group had already been formed and he was trying to ascertain the views of the delegates so as to help that Group.
7. The delegate of the U.S.S.R. said that he was not interested so much in the procedure as in getting an answer to his questions. He repeated:

(1) What was the task of the Conference before adjourning?

(2) What did the Conference hope to gain from having a recess?

The way in which the work was to be done would depend on the aim in view.

8. The CHAIRMAN, in reply, said that administrations, knowing now the difficulties in detail, would be able to work more specifically than hitherto. On reconvening, the ideas would be considered and once more a solution be sought.
9. The delegate of the U.S.S.R. said he was still not clear what it was hoped to gain by having a recess. Was it merely a restatement of requirements?
10. The delegate of the U.S.A. said that the stated requirements had, in many cases, been made on the assumption that ample frequency space was available. In many cases, he thought that separate nations had duplicated the requirements for frequencies, and he referred to the De Haas Report (Doc. 242).
11. He said that it was quite clear that the purpose of the recess was to reduce requirements, possibly by each administration coordinating with its neighbours. A second purpose was to enable administrations to review the work to date and, possibly, to suggest other approaches.
12. The delegate of Mexico said that administrations might wish to produce a plan designed to meet RDARA rather than MWARA requirements. He favoured ITU regional conferences with as wide a directive as possible. Administrations would not be obliged to attend.
13. The delegate of Canada said that the problem varied from area to area. In each area, administrations should be encouraged to collaborate in their own way, rather than trying to prepare a comprehensive timetable which would certainly not go to schedule. ICAO informal meetings might be useful in some cases but he felt that the full ICAO machinery should be avoided. In any event, he felt that it should be the aim to have an aeronautical list completed by mid 1949.
14. The delegate of the U.K. agreed in general. He pointed out that the Conference had tentatively agreed a plan which however met only a proportion of stated requirements. He felt that, after adjourning, study should proceed on three bases:

- (1) Consideration of allotments to MWARA's (which must be done on an ICAO basis)
- (2) Consideration of regional requirements (the assistance of ATC and MET personnel would be valuable)
- (3) Consideration of how allotments could cover domestic requirements.

It must not be forgotten, he said, that regional allotments could be used to meet domestic requirements to some extent. Having considered the problem in these ways he thought that the stated domestic requirements could certainly be reduced.

15. Continuing, the delegate of the United Kingdom said that he hoped that, so far as RDARA 1 was concerned, the non-ICAO members would attend any ICAO informal meetings as their participation was most desirable. He wanted to make it quite clear that regional frequencies were the common property of all administrations in the respective regions and that ICAO members did not consider that any one state or group of states was entitled to first claim on them.
16. The delegate of Australia, replying specifically to the delegate of the U.S.S.R., said that
- (1) Before breaking up, the Brazilian proposal, which had been adopted, should be followed.
 - (2) During the recess, he advocated action as in Doc. 200. He wished, however, to amend the wording of Doc. 200 Para. 2 to the following:

"The Conference requests the Administrative Council to request the administrations to take such action as may be deemed most appropriate to have the Regional/Domestic problem within each RDARA properly examined by the Aeronautical Telecommunication authorities concerned and to prepare a coordinated plan for each area prior to the reconvening of this Conference".
17. So far as South East Asia was concerned, he thought the ICAO regional meeting already scheduled in New Delhi would be a good opportunity for discussions to take place, and he had, in fact, asked his administration to have an agenda item, covering consideration of the Conference report and any necessary planning, placed on the agenda for the meeting.
18. The delegate of Yugoslavia said that he did not think this answered the query of the delegate of the U.S.S.R. The proposal amendment to Para. 2 of Doc. 200 failed to clarify the actual problem which these conferences were to consider.
19. The delegate of Australia replied that on the contrary the new Para. 2 did in fact say what the conferences should do. It stated that the regional/domestic problem within each RDARA should be properly examined and also that they were to prepare a coordinated plan. That was their task.
20. The delegate of Poland asked the delegate of Australia what was meant by the term "Aeronautical Telecommunication Authorities" and the latter explained that he meant the Department of each Administration directly concerned with Aeronautical Communications.
21. The delegate of India said that he was in agreement with the general opinion; namely that not much else could be achieved at the present Conference whereas work could continue in what might be called "lower level conferences". However two points arose from the statement of the delegation of Australia.

The first is that Atlantic City has anticipated the possible failure of this Conference to produce an allocation list and provided for that contingency. But nowhere in the Atlantic City Acts could any authority be

found for what is being now proposed to be done - viz: delegation of the work of producing an assignment plan to an agency outside the I.T.U. The Indian delegation held the view, and he was sure it was accepted by all, that the task of producing a properly engineered assignment plan is fundamentally the function of the I.T.U. and it can be done only at conferences held within its structure and not by anybody or conference outside its framework.

The second point is that of including this subject as an agenda item at the South East Asia Regional ICAO Conference at New Delhi. If this is done it can be only with reference to the MWARA's and in the light of what he pointed out earlier cannot cover the entire field of R frequencies including the RDARA's. Besides, if the ICAO handles this problem then the full machinery of that body would be involved and the results should pass through its Council etc. before they reach this Conference, causing serious delay in the process. If however, the suggestion was merely to take advantage of the presence at New Delhi of the representatives of the various countries as also aeronautical experts and convene a meeting to consider the problem of the RDARA, he fully agreed with the proposal. He thought that there might be a purely consultative conference with ICAO merely acting as adviser. He enquired whether the latter was what the Australian delegate intended.

22. The delegate of Australia said that he felt the ICAO Regional Meeting itself was the best venue because personnel concerned with MWARA's, RDARA's, ATC, MET etc. would all be present.
23. The delegate of India disagreed that the full ICAO machinery should be involved. ICAO could only give advice from a MWARA point of view. He could see no point in the matter being specifically on the agenda of the Regional Meeting.
24. The delegate of Australia said his intention was to give all Member States present at that meeting an opportunity for expressing their views on the subject. They might even decide not to discuss the matter at all.
25. In clarification, the delegate of the U.S.A. said that it was his opinion that
 - (1) under the terms of the Brazilian Resolution actual decisions would only be made by the reconvened Conference i.e. by an ITU conference;
 - (2) further information was needed on RDARA's. This information was available in the Regions and this is where it should be sought.

He thought that much frequency saving might result from a revision of ATC procedures. ICAO meetings would therefore be the best venue as it was there that ATC procedures and practices might be modified. In some cases, e.g. U.S.A./Canada, ICAO meetings would not be needed. In cases where conferences were already scheduled he felt that the opportunity might be used and possibly the services of the ICAO secretariat utilized. In some cases, e.g. ITU Region 2 where there were shared band problems, ITU Regional Meetings might be the solution.

26. Summing up, the U.S.A. delegate thought that Administrations were the best judges of how plans might be settled. He thought that it would be advisable to have a special section of the Secretariat to coordinate and expedite action during the recess.
27. The delegate of the Netherlands East Indies thought a solution might be for this Conference to ask the South East Asia Regional Meeting to advise on MWARA and regional problems in that region and to report directly back to the reconvened Conference.
28. The delegate of India said he was still unable to see any reason for putting the matter specifically on the ICAO Meeting Agenda if the intention was merely to take advantage of the location. If the matter were on the Agenda, the full ICAO machinery would be involved.
29. The Australian delegate explained that he felt that the whole problem, including the interim Conference Report was of interest to the whole meeting, both from MWARA and RDARA points of view. The discussion of RDARA matters would benefit from the presence of experts. He thought that the forthcoming ICAO COM Division Meeting in Montreal should discuss generally the MWARA problems. RDARA's were a different matter and the RDARA requirements should be discussed by the Administrations present at New Delhi, without involving the full ICAO machinery.
30. The delegate of India said he now understood the point of view and asked for a full report of the discussion to be made, in view of the importance of this question.
31. The delegate of France said that no real clarification had resulted from the discussion. Some delegates attached importance to the work to be done in the recess. Others thought the basis of work to be of greatest importance. He agreed that some RDARA requirements were not sufficiently detailed but thought that there should also be an opportunity offered for using new bases for the work. The door must be left open for all possibilities. He classified the work for the conferences in the recess under two headings:
 - (a) As preparation of a fresh plan involved changing the MWARA plan, the start must be made by examining new proposals and bases.
 - (b) Then revised RDARA requirements could be devised. Further planning would depend on the MWARA position, and would thus not be possible at these small conferences.

The recommendation on adjourning should therefore be

- (1) An invitation to find, if possible, bases and principles more appropriate for a MWARA plan.
- (2) An invitation then to evaluate, possibly in Regional Meetings the requirements of RDARA's.
- (3) An agreement to try, on reconvening, to meet, equitably, all the revised requirements.

32. The delegate of France closed by emphasizing that the administrations should be left to decide the precise machinery. Where meetings were scheduled advantage should be taken of them.
33. The CHAIRMAN felt that a large degree of agreement had, in fact, been achieved. He could see no fundamental differences in the ideas expressed.
34. The delegate of the U.S.S.R. then made the following statement:
- "The statements made by certain delegations, and the explanation given by Mr. White, would lead us to suppose that it is necessary to adjourn the Conference chiefly in order to obtain further statistical data, and to obtain some reduction in demands by individual States.
- "Out of this it may be possible to conclude that the only reason for adjournment is the absence of statistical data and the "excessive" demands of States.
- "Now, is that really the case?
- "Is not the Committee mistaken in drawing these conclusions? Is it not high time to recognise that the real cause for the failure of this Conference is to be found in its excessive preoccupation with the Major World Air Routes? Is it not time to admit that the real cause of failure is in the fact that from the very beginning, the Conference has underrated national requirements, or, to put it more bluntly, has ignored them?
- "This is quite clear to the Soviet delegation. The Soviet delegation is under no illusions as to the prospect of success for a second session of the Conference.
- "Success is hardly likely if the regional conferences follow the same course as this one.
- "At this stage of the discussion, the Soviet delegation refrains from giving its views on regional conferences. That will depend on the terms of reference of these conferences and the problems to be put before them. But just now we are discussing, not substance, but form - that is, whether these conferences should be held within the framework of ITU or within that of ICAO.
- "The delegate of the Netherlands has proposed that Member States of ICAO should meet in regional conferences of ICAO, non-Member States of ICAO, in regional conferences of ITU. We think that this solution - which deals with form and not with substance - is not conducive to the production of coordinated requirements.
- "We might admit the possibility of regional meeting of various kinds within ICAO to deal with special problems, but if we are talking about coordination of requirements, then there is simply no sense in the Netherlands proposal".
35. The delegate of New Zealand felt that administrations should be approached and asked to examine the existing plan, comment on the technical results obtained and see whether operational practice enabled any reduction in standards adopted to be made. He was of the opinion that administrations, because of local knowledge, would be able to recommend further sharing possibilities.

36. The delegate of New Zealand added that in the same way as MWARA frequencies had been shared out on a formula basis, RDARA frequencies might be shared out, provided some common denominator could be found. He thought that this would be possible provided administrations send fuller data. If there were a formula basis for both MWARA's and RDARA's then both could be provided for on an equal basis.
37. After summing up, the CHAIRMAN said that he was sure that the Working Group must have a good idea of the trend of opinion and, supported by the delegate of New Zealand, he said that it would be more profitable to wait and discuss the document to be produced by the Working Group.
38. The delegate of Yugoslavia said that administrations must be free to consider revised basic standards. He could see no point in administrations studying the basic principles underlying Plan 1 as he felt that Plan 1 had already failed.
39. The CHAIRMAN said that no recommendations which the Conference might make would in fact prevent any administration from considering new standards if it wished to do so. Speaking as the delegate for Portugal, he said that he had already worked out some results on the basis of Doc. 248 and he hoped that, if administrations proposed new basic standards, they would also work out a plan based on those new standards for presentation to the Conference on reconvening.
40. The delegate for Yugoslavia reiterated that as Plan 1 had failed there was no point in asking administrations to work on the same basic standards, but the CHAIRMAN said that the whole of Plan 1 was not necessarily a failure. Speaking as the delegate of Portugal he agreed with the delegate of New Zealand that we should first try the application of a common denominator to both RDARA's and MWARA's. To do this properly, much more domestic data was essential.
41. The delegates of the U.S.A. and of New Zealand pressed for the Working Group to proceed without further delay but the Chairman of the Working Group, Mr. FALGARONE, pointed out that a difference of opinion still existed as to whether or not any substantial reduction in requirements would occur as a result of the recess. He was still not certain whether or not the principles to be used as a basis might be modified.
42. The CHAIRMAN said that he thought the intention was for the administrations to try and work on the existing basic principles before trying new ideas. He could see no objection to groups of administrations trying to reduce requirements.
43. In order to meet any minority views it was proposed by the delegate of New Zealand and seconded by the delegate of the U.S.A.:

"That the Working Group on Recommendations proceed to draw up a document for presentation to Committee 6, any dissenting policy views of the Group to be put into a form which may easily be included in a Final Document after consideration by the Committee".

44. The Chairman of the Group, Mr. FALGARONE said that he would include all views and added that originally only Documents 200, 228, the Mexican proposal and perhaps Document 248 were to be discussed.
45. The CHAIRMAN then said that only Documents 200, 228, the Mexican proposal and any others in the spirit of the Resolution of the delegate of Brazil were to be considered. He then asked if there were any objections and there were none. The New Zealand proposal was therefore carried.
46. The CHAIRMAN said that he would provide the Working Group with the text of the suggestions of the delegate of Brazil and said that he thought the Committee had given a good directive to the Working Group and that being so he declared the Meeting closed.

Reporter :

F.E. SPERRING

Chairman :

A. Souto CRUZ

International Administrative
Aeronautical Radio Conference
GENEVA, 1948

EXTRACT FROM THE FINAL REPORT OF COMMITTEE 6

(Aer-document 315-E)

4. Summary of the Present Position.

- 4.1 The draft plan of allotment of channels to MWARAs and RDARAs produced by the Propagation Group (Ad Hoc Group II) together with that produced by the Western Hemisphere Group (Ad Hoc Group III) resulted in such a shortage of allotments in some sub-areas as compared with the stated requirements that it was obvious that in the plan the basic principles on which it was based, or alternatively the stated requirements, or both, would have to be modified if the gap between requirements and allotments were to be closed.
- 4.2 Whilst there was a fairly large body of opinion that felt that the Draft has failed and that the basic principles should be revised, there was a majority view that the basic principles should not be degraded but that strenuous attempts should be made to reduce the stated requirements, which were felt in many quarters to be far above the real needs, particularly if adjacent administrations or sub-areas took action to coordinate their requirements.
- 4.3 If the basic principles were not altered it was felt that a further long study by the Conference would not sufficiently increase the numbers of channels available in the sub-areas to meet the requirements stated.
- 4.4 It was therefore agreed by majority vote, in accordance with a motion of the delegate of Brazil, that the Conference should be adjourned to enable administrations to study the draft plan and all other proposals dealing with the preparation of a plan, or devise other plans, and, more important, to coordinate their requirements with adjoining administrations. It was felt that this could be done either at special informal meetings or under the aegis of other Conferences already scheduled and that the greatest possible frequency economy might be achieved by joint use of sub-area or area channels.



14 September 1948

SUMMARY RECORD OF THE ELEVENTH PLENARY MEETING

held in the Maison des Congrès, Geneva,
on Monday, September 6, 1948, at 2.30 p.m.

Chairman : Mr. Arthur L. LEBEL (United States)

APPROVAL OF RECORDS OF THE NINTH AND TENTH PLENARY MEETINGS

(Aer-documents 222 and 235)

1. Aer-document 222, subject to the amendments to be found in the first and second corrigenda to that document, was unanimously adopted.

Aer-document 235, subject to the amendments to be found in the first and second corrigenda to that document, was unanimously adopted.

SOVIET PROPOSAL IN CONNECTION WITH ALTERATION OF PRINCIPLES FOR AN
R FREQUENCY ALLOTMENT PLAN (Aer-document 248).

2. Mr. JAROV (U.S.S.R.) said that the Soviet delegation, in submitting Aer-document 248, was confident that on the basis of that proposal it would be perfectly possible to re-draft a frequency allotment plan satisfactory for all categories of the R service. The Conference was now faced with a situation in which the number of frequencies available could not possibly meet the requirements of aeronautical R services. The reason for this was that the technical principles adopted by Committee 4 were at fault. To satisfy all the demands for frequencies, it would be necessary to ensure a greater degree of frequency repetition. Frequency repetition could only be achieved by reducing protection ratio, and that, clearly, could not be reduced below a certain level.
3. The obvious conclusion was that recourse should be had to a system of communications less liable to interference. In this respect, the most convenient system was that of A1 manual telegraphy, which created no difficulties for long-distance communications, and from the point of operating time required was perfectly satisfactory on long-distance flights.
4. The Soviet delegation therefore considered that the only satisfactory solution was to restrict the Major World Air Routes to the use of A1 emission, as was laid down in the Cairo regulations. Although there were some objections to this in practice there was no other way of overcoming the difficulty.
5. The amount of spectrum space available to the Aeronautical Mobile Service was very limited. The Soviet delegation would not have insisted on their proposal, had any constructive suggestion been put forward which, whilst taking this into account, would ensure full satisfaction for requirements. Unfortunately, no such alternative proposal had been put forward. They



(Aer-285-E)

had been assured that new high-capacity means of communication would ensure progress for the Major World Air Route Areas. That would be all to the good if it meant that frequencies would be more economically used and if the frequency requirements of the Major World Air Route Areas were thereby reduced. In practice, however, it would mean that the spectrum space allotted to Major World Air Route Areas would have to be increased and that allotted to the regional and domestic services reduced to the detriment of the latter. It was obvious that the Soviet delegation could not agree that national aviation should be so treated.

6. Apart from that, it was proposed (paragraph 4) that certain restrictions should be placed on the use of frequencies within the Major World Air Route Areas surrounding Europe, and also that the frequencies reserved for meteorological services should be reduced. Certain decisions had already been taken on that point, but it would be necessary to amend them, if they were going to solve the problem of frequency allotment in Europe, where conditions were more difficult than anywhere else.
7. Mr. SEARLE (New Zealand) said it would be interesting to know what figures the Soviet delegation proposed to adopt for a) radiated power, b) channel separation, c) allowance for transmitter stability, d) service range (3 Mc/s order), and what latitude in the proposed protection ratio of 10 db was envisaged to allow for adjacent channel interference.
8. Mr. JOUK (Bielorussian S.S.R.) said that the radiated power would necessarily vary for different bands, depending on the conditions of operation. The Propagation Group had submitted two plans - one based on a radiated power of 1 kW, which was considered necessary for the Major World Air Route Areas, and another, based on a radiated power of 200 watts, which was considered acceptable for the regions. That conception was erroneous. In certain bands (3 and 3.5 Mc/s under night-time conditions) 200 watts would be adequate not only for regional and domestic services, but for those of Major World Air Route Areas. On the other hand, in the 6 and 10 Mc/s bands, and above, 200 watts would not satisfy regional requirements if account was taken of daytime propagation conditions. Therefore the Soviet delegation recommended a radiated power of 200 watts in the 3 and 3.5 Mc/s bands, for all services, including the Major World Air Route Areas. A power of 400 watts should be used in the 6 and 9 Mc/s bands, and 1 kW might be acceptable for the higher frequency orders.
9. The channel spacing required for A1 was less than that required for A3, and that of course would mean a saving in frequencies. For the calculation of frequency sharing, it might be assumed that each channel of A3 would give two channels of A1.
10. The frequency tolerances assumed were those allowed by the Atlantic City Radio Regulations - 0.02% for ground stations and up to 0.05% for aircraft stations (until 1953). It was certain that many stations would have greater stability.
11. The service range for 3 and 3.5 Mc/s was taken to be 500 km for all services, at night.

(Aer-285-E)

12. Mr. SEARLE (New Zealand) said that in Plan 1 a protection ratio of 15 db had been adopted to make allowance for co-channel interference. No figures had been adopted for fading or adjacent channel interference. At that time he had considered such a course legitimate, because the bandwidth of aircraft receivers in common use was sufficiently selective to provide some degree of protection against adjacent channel interference, on the basis of the channel separations adopted by the Conference. It now seemed that if they were to change to A1, with a smaller channel separation, they would be obliged to consider adjacent channel interference. It would be interesting to know whether the protection ratio of 10 db made allowance for co-channel interference.

13. Mr. JOUK (Bielorussian S.S.R.) said that A1 was the most advantageous system, in so far as it required a lower protection ratio, both against co-channel and adjacent channel interference. As there was a difference of only a few hundred cycles per second between desired and interfering signals, it was quite possible to assure aural reception, even with some negative protection ratio.

The CHAIRMAN said he would be obliged to leave. He would suggest that there be a short interval in order that arrangements might be made for somebody to take the Chair.

After an interval, the meeting reconvened at 4 p.m.

Chairman : Mr. LECOMTE (Belgium).

14. Mr. ROWLAND (United Kingdom) said that in paragraphs 1 and 2 of Aer-document 248, it was laid down that A1 emissions only should be used in the Major World Air Routes. Was that restriction deliberately made?
15. In connection with paragraph 5, was it intended that an A1 plan should be established, leaving one isolated family of frequencies for meteorological broadcasts?
16. Mr. JOUK (Bielorussian S.S.R.) said that most of the flights made within the Major World Air Route Areas were long-distance ones. When an aircraft approached its destination, it would come within an ATC region, and would have to change to other frequencies than those allotted to Major World Air Routes. On those ATC frequencies A3 operation might be necessary over short distances. The restriction referred to in paragraphs 1 and 2 applied therefore to Major World Air Route Areas only.
17. In paragraph 5, it was proposed that one A3 family of frequencies should be left for meteorological services, because that family would be divided into two A1 families. In general to simplify the preparation of a plan A3 channel separation might be accepted in view of the fact that in many cases A3 would be needed. Where a change was to be made to A1, two A1 channels would be considered as replacing one A3 channel.

18. Mr. ROWLAND (United Kingdom) said that he understood the Soviet proposal to be based on the tolerances laid down at Atlantic City. A rough calculation showed that in the 9 Mc/s band, for example, with a tolerance of 0.05%, there would be a separation of 9 kc/s. The separation provided for in the plan drawn up by the Conference was of the order of 8.5 kc/s. It was not clear how two A1 channels could be provided within each A3 channel if separation was maintained within the limits laid down at Atlantic City.
19. Mr. JOUK (Bielorussian S.S.R.) said that especially in the Major World Air Route Areas, stations would have a greater degree of stability. His remarks on bandwidth, therefore, referred mainly to the Major World Air Route Areas, where the use of high-stability equipment was intended.
20. Meteorological ground stations would certainly have sufficient stability for one A3 channel to take two or even more A1 channels.
21. Mr. BETTS (Australia) said it would be interesting to know the reasons which had prompted the Cairo Conference to make that decision limiting Major World Air Routes to the use of A1 emission.
22. Mr. JOUK (Bielorussian S.S.R.) said that presumably the main reason was the serious shortage of frequencies. In the Cairo regulations (paragraph 150) frequencies in the 6, 8, 11, 12, 17 and 23 Mc/s bands were provided for the exclusive use of aeronautical services. Those frequencies were allotted for simultaneous use in the European area of the USSR, in Africa and South America, and in all intercontinental air routes. Within the Major World Air Route Areas, allotments were made to each route separately. Thus it could be seen that the Cairo Conference had allotted frequencies on a geographical basis, for much shorter distances than those being considered at the Conference. The repetition distances were very short and the interference level might well have been very high. Other considerations may have influenced the decision, one of them being the language difficulty, which was still an acute problem.
23. Mr. FALGARONE (France) said that at the time of the Cairo Conference there existed the organization known as CINA, which did not include representatives of the North American countries. At the request of that organization, the conference had forbidden the use of A3 in the aeronautical mobile service. That was a decision which did not involve a departure from the state of affairs existing in Europe at that time. Before that conference, there had been almost no sharing of exclusive HF bands; aeronautical services used MF. The Cairo Conference maintained the system of exclusive allocation in those bands, but did not continue the practice for HF. American ideas prevailed - in spite of French opposition at the time - and the idea of allocation by routes was born.
24. The language difficulty was of course an influential factor. But the decision to prohibit telephony in the aeronautical bands was not taken primarily to increase the number of frequencies available. It was intended that there should be no repetition of high frequencies allocated to the aeronautical service, each frequency to be used only once on each route.

25. Mr. JOUK (Bielorussian S.S.R.) said that in fact the Cairo conference had provided for frequency repetition over short distances. Thus, the 6 Mc/s band had been fully allotted between the intercontinental air routes and the use of those same frequencies had been provided for in the European part of the U.S.S.R., in Africa and South America. In the Soviet Union, at least, those frequencies were used at the same time as they were being used on the intercontinental air routes.
26. Mr. BETTS (Australia) said that the reasons which prompted the Cairo conference to limit Major World Air Route Areas to A1 might still be valid in some degree. However, there had been notable developments in air navigation since 1938; for example aircraft now flew in very much worse weather.
27. Mr. JOUK (Bielorussian S.S.R.) was convinced that the reasons which had seemed valid in 1938 were still valid. The language difficulty still existed. The problem of frequency allotment had become even more acute. Then, as now, the use of A3 was not indispensable for long-distance flights.
28. As he had said, there might not be enough time for A1 communications over short distances. When an aircraft came to within 100-200 km of its destination, it would of course change from the frequencies allotted to the particular Major World Air Route Area to the appropriate ATC regional frequency and use A3 on that frequency if necessary.
29. If he were asked whether adoption of the Soviet proposal would make it necessary to alter the frequency separations recommended by Committee 4, he would repeat that for simplicity's sake the A3 separations might be left, on condition that, where necessary, each A3 channel would be divided into two A1 channels.
30. Mr. BETTS (Australia) asked whether reception in the aircraft would enjoy a protection of 10 db. Would A1 channels be allotted for simplex or adjacent channel crossband, and, finally, how long would it take to produce a new draft plan on the lines suggested in the proposal?
31. Mr. JOUK (Bielorussian S.S.R.) said that the degree of protection would depend on the type of communication used. In view of transmitter instability, the frequencies used by the aircraft and by the ground station would be different, at least by several hundred cycles per second, thus making possible satisfactory aural reception with a very low protection ratio.
32. The question of simplex and adjacent channel crossband was a question to be decided by the operating agencies concerned. If they preferred adjacent channel crossband, that might be possible even within the same A1 channel. On the other hand, if high stability equipment were used, the same frequencies might be used for simplex operation, both in the aircraft and on the ground. If sufficient people participated in the working group, it would take roughly two weeks to produce a new draft plan based on the Soviet proposal.

33. Mr. LAYZELL (IATA) said that it was difficult to see the point of allotting frequencies on a basis of A1, if airline operators were required to make allowance for adjacent channel crossband. There was a very definite offset in transmitters. Experience in the Preparatory Committee proved that the channel width established for A3 was only just sufficient for A1 adjacent channel crossband.
34. Mr. JOUK (Bielorussian S.S.R.) wished to repeat that the allotments to be made were suitable for any type of communication, whether simplex or adjacent channel crossband. In practice, as he had said, if there was a difference in frequency of 1-2 kc/s or even of several hundred cycles, this might be considered as adjacent channel crossband within the same A1 channel. If the stability of equipment was high enough, exactly the same frequencies could be used for aircraft and ground stations, thus making simplex operation possible. Actually, however, there would be a difference in frequency, so that, in fact, this would be equivalent to crossband operation.

The meeting adjourned at 5.15 p.m.

Chairmen :

Arthur L. LEBEL

R. LECOMTE

September 9, 1948.

SUMMARY RECORD OF THE TWELFTH PLENARY MEETING

held in the Maison des Congrès, Geneva,
on Tuesday, September 7, 1948, at 9 a.m.

Chairman : Mr. R. LECOMTE (Belgium)

SOVIET PROPOSAL FOR ALTERATION OF PRINCIPLES OF THE DRAFT FREQUENCY
ALLOTMENT PLAN (Aer-Document 248)

1. Mr. Souto CRUZ (Portugal) said that his delegation had made a careful study of the arguments advanced in Aer-Document 248, considering that it would be unwise to disregard any proposal submitted in good faith which might mean a way out of the present difficult situation.
2. The Portuguese delegation had studied the problem of frequency allotment, under the conditions laid down in paragraph 3 of Aer-Document 248, assuming night conditions, radiated powers of 1 KW and 200 watts, a protection ratio of 10 db, a noise grade of 3, and A3 emission.
3. For a radiated power of 1 KW, the repetition distance was 2,800 km. In Plan I, the repetition distance under the same conditions was 4,000 kms, so that an economy of 1,200 kms had been achieved.
4. He had then tried to allot frequencies to areas and sub-areas. The sharing possibilities among areas 1, 2 and 3 and the sub-areas concerned, for 200 watts radiated power, were the same whether repetition distances were used for 15 or 10 db. It might be difficult, at first sight, to realize why a reduction of 1,200 kms in repetition distance was of no practical value; the main reason for that was that sub-areas 1 and 2 were so shaped that even that reduction could not provide greater possibilities of repetition. If any delegation wished to pursue this matter further, his tables and patterns would be at their disposal.
5. The Portuguese delegation had then considered the allotment of frequencies to individual countries in Region I. Even using 3 Mc/s under night-time conditions, a radiated power of 200 watts, and a protection ratio of 10 db, no frequency allotted to a central European country - France, Italy, Yugoslavia or Poland, could be repeated anywhere else in Europe, or even in sub-areas 2A and 2B. The same applied to allotment based on a protection ratio of 15 db.
6. This meant that for frequencies in the 3 and 3.5 Mc/s bands, allotment by countries was less economical than allotment by sub-areas. A reduction in protection ratio, even then, would have no practical effect.



7. The best method, without doubt, was assignment to individual stations. Sharing possibilities increased to a very marked extent, not only for allotment based on a protection ratio of 10 db, but also for that based on 15 db. But, as everybody well knew, they had insufficient data to assign frequencies to individual stations.
8. He had also made a tentative study based on A1 emission, in order to see whether the regional and domestic requirements of Areas 1 and 2 could be met. For that purpose, he had used standards suggested by the Soviet delegation, namely: one A3 channel equal to two A1 channels, a service range of 500 kms (the same as for A3), and an interference range based on a protection ratio of 15 db.
9. As the conditions of utilization of the 3 and 3.5 Mc/s bands were very similar, and as the allotment plans produced by the Propagation Group had not been such as to satisfy requirements in either band, he had decided to consider the two bands together.
10. In area 1 and its sub-areas 61 channels were required in those two bands. The number of A1 channels available for this area and sub-areas in Plan I (200 watts radiated power, 15 db protection ratio) was 26. That number, therefore, fell short of requirements by 35.
11. If the Major World Air Route Areas were restricted to the use of A1 emission, and the number of channels required were not increased, 14 extra A1 channels might be obtained (8 from the 3 Mc/s and 6 from the 3.5 Mc/s band). Although other areas were short of frequencies (sub-area 5A particularly so) he had deliberately disregarded that fact and had allotted all the above channels to area I.
12. Hence, although some additional channels might be made available to area I on that basis, the total available still fell short of requirements by 21.
13. These calculations were, of course, only approximate, but they had been based on assumed standards which were decidedly optimistic.

The service range for A3 emission in the 3 Mc/s band, under night-time conditions, with a noise grade of 3, was 500 kms (Aer-Document 211). The service range of an A1 emission, under the same conditions, was 3,200 kms (see figure 9 of Aer-Document 131). That figure still erred on the side of optimism because 5 uv/m had been taken as the minimum required field intensity. Moreover, if the peak radiated power was 50 watts or more, the service range, for 50 watts, was greater than 4,000 kms, and was reduced only by the noise grade at the receiving station.
14. If 3,200 kms were taken as the service range for A1 emission in areas 1 and 2, the corresponding interference range for 2db protection ratio was 3,500 kms, (figure 5 of Aer-Document 5). Hence the repetition distance for A3 (15 db protection ratio) would be 4,000 kms, and that for A1 (2db), 6,700 kms.
15. The Portuguese delegation therefore considered that while the measures proposed in Aer-Document 248 might slightly alleviate the problem of meeting domestic requirements in the 3 and 3.5 Mc/s bands, they were not such as to meet regional and domestic requirements to any satisfactory degree.

16. To obtain that slight improvement, the situation within the Major World Air Route Areas would become more difficult, because of the fewer channels left, and because it would be impossible to use A3, cross-band A1 and other systems.
17. To start the work of the Conference afresh, at that stage, when the chances of reaching acceptable results were so slight, seemed very inadvisable.
18. His delegation was convinced that the only way out was to adopt the Brazilian proposal, together with the recommendations contained in Aer-Documents 200 and 228.
19. Mr. WHITE (U.S.A.) said that manual telegraphy had been invented before Marconi had discovered a practicable means of using radio radiation as a vehicle for the transmission of intelligence. Whereas manual telegraphy might have been the best and fastest means of transmitting ideas more than fifty years ago, it would be unthinkable that the Conference should adopt a system of frequency allotment which would force aviation - the most modern method of transport - to use such an outmoded system. It would be unthinkable that the Conference should deny aviation the opportunity of profiting by modern technology.
20. He recognized that for a variety of reasons manual telegraphy was still needed for many aircraft operations. High-capacity means of communication were also in regular use. The plans prepared by the Conference made allowance for that situation. Manual telegraphy could and would be used on the channels allotted. At the same time, channels had been allotted in such a way as to permit the use of high-capacity systems at any time.
21. His delegation was unalterably opposed to any plan which did not correspond to present realities, and did not at the same time offer opportunities for the use of high-capacity communication. The plan outlined in Aer-Document 248 did not meet those conditions.
22. Mr. ROWLAND (United Kingdom) said that the Conference had established one important principle - that the plan to be produced should give administrations the greatest possible freedom in adopting systems best suited to operational needs (paragraph 1 of Aer-Document 192).
23. A1 adjacent channel crossband had been used in Europe for a long time, and at the Eastern terminal of the North Atlantic Route. Plans had been made to introduce it on routes operating into Europe. It was a system which required twice the channel separation required for A1 simplex, involving an offset of 2 - 3,000 cycles on either side of an air-to-ground frequency. It was the only system which would accommodate the channel loading adopted by the Conference, and the much heavier loadings which would have to be accommodated in the future. It was the only one to permit frequency sharing by adjacent stations. Therefore, if the system was to be preserved in any A1 plan, the channels in such a plan would have to be suitably separated. At present, two A1 frequencies were being used in Europe for every one adjacent cross-band channel.
24. IATA had expressed a strong preference for this system. The views of airline operators deserved careful consideration. What was wanted was a smooth transfer from A1 to high capacity means of communication.

25. "Furthermore, it has, throughout, been the aim of the Delegations here present to establish a plan designed in such a way that a smooth transition from A1 to high capacity methods is possible. If we were to accept the U.S.S.R. proposals we should restrict the progress of aeronautical communications for the entire term of life of the Atlantic City plan, and thus gravely hinder the development and use of systems which would enable communications to be speeded up to meet the requirements of expanding services. I believe that it would be a retrograde step to apply such retrograde measures in the very first attempt to establish a world-wide frequency plan, and that, moreover, such measures should not be considered before we are completely certain that such an unwholesome step is justified. At the present stage that justification has certainly not yet been demonstrated. I believe I am right in saying that certain I.C.A.O. regions have already stated requirements for A3 methods and that some regions may already be operating, at least in part, on A3. I should like to ask Col. Greven whether this is so."
26. Mr. GREVEN (ICAO) said that plans were going forward within ICAO for the use of A3 in the Major World Air Route Areas. He had just been informed, for example, that the 8 frequency families in the North Pacific area would be used for A3 emission.
27. Mr. SEARLE (New Zealand) said that his calculations bore out what had just been said by the delegate of Portugal. He had been surprised to hear from the Soviet delegation that a change from A3 to A1 would not involve severe modification in the powers used. For a transmitter of a given power, there were two principal advantages to be gained by changing from A3 to A1:
- a) for a given service range, an A1 signal would have better legibility, and
 - b) for a given degree of legibility, A1 would give a greater service range than A3.
28. Now it was immediately obvious that a greater service range would mean a greater interference range, if there was no change in the radiated power. Therefore sharing possibilities became less, at least on the propagation data available - and there was no reason to consider that data inaccurate. If the protection ratio were reduced, protection distances would be slightly shortened, but there was little to be gained from such a step because of the peculiar shape of the areas.
29. According to the Soviet proposal, a reduction from 15 to 10 db would be admitted for the calculation of repetition under night conditions. Even if that reduction were to be admitted for day conditions, (taking the 10 Mc/s band and 1 kW of radiated power), the same interference range would be obtained, i.e. 5,500 kms. Therefore, in that band, there would be no advantage in lowering the protection ratio and changing from A3 to A1.
30. The main advantage to be obtained from the change was that demands on the higher frequency orders would be reduced.
31. The heaviest demands, however, were in the lower frequency orders. The Soviet proposal might appear, on the surface, to offer greater possibilities of satisfying requirements. A closer study would dissipate that impression. Furthermore, from the operational point of view, to lessen the bandwidth of emission would be a very dangerous procedure.

32. His delegation considered that it was essential to give the aeronautical experts an opportunity to coordinate their requirements, and, if possible, to implement the plan which had been produced by the Conference.
33. Mr. FALGARONE (France) said that the idea of restricting the Major World Air Route Areas to A1 was not sufficient in itself. From the beginning of the Conference, the French delegation had favoured the use of A1, but had done so for reasons rather different from those given in Aer-Document 248.
34. ICAO had not in fact examined the different ways in which A1 might be used in the Major World Air Route Areas. The matter was still being discussed, and the remarks that had been made to prove that A1 offered no technical advantages needed some qualification. His delegation had always maintained that use of A1 would allow operators to communicate over long distances and would simplify the organization of distress and rescue operations. Those ideas were to be found in Aer-Document 30 (French proposal on the use of exclusive bands between 3-25 Mc/s, allocated to the aeronautical mobile "R" service). Up to now, the Conference had examined technical, but not operational, principles.
- These latter concerned the aeronautical specialists as much as telecommunication experts and should form the basis for any discussion of this question by the Conference.
35. For these reasons the French delegation had affirmed its belief that the time was not yet ripe for the Conference. Those countries interested in the Major World Air Route Areas should first meet within the appropriate specialized agencies to discuss the operational aspect of the matter. Only if agreement was reached should the allotment plan be based on principles which could be applied to any particular system. If, after due discussion, A1 seemed preferable to A3 or to high-capacity means of communication, then Aer-Document 248 should be considered at some future date. It should not, however, be rejected outright.
36. It would be foolish to reject a priori the use of A1. It had not been proved that high-capacity equipment was an advantage for long-distance communications. Most messages passed by aircraft were short - not more than ten groups. It was doubtful whether the time required to pass such messages by high-capacity equipment would be appreciably shorter. Probably the shorter time taken to pass a message by A4 would be more than compensated for by the time taken to make contact. Therefore, although his delegation by no means opposed the future use of high-capacity equipment, it did not consider that there would be much time saved in passing messages by that means.
37. Because frequencies were inadequate, standards had been reduced. The United States delegation had declared that with the lower standards adopted, high-capacity communications would not be profitable. It would be entirely illogical to adopt a plan already condemned by the standards on which it was based. It would be more in keeping with realities if the Conference were to examine a plan based on procedures already used in almost all the Major World Air Route Areas.
38. Aer-Document 248 should be studied and referred to other organizations for consideration.

39. Mr. ADAM (IATA) said that the final report of the requirements group showed that it had not yet been possible to assess accurately the requirements of all classes of the aeronautical mobile "R" service. Since those requirements were not accurately known, it could not be maintained that the Conference would not be able to meet them with the standards already adopted, or with a slight modification of those standards.
40. The interests of human life and property had to be considered, and it would be highly undesirable if standards were to be still further reduced before the properly coordinated requirements of all classes of the aeronautical service had been thoroughly studied.
41. The use of A3 was already well established, and further advances and high-capacity means of communication might well be made as the result of technical progress. To prevent its further use and development would be to take a step backward.
42. The aviation industry was rapidly expanding. It was essential that any allotment plan produced by the Conference should allow a high degree of flexibility in future planning, in order that the industry could exploit to the maximum possible degree the technical developments of the age.
43. Furthermore, a high proportion of the larger international airline operators had stated that where A1 communications were employed, there existed a need for the adjacent channel crossband system, and this, in fact, was already used in many areas. In general, to provide for adjacent channel cross-band would mean adopting channel widths of approximately the same order as at present laid down for high capacity systems.
44. In the light of what had already been said in connection with A3 communication, it would seem quite impracticable to establish channels for that purpose on the basis of a night-time protection ratio of 10 db, in so far as the lower frequency orders were concerned.
45. Thus any plan drawn up on the basis of the standards proposed in Aer-Document 248 would not, in general, meet the requirements of the world's international airline operators.
46. Mr. CHATELAIN (ICAO) :
"Mr. Chairman, with your permission, I would like to express my views of the proposal contained in Document 248, from the standpoint of International Civil Aviation.
"I have studied this proposal and listened carefully to the explanations given by the Soviet delegation.
47. "Primarily, this proposal would, in my opinion, tend to destroy one of the most vital requirements of international aviation, namely, flexibility of planning for the operational needs of this type of service. I say this because I believe that should this conference decide to accept the principles proposed in Document 248, essential flexibility could not be achieved.
48. "The restriction implied in points 1 and 2 of the Soviet proposal are not consistent with present day fact and do not reflect the plans of the

majority of nations interested in the use and operation of Major World Air Routes. I would point out that, at two very recent I.C.A.O. Regional Air Navigation Meetings, that is to say North Atlantic and North Pacific area meetings, the interested nations recommended the use of A3 emissions for these air routes as soon as such frequencies could be made available to replace the present A1 channels. Generally speaking the Western Hemisphere has been using A3 emission for some time for air route communications and undoubtedly will continue to do so.

49. "I would quite agree with the last sentence of point 3 of the Soviet proposal in that it suggests the protection ratios should be the same for similar categories of air services using the same type of emission. However, safe conduct of controlled air traffic is dependent upon reliable, interference free communication. I do not believe that reducing protection ratios, in order to satisfy requirements which have not been worked out in detail, will provide the required safety.

50. "With reference to point 4 of Document 248, the decision as to the operational use of Major World Air Route frequencies can only be made after complete investigation by the nations interested in these routes and who are responsible for the safety of the aircraft flying these routes.

"Point 5 of the U.S.S.R. proposal would not fulfill the requirements for services now existing, or planned for implementation, taking into account the geographical repetition and pre-determined scheduled use of frequencies required for Meteorological Broadcasts.

51. "In conclusion, Mr. Chairman, I apologize for having taken so much time for these comments. However, I feel the issues contained in this proposal are vital and are inconsistent with the needs expressed for international aviation. Further, I believe that this proposal would tend to negate the resolution adopted by Committee 6, recommending the suspension of this conference for the specific purpose of obtaining the necessary detailed information required for a final and coordinated frequency allotment plan".

52. Mr. BETTS (Australia) said that paragraph 1) of the considerations was misleading. It had in fact proved impossible to satisfy, at one and the same time, the coordinated requirements of the Major World Air Route Areas - as determined by the Conference after a close study of most of the factors involved - and the stated requirements of the regional and domestic services, which had not been coordinated to the same extent.

53. He could not agree with paragraph 2) of the considerations. The reasons for restricting emissions to A1 might have seemed cogent in 1938, but they were no longer valid. From his own practical experience of aviation at that time, he would say that the restriction imposed little if any hardship; indeed, A3 might well have been unnecessary. Since that time however, air traffic had increased in volume enormously, and an efficient system of approach control had been evolved.

54. As to the language difficulty, provision was made in the standard procedures of ICAO for airlines to supply staff, where necessary, to overcome that problem.

55. In point 3) it was stated that the use of A3 on world air routes, over long distances, was not absolutely necessary. He would be inclined to agree with this. But the term "long distances" would be better expressed in terms of time. Thus distances in excess of two hours' flight time from the point of arrival or departure might be considered as long distances. Obviously that would vary greatly from aircraft to aircraft.
56. Originally his delegation had considered that the plan should provide for A1 above 8 Mc/s, and for A3 below that band, in the South Pacific Area, in order to meet requirements over the next five years.
57. Paragraph 1, of the proposals, if applied, would have a crippling effect on international aviation. It made no provision for future expansion and tied the hands of airline operators.
58. With regard to paragraph 2, the Soviet delegation had estimated that another two weeks would be needed to re-draft the Major World Air Route Plan. If such an attempt were made, the result would be the same. The Conference did not yet know where it had to stop in reducing standards, and if another plan was to be produced, then it would be far better to wait until absolute minimum requirements were known.
59. To adopt paragraph 3 of the proposal would be to lay the foundation of an inefficient communications system. He could not see how adjacent channel crossband could be employed, as suggested, in half bandwidths. He thought himself that full bandwidths would be needed, and agreed with the representative of I.A.T.A. that traffic loading of 10 aircraft per hour was acceptable only if true adjacent channel crossband was employed. Adoption of this proposal would therefore mean that loading factors would have to be reconsidered, and the most likely result of that would be an increase in the space required to satisfy the Major World Air Route Areas. In this connection, it might be pointed out that a 10 db protection ratio meant a night-time interference of something like 3 db above the wanted aircraft signal. Apart from that, his delegation agreed that protection ratio should be the same for all categories of the "R" service, as stated in the last sentence of that paragraph.
60. Paragraph 4 of the proposals was not in accordance with what had been said by the representative of I.A.T.A. His delegation did not claim more than a limited knowledge of requirements in Europe, and would hesitate to go contrary to the views of I.A.T.A. in a matter of such importance.
61. On paragraph 5 of the proposals, he doubted whether the decision recently taken by Committee 6 - to set aside 2 families for meteorological purposes - would be adequate. The passing of proper weather information to aircraft in flight was becoming increasingly important. This question should first be examined by I.C.A.O., which was the proper authority in the matter.
- Hence the Australian delegation would oppose the Soviet proposal.
62. Mr. LAYZELL (I.A.T.A.) said that on many previous occasions the representatives of I.A.T.A. had stated that an aircraft loading factor of 10 or 12 aircraft per frequency per hour would not be practical if the A1 simplex system of operation was employed. When this loading factor was

decided the Adjacent Channel Crossband System of A1 operation had been taken into consideration.

63. Mr. LURASCHI (Argentina) considered that protection ratio should not be further reduced, nor should any steps be taken which might restrict the use of high-capacity equipment.

64. Mr. OOMEN (Netherlands) said experience had shown that aviation should not be fettered. On the surface, it might appear that a frequency allotment made in accordance with the terms of Aer-Document 248 would be more economical, but that was not, in reality, the case. He would oppose the Soviet proposal.

65. Mr. ARCIUCH (Poland) said that the task of the Conference was to make human life as safe as possible by taking advantage of the progress made in radiocommunications. They had to plan not only for the immediate present, but for the next five years. But as a starting point they would have to take radio technique as it at present existed.

66. He could not claim much experience of the Major World Air Routes, but he considered it would be broadly true to say that A1 was the system most generally used on them. It was improbable that A3 would be in common use much before 1955. The change to A3, requiring the use of transmitters with a higher degree of stability, would be a very complicated and expensive business. Furthermore, the efficiency of A3 (10 aircraft per hour per frequency) was not very high compared with A1. In addition, account had to be taken of the fact that one A3 channel occupied as much space as two, or even more, A1 channels.

67. He agreed that for short distances, - as on the regional or domestic routes a pilot might also be his own radio operator, and in such cases, A3 was economical. But on the long distance routes an aircraft had to carry one, and possibly two, specialized operators.

68. A1 operation allowed the use of the international standard Q-code. It required a lower signal-to-noise ratio, a lower field intensity for satisfactory reception and a lower protection ratio. That meant more frequency repetition.

69. Demands for frequencies vastly exceeded the number available. The Polish delegation considered that in all cases, A1 would satisfy the needs of aviation radio services to a very much higher degree than A3.

70. Another factor to be taken into account was the devastation caused by war, especially in Europe, which would make it harder for certain countries to change from A1 to A3. Furthermore, the use of A1 would overcome linguistic difficulties.

71. The Soviet proposal was sound, and an attempt should be made to apply it now. It had been stated that the proposal came too late. That proposal had been made sometime ago, but had not been considered. If it had been adopted as an alternative to plan I, (Aer-Documents 239, 249 250 and 255) the Conference would not now be facing its present situation.

72. Mr. BARAJAS (Mexico) said that it was not quite correct to say that telephony was in general use. In Mexico, both systems were needed. In certain cases atmospherics were so intense that it had been found necessary to change to A1 in order to ensure reasonable conditions of reception.
73. It was clear that the adoption of A1 would increase the number of frequencies available. But it was doubtful whether the plan could be drawn up in two weeks, as calculated by the Soviet delegation. His experience showed that a great deal of work would be needed. Propagation curves, for example, would have to be re-drawn. That argument, however, was not conclusive. It was true that prolongation of the Conference was expensive for administrations, but, after all, preparation of an allotment plan was the basic task of the Conference.
74. He would be inclined to favour the Soviet proposal, if he thought that sufficiently precise information could be obtained on regional and domestic requirements. Unfortunately, it was certain that such information would not be forthcoming, and that seemed to him a conclusive argument in favour of adjourning the Conference forthwith. The Mexican delegation had in fact made a proposal in that sense nearly two months ago.
75. The Mexican delegation was not opposed, in principle, to the use of A1 by the Major World Air Route Areas if that would release more frequencies for the regional and domestic services. It was the structure of those areas which caused difficulties for the regions and sub-regions. He would suggest that Aer-Document 248 be referred to administrations or to regional conferences for consideration, with the recommendation that it be studied only in connection with the problems presented by the Major World Air Route Areas.
76. Mr. MITROVIC (Yugoslavia) said that with few exceptions, delegations had defended A3 operation. The chief argument advanced had been that A3 spacing would make it possible to introduce high-capacity means of communication. The representative of I.C.A.O. had himself declared that A3 was only being used on a small scale within the Major World Air Routes.
77. Hence, from the point of view of actual fact, it seemed that A3 was not in universal use. At the same time, the plan already drawn up assumed the superiority of A3 to A1. Attempts had been made to prove this, but they had not been very convincing.
78. As an argument in favour of A3, it had been affirmed that the capacity of A3 was superior to that of A1, but the decisions taken by the Conference proved the contrary. Committee 4 had adopted 10 aircraft per channel per hour as a loading factor for A1 simplex. Later, in Committee 6, exactly the same factor had been adopted for A3. Since the same factor had been adopted for the two, he was obliged to conclude that the capacity of the two was the same, and that this alleged superiority of A3 was a myth. Most European airline companies preferred to use A1 crossband.
79. There were some cases, as in approach control, when A3 was valuable, but even so, approach control in many countries was carried out on A1.
80. The language difficulty was a very real argument in favour of using A1 on the international routes, and nothing that had been said disproved that.

81. Attempts had been made to justify the use of A3 by claiming that it would be possible to introduce A4 later. It seemed to him exorbitant that in order to provide for some vague future contingency, regional and national services should be forced to make do with only ten per cent of their requirements satisfied.

The two aims, as he had often said, were incompatible; in view of the inadequate spectrum space available, no plan could be sufficiently flexible to provide for the introduction of some other system in the future, and cater at the same time for the pressing actual needs of the regions, which had been aggravated by the war.

82. It was obvious that no acceptable plan would be produced on the basis of principles used in Committee 6. Now the Conference was trying to postpone a decision, but was trying to leave unchanged the technical principles which were the cause of their failure to produce a plan. The Soviet proposal was sound, and he would support it.

83. Mr. COSTA (Brazil) said that some of the arguments used by the opponents of A3 were based on half-truths.

84. It was not true that the present plan was an attempt to impose A3. The channel width adopted allowed the use of A1 simplex and A1 adjacent channel crossband. In other words, it made provision for continuation of the system at present used, and, in that respect, was a great deal more tolerant than Aer-Document 248.

85. It had been claimed that by reverting to A1, two to three A1 channels could be accommodated within one A3 channel. The P.F.B.'s second report to the ITU showed that not more than 2 A1 channels could be so accommodated. Whatever gain there might be in this direction would be offset by a greater service and interference range. As the delegate of Portugal had pointed out, there would be no great gain in repetition possibilities.

86. It was only half true that A1 was the system most widely used at the present time. Actual operations were carried out using both A1 and A3. The decision to adopt A3 standards made allowance for both types of operation. Apart from this, it was by no means certain that some countries would not increase their requirements if A1 were to be used, to compensate for the lower capacity of that system.

87. Therefore the Brazilian delegation could not support the Soviet proposal.

88. Mr. JAROV (U.S.S.R.) said that the delegate of the United States had affirmed his opposition to Aer-Document 248 on the ground that the Conference should make allowance for the use of high-capacity means of communication.

89. Some speakers had accused the Soviet delegation of trying to hamper the development of aeronautical communications, and had declared that the proposals contained in Aer-Document 248 represented, not a step forward, but a step backward.

90. On the contrary, the Soviet delegation was in favour of anything that meant a step forward, or was conducive to technical progress. But if

that step forward were taken merely in the interests of a narrow group of countries, and if progress for one category of the aeronautical service - the Major World Air Routes - meant retrogression for the others, namely for the national services, then the Soviet delegation would have to call it wrong and harmful.

91. It had also been said that account must be taken of conditions actually existing. The plans in Aer-Documents 239, 249 and 250 certainly did not correspond to those conditions.
92. The draft plan not only met the existing requirements of the Major World Air Route Areas, but allowed a considerable margin for future development. On the other hand, the requirements of national air services were not even half satisfied, and, of course, no provision had been made at all for their development. In view of this, could it be said that the draft plan corresponded with realities?
93. This was the reverse side of that "progress" on which many delegates had spoken so long and eloquently.
94. The Soviet proposal had but one purpose - to ensure that the fullest possible account should be taken of actually existing conditions, having in mind the inadequacy of the frequencies allocated to the aeronautical mobile service at Atlantic City.
95. From all the statements that had been made, with a few exceptions, only one conclusion could be drawn.
96. By adopting the Brazilian resolution, the Conference was formally acknowledging that corrections would have to be made to the plans contained in Aer-Documents 239, 249 and 250. But that admission would have no practical effect, since it seemed that the Conference, before adjourning, had no intention of changing those very principles which were at the root of all the trouble.
97. In such circumstances, there was little to be hoped for from a recess. If the fundamental principles governing frequency allotment were not changed then the second session of the Conference would meet with no more success than the first.
98. There was no sense in counting on a reduction in requirements. Even if there were to be some reduction in the requirements of regions and sub-regions, that would not suffice to cover the lack of frequencies which was revealed in Aer-Documents 249 and 250.
99. As far as the requirements of the Soviet Union were concerned, the Soviet delegation could only repeat that the demands it had submitted, after a general reduction, represented an absolute minimum. They could not be reduced by as much as a single frequency. His delegation would not accept any plan which did not satisfy those minimum requirements fully.
100. Obviously, some other way out had to be found. In presenting its proposal in Aer-Documents 248, the Soviet delegation had but one aim in view - to help in the solution of these problems.

101. In conclusion, he would point out that the delegate of the United States had made a statement on the history of radio which was not quite accurate. Those who knew their history and considered it objectively were aware that the inventor of radio was not Marconi, but the Russian scientist Alexander Stefanovitch Popov.
102. Mr. JOUK (Bielorussian S.S.R.) replying to technical criticisms of the Soviet proposal, said that according to certain speakers, a reduction in protection ratio to 10 db, together with the use of A1, would not increase sharing possibilities or satisfy a greater proportion of requirements. He could not follow that reasoning. The delegate of Portugal had declared that it would be impossible to repeat frequencies within the regions, especially in Europe, where distances were not great. He agreed that if allotment to regions and sub-regions only were considered, then the possibility of increasing repetitions would be much less than if frequencies were repeated between individual stations. He could not, however, agree that allocation between countries in Europe would not greatly increase possibilities of repetition. Most European countries were small in size, and in practice, allotment to countries would give almost the same results as assignment to individual stations, in view of the fact that the same frequency might be used not only by a ground station at a definite point, but also by aircraft flying within an area as large as an entire European country.
103. As a concrete example, he would point out that frequencies in the 3 and 3.5 Mc/s bands could be allotted for simultaneous use in Scandinavia and the Balkans, or in England and the Balkans. He had calculated that the proportion of requirements so satisfied would be high.
104. It had been said that the greater service range of A1 meant a greater interference range, and that therefore no advantage would accrue. They had to make a choice. If they chose A1, then there would be a longer service range and a smaller field intensity, the number of frequencies per family in the Major World Air Routes would be less, and economy would be achieved. But they could assume the same number of frequencies per family as for A3, and the same field intensity. That would not be so hard because the situation would be satisfactory in the higher frequency bands. With A1, they could use a protection ratio of 10 db as a starting point for the calculation of frequency repetition, and by reducing it still further obtain even greater satisfaction.
105. The delegate of the United Kingdom had declared that the development of aviation services should be restricted as little as possible. That was all very fine, providing there was no shortage of frequencies. But complete freedom for the Major World Air Route Areas meant an impossible situation for the regional and domestic services.
106. Therefore the only means of increasing percentage satisfaction was to increase the possibilities of repetition, and that meant the adoption of a system requiring smaller protection ratios. The Soviet proposal represented the only way open to the Conference of solving the difficulties with which it was faced.
107. Mr. JAROV (USSR) said that the Soviet delegation, wishing to ensure the success of the Conference, had proposed that a new plan be drawn up

on a different basis. Now, however, a recommendation had been adopted to the effect that the Conference should adjourn.

108. He would therefore move that Aer-Document 248 be adopted by the Conference in the same sense as Aer-Documents 239, 249 and 250, and that Aer-Document 248 be referred to administrations (and regional conferences, if so decided) for their consideration.
109. Mr. MITROVIC (Yugoslavia) seconded the motion.
110. Mr. FALGARONE (France) said that the Brazilian proposal (in Aer-Document 271) to the effect that Aer-Documents 239, 249 and 250 be referred to administrations, had not yet been adopted by the Plenary Meeting. If Aer-Document 248 was to be treated in the same way as those documents, the Brazilian proposal should be considered first.
111. Mr. ROWLAND (United Kingdom) said that the Soviet delegation opposed Aer-Documents 239, 249 and 250 in exactly the same way as the United Kingdom delegation now opposed Aer-Document 248, which was not entitled to the status of those three documents.
112. The CHAIRMAN said that it would be advisable to take no decision on Aer-Document 248 for the moment. At the next Plenary Meeting, the Soviet motion to include Aer-Document 248 among the list of documents mentioned in the Brazilian resolution would be considered as an amendment to that resolution. A decision would be taken on the amendment and then on the Brazilian resolution.

The meeting adjourned at 6.30 p.m.

Chairman :
R. Lecomte

SUMMARY RECORD OF THE THIRTEENTH PLENARY MEETING

held in the Maison des Congrès

GENEVA

on Wednesday, September 8, 1948, at 9 a.m.

CHAIRMAN: Mr. Arthur L. LEBEL (United States)

BRAZILIAN PROPOSAL ADOPTED BY COMMITTEE 6 (paragraph 5 of Aer-document 273)

1. Mr. COSTA (Brazil), seconded by Mr. OOMEN (Netherlands) moved adoption of this proposal.
2. Mr. BARAJAS (Mexico) said that when this proposal had been discussed in Committee 6, there had been some divergence of opinion as to the bodies to which the documents in question should be forwarded. Paragraph 2 laid down that documents should be referred to administrations. He would like that changed to read: "That these documents be referred to administrations and to regional conferences..."
3. Mr. COSTA (Brazil) said that he had deliberately avoided a reference to regional conferences. There would be no difficulty in sending documents to administrations. But regional ITU conferences had not been scheduled for all the regions. A similar difficulty applied to ICAO conferences. However, it was open to administrations to convene conferences under their own auspices.
4. It was agreed that the wording of paragraph 2 should not be taken as excluding transmission of the documents to regional conferences.
5. Mr. BARAJAS (Mexico) said that in paragraph 2 it was recommended that the documents be referred to administrations for use as a basis for the study they were requested to undertake. Later in the same paragraph it was stated that administrations would not be bound by those documents. There was a certain contradiction here, since the first part of the paragraph implied an element of restriction or compulsion which was absent in the second. He would therefore move that the words "for use as a basis" be replaced by the word: "for use as working material".
6. Mr. DURLAND (Cuba) seconded the motion.
7. Mr. COSTA (Brazil) said that the effect of the amendment was to weaken the proposal. Administrations were being invited to submit suggestions or recommendations with regard to the documents in question, but administrations should at least take those documents seriously. No element of compulsion was, or indeed could be, implied.
8. The Mexican amendment to substitute "as working material" for "as a basis" in paragraph 2 of the Brazilian proposal was put to the vote and rejected by 14 votes to 22 with 2 abstentions.

9. Mr. MITROVIC (Yugoslavia) said that there were serious discrepancies between the English and French texts of this proposal. In the preamble, it was stated that documents 239, 249 and 250 should be provisionally approved, although in fact Committee 6 had agreed that these documents should be provisionally adopted.

In paragraph 2 of the French text there was an example of faulty translation which might give rise to a misunderstanding. Whereas the English text stated that administrations would not be bound by those documents, the French text said that administrations would not consider themselves bound. That, obviously, was entirely misleading.

10. It was agreed that the French text should be amended to correspond with the English.
11. Mr. JAROV (USSR) moved that Aer-Document 248 (Proposal submitted by the Soviet delegation) be adopted in the same sense as Aer-Documents 239, 249, 250 and 265, and that mention of it be made specifically in the preamble of the Brazilian resolution.
12. Mr. MITROVIC (Yugoslavia) seconded the motion.
13. Mr. COSTA (Brazil) said that he would not object if Aer-Document 248 were forwarded to administrations, but he could not agree that it should be included in the preamble of the Brazilian proposal. Strong objection had been taken to Aer-Document 248 when it was discussed by Committee 6.
14. Mr. JAROV (USSR) said that the Brazilian proposal for provisional adoption of Aer-Documents 239, 249, 250 and 265 had itself been adopted before those documents had been formally discussed by Committee 6, and this in spite of the fact that certain delegations had vigorously objected to those documents. There was no reason why the Soviet proposal should be given discriminatory treatment.
15. Mr. SEARLE (New Zealand) said that the Preparatory Committee had produced a great deal of information on propagation conditions. This had been elaborated by Committee 4, and the final result, after months of work, was to be found in Aer-Documents 239, 249, 250 and 265.
16. Aer-Document 248 was no more than the introduction to a plan, unaccompanied by any detailed information on radiated powers, service range of A1, etc. He would be happy to see it sent to administrations for their information, but he could not agree that it should be placed in the same category as Aer-Documents 239, 249, 250 and 265.
17. Mr. BETTS (Australia) said that the discussion was a waste of time. It was obvious that Aer-Document 248 could not be placed in the same category as the detailed plans produced by Committee 6.
18. The best solution would be to include that document in the list of documents to be forwarded to administrations. The action taken should be recorded in the final report of Committee 6, with an appropriate comment.
19. Mr. BARAJAS (Mexico) said that a number of the smaller delegations had already gone. There remained the delegations of countries which had a special interest in this matter. Those delegations might constitute a legal majority, but they would not be concerned with wider interests.

20. The Brazilian proposal ought to have been published in good time for the consideration of the Conference. Instead of that, it had been sprung on Committee 6 as a surprise, and he could not regard that as entirely accidental.
21. The delegate of Brazil had said that Aer-Documents 239, 249, 250 and 265 had not been formally adopted by vote, but had been automatically adopted together with the Brazilian proposal. Now it was being maintained that Aer-Document 248 could not be considered on the same footing as those documents, since it had not been adopted by Committee 6. All this was the result of not having referred Aer-Document 248 to Committee 6.
22. He was not advocating adoption of Aer-Document 248. Indeed, he had some serious criticisms to make of it. But the correct procedure would be to refer it to Committee 6, so that Committee 6 might examine it and refer it back to the Plenary Meeting with an appropriate recommendation.
23. The CHAIRMAN said that out of 46 delegations accredited to the Conference, 38 had voted on the Mexican amendment to the Brazilian resolution. That, for all practical purposes, amounted to full attendance.
24. The Soviet amendment to paragraph 5 of Aer-Document 273, in favour of mentioning Aer-Document 248 among the list of documents given in the preamble, was put to the vote and rejected by 9 votes to 21 with 9 abstentions.
25. Mr. BARAJAS (Mexico) abstained from voting.
26. Mr. MITROVIC (Yugoslavia) said that after the Propagation Group's report, it had become clear that the Conference had not succeeded in its task of drawing up a frequency allotment plan for the "R" bands.
27. In spite of that, the Conference would not admit that the real cause of this failure was the basic principles imposed on the Propagation Group by Committee 6.
28. Far from recognising its errors, the Conference was trying by means of such as the one just taken to impose these principles on administrations and regional conferences. It was for this reason that priority was being given to documents 239, 249 and 250.
29. This was the reason for the refusal to send Aer. document No. 248 to administrations on the same footing as the documents mentioned above.
30. However, the administrations, which would study the documents forwarded by the Conference would quickly realize that this resolution was illogical. The resolution, whilst recognizing that the Conference had achieved no success in preparing an "R" plan, endeavoured to impose the same methods and principles on the future work of the Conference. Such a course would condemn the second session of the Conference, in advance, to complete failure.
31. The CHAIRMAN said he took strong exception to a statement that the Conference had failed. That was not the judgement of one familiar with the problem or the facts. A large number of the world's most outstanding experts on the matter had been working in Geneva for the last four or five months, trying to work out an efficient and economical plan for allotment of frequencies in the aeronautical

mobile "R" bands. That work had been done in the face of tremendous difficulties, technical and otherwise. The greatest difficulty had been that the Conference had a bare minimum of information with which to plan for the so-called regional and domestic services. Therefore those experts had been faced by a choice between two alternatives: to carry on, and adopt a plan which would necessarily be defective, or to suspend the Conference long enough to permit the regional and domestic requirements to be more thoroughly studied. They had chosen the latter course. That decision was greatly to their credit, both as responsible engineers and as statesmen.

32. The Australian proposal to include Aer-Document 248 among the documents to be sent to administrations was unanimously adopted.
33. Mr. JAROV (USSR) and Mr. MITROVIC (Yugoslavia) abstained. The fact that Aer-Document 248 was not to be specifically included in the preamble to the Brazilian proposal showed that an attempt was being made to give binding force to the principles adopted in Aer-Documents 239, 249, 250 and 265.
34. Mr. LECOMTE (Belgium), supported by Mr. BARAJAS (Mexico) said that the Brazilian resolution as it now stood had been adopted by Committee 6 and would need re-wording before it could be considered by the Plenary Meeting.
35. Mr. MITROVIC (Yugoslavia) said that the procedure referred to in paragraph 4 had not yet been studied. Discussion of the proposal should be deferred until the text had been re-drafted and paragraph 4 completed.
36. Mr. COSTA (Brazil) said that they were now getting enmeshed in discussion of detail. It was obvious that the Conference could vote on the substance of the document, leaving the Editorial Committee to carry out the necessary drafting changes. It had been objected that paragraph 4 did not define the procedure by which recommendations would be made to administrations, and by which the Conference might be reconvened. That was a side-issue. It would be perfectly in order to vote on the substance of the resolution-suspension of the Conference and to elaborate the procedural details at a later date, and in a separate document.
37. If these drafting problems were to be made into a major issue, then he would agree to delete, in the preamble, the words: "should be adopted by Committee 6 and forwarded to the Plenary Assembly", and "Provisionally".
38. Mr. LECOMTE (Belgium) said that he would have to speak with diffidence on the substance of this proposal. But as far as the question of form was concerned he had read the proposal carefully, and he was obliged to say that he simply did not understand it.
39. Mr. HARIZANOV (Bulgaria), "referring to the statement of the Belgian delegate, in order to arrive at a more explicit wording of the proposal submitted by the Brazilian delegation, requested Mr. Lecomte to return to his statement and to explain more precisely the suggestions he had already made with regard to the Brazilian delegates' proposal."
40. Mr. JAROV (USSR), supported by Mr. HARIZANOV (Bulgaria) said that it was improper to vote on a text which was not clear. The same sort of thing had been allowed to occur in the past.

41. It had been decided that Aer-Document 248 was to be included among the documents to be sent to administrations. Did that mean that it had been provisionally adopted? He would conclude that it had.
42. Mr. FALGARONE (France) said that as Chairman of the Editorial Committee, he did not know what to make of this text. Paragraphs 1 - 4 presupposed that Aer-Documents 239, 249, 250 and 265 had been adopted, but in fact, that formality had not been observed. The text as it stood was far from clear, and the best course would be to postpone discussion on it until these documents had been adopted individually.
43. Mr. WHITE (United States) said that the proponent of the resolution had explained his position with extraordinary patience. Both within the Plenary Meeting and within Committee 6, many weary hours had been spent in discussion of that resolution and of Aer-Document 248. From the point of view of substance, everything had been said that could be said. From the point of view of form, the necessary re-drafting could be done by the Editorial Committee. He would move that discussion on this matter be closed and that the Brazilian resolution be put to the vote forthwith.
44. Mr. COFFEY (Canada) seconded the motion.
45. The CHAIRMAN said that the motion to close debate was one that was not subject to debate. He would have to rule that a vote be taken forthwith, first on that motion, then if this was carried, on the resolution submitted by the Brazilian delegate.
46. The United States motion for closing discussion of the Brazilian resolution was put to the vote and adopted by 19 votes to 9, with 8 abstentions.
47. Mr. JAROV (USSR) said that in accordance with article 16 of the Atlantic City Convention, he would demand that the Brazilian resolution be put to the vote by nominal roll.
48. The Brazilian resolution (Aer-Document 273, paragraph 5), as amended, was put to the vote and adopted by 21 votes to 9, with 6 abstentions.
49. For:
The Argentine Republic; Commonwealth of Australia; Brazil; Canada; Colonies, Protectorates, Overseas Territories and Territories under Mandate or Trusteeship of the United Kingdom of Great Britain and Northern Ireland; Egypt; United States of America; Republic of Honduras; Netherlands Indies; Ireland; Italy; Norway; New Zealand; Netherlands, Curacao and Surinam; the Republic of the Philippines; Portugal; United Kingdom of Great Britain and Northern Ireland; Sweden; Switzerland (Confederation); Territories of the United States of America; Union of South Africa and the mandated Territories of South West Africa - 21 votes.
50. Against :
People's Republic of Albania; the Bielorrussian Soviet Socialist Republic; People's Republic of Bulgaria; Republic of Poland; People's Federative Republic of Yugoslavia; the Ukrainian Soviet Socialist Republic; Roumania; Czechoslovakia; the Ukrainian Soviet Socialist Republic; Roumania; Czechoslovakia; Union of Soviet Socialist Republics. - 9 votes.

51. Abstentions:

Belgium; Republic of Colombia; Overseas Territories of the French Republic and Territories administrated as such; France; Pakistan; French Protectorates of Morocco and Tunisia. - 6

52. Absent:

Chile; China; Cuba; Denmark; Dominican Republic; Ecuador; Haiti; India; Iceland; Mexico; Nicaragua; Syria; Oriental Republic of Uruguay.

53. Mr. LECOMTE (Belgium), explaining his abstention, said that the text had not seemed sufficiently clear to enable him to take a definite attitude on the question. The Netherlands delegate had held a proxy vote for Belgium and had cast it in favour of the motion in Committee 6. He hoped that the Netherlands delegate would not take his abstention in bad part. The Netherlands delegate had the advantage of having taken part in the entire work of the Conference, and of understanding the texts in question, and had a perfect right to vote for the proposal in Committee 6 on behalf of Belgium.

54. Mr. MITROVIC (Yugoslavia) said that he had wanted to submit an amendment which would clarify the preamble, but had not been allowed to speak. His administration would reserve all its rights.

55. Mr. ARCIUCH (Poland), Mr. HARIZANOV (Bulgaria), and Mr. BODEAGA (Roumania) said that their administrations would reserve their rights.

56. Mr. JAROV (USSR) said that he understood Aer-Documment 248 to have been adopted in the same sense as the other documents mentioned in the preamble. Furthermore, he wished to place on record his solemn protest at the way in which proceedings had been conducted.

AUSTRALIAN RESOLUTION ON COOPERATION BETWEEN ICAO AND ITU (Aer-document 245).

57. Mr. BETTS (Australia) seconded by Mr. ROWLAND (United Kingdom) moved adoption of this document. The action contemplated was clearly desirable.

58. Mr. JAROV (USSR) said it was well known that Franco Spain was a legal member of ICAO, on the same footing as other member-states of the United Nations.

59. That state of affairs was in direct contravention of a resolution adopted by the General Assembly of the United Nations, to the effect that Franco Spain should be expelled from all the specialized agencies of the United Nations. The Soviet delegation considered that to further cooperation of any kind between ITU and an organization of which Franco Spain was legally a member was incompatible with that resolution.

60. A decision should first be taken on this important question of principle.

61. Mr. BETTS (Australia) said that this question had just been discussed by the Economic and Social Council of the United Nations, where a proposal to suspend the agreement between the United Nations and ICAO had in fact been rejected. ICAO had already taken steps to comply with the decision taken earlier by the General Assembly. The general assembly of ICAO had itself passed an amendment to its own charter with that object in view, but it could not take effect until this amendment to the convention had been ratified by 28 member states.

62. Mr. JAROV (USSR) said that the amendment referred to had been adopted as long ago as May, 1947, but so far it had only been ratified by nine countries. In view of the fact that some member-states of ICAO had commercial and other links with Franco Spain, it was only too probable that the amendment would never be ratified at all.
63. On December 12, 1946, the United Nations had adopted a resolution recommending its specialized agencies to exclude Spain. That was a straight recommendation, and they should respect it.
64. Mr. WHITE (USA) said that the conference was a technical, not a political body. Relations with the United Nations were not their responsibility, but that of the Administrative Council. ICAO was the obvious source of information on problems concerning international civil aviation. Therefore they should adopt the proposal and forward it to the Administrative Council.
65. Mr. LECOMTE (Belgium) said that at the European regional conference in Copenhagen, the representatives of some international organizations had been admitted in the face of strenuous opposition from the Soviet delegation, arising precisely from the fact that those organizations had not excluded Spain. The representative of ICAO, however, had been admitted without objection.
66. It seemed to him very odd if an administrative conference were to find difficulties where a plenipotentiary conference had seen none.
67. Mr. MITROVIC (Yugoslavia) said that in paragraph d) of the recommendation, it was laid down that joint committees should be set up, in which ICAO and ITU would both be represented. Since Franco Spain was still legally a member of ICAO, the interests of that country would be represented indirectly on the Committee, which would be inadmissible.
68. Mr. COFFEY (Canada) suggested that the whole matter be referred to the Administrative Council.
69. Mr. BETTS (Australia) said that he would neither withdraw his motion nor accept any amendment to it arising from political considerations. He was a technician, and this was a plain straightforward proposal, submitted to ensure essential collaboration between ITU and ICAO, two specialized agencies of the United Nations. An attempt was being made to avoid the issue. He wished to protest most vigorously against the introduction of political considerations into the discussion.
70. He might point out that since the Atlantic City Convention had not yet come into force, the Cairo regulations were presumably still in force, according to which Spain was a legal member of ITU. That did not seem to have deterred these delegations who were attacking his proposal from taking their seats at the Conference.
71. As to the principle of joint committees, that had already been admitted by the Conference; Aer-Document 146 laid down a procedure for consultation between ICAO and the maritime consultative organization, for the purpose of saving human life.
72. Mr. JAROV (USSR) said that they were not now discussing whether or not a representative of ICAO should be admitted as an observer, but the broader question of whether ICAO was to be recognized as an organization with which ITU could properly collaborate.

73. Mr. GREVEN (ICAO) said that the following resolution had been adopted by the Economic and Social Council on August 24, 1948:
74. "The Economic and Social Council, having considered the report of the Secretary-General (Document E/831/Rev.1) on implementation by ICAO of the General Assembly's resolution 39 (I) of 12 December, 1946, and 50 (I) of 14 December, 1946, on Franco Spain, notes with satisfaction the measures taken to amend the convention of the International Civil Aviation Organization at the first session of the ICAO assembly, not to extend to Spain invitations to participate in any conference or other activities arranged by that organization, so as to comply fully with the fore-going resolution of the General Assembly, and recommends that member-states of ICAC who have not yet ratified the protocol of amendment of the statute of the International Civil Aviation Organization (Article 93) should deposit their instruments of ratification as soon as possible".
75. Mr. KALUZYNSKI (Poland) said that close cooperation with I.C.A.O. of the kind contemplated in Aer. Document No.245 would be likely to change the I.T.U., and even to disorganize it, which might have grave consequences. Therefore the delegation of Poland would vote against the Australian resolution.
76. The Australian resolution contained in Aer-Documents 245 was put to the vote and adopted by 21 votes to 9, with 6 abstentions.
77. Mr. MITROVIC (Yugoslavia) :
"The delegation of the People's Federative Republic of Yugoslavia has voted against Doc.245 and reserves the position of its administration with regard to the consequences which might follow, for the following reasons:
- 1) Because Franco Spain is still legally a member state of I.C.A.O.
 - 2) Because the recommendations contained in this document are contrary to the Convention and to the Radio Regulations of Atlantic City (1947)."
78. Mr. HARIZANOV (Bulgaria) voted against the motion. His administration would reserve all its rights in this matter.
79. Mr. JAROV (USSR) voted against the motion. His administration would reserve all its rights. (See Annex).
80. It was agreed that Aer-Documents 245 should be referred to the Administrative Council of the ITU for its consideration and action, together with a covering letter giving the list of the statements and reservations that had been made.

STATEMENT ON FREQUENCY ASSIGNMENT TO INDIVIDUAL AERONAUTICAL STATIONS,
SUBMITTED BY THE REPRESENTATIVE OF ICAC (Aer-Documents 218).

81. Mr. GREVEN (ICAO) :

"Mr. Chairman, may I first express my appreciation for the opportunity of presenting the statement contained in this document (No.218) to this Plenary Assembly. This paper is not intended to be a formal proposal, but rather a summary of the statements and views that have been expressed many times during the course of this Conference. It is hoped that the thoughts embodied in the text will have been given full consideration by all who participate in the final and fully coordinated frequency assignment plan for the International and Domestic civil air route operations.

82. "The discussions of the past few days lead me to believe that this paper is appropriate to these discussions and lends support to the proposals of the delegate of Australia and France, contained in documents 200 and 228. It further renders support to the resolution adopted by this Plenary Session, which recommends the suspension of this conference for the specific purpose of coordinating, as well as gathering, the elements of information so vital to a satisfactory frequency allotment plan. It is obvious that these vital elements are not available to us in this present conference, particularly as they relate to domestic aviation.
83. "Aeronautical communications cannot be considered apart from their use as the instrument of air traffic, operational control, search and rescue, and meteorology. Factors such as the lack of uniformity in operational procedures and standards, the lack of coordination in planning air navigation facilities, and competition among states for the exclusive use of extremely limited spectrum space, make the problem of equitable distribution of frequencies difficult, if not impossible. It follows, therefore, that the planning of these communications requires the participation by experts in all the relevant technical aspects of civil air operations and it is these experts who must make the critical decision on the distribution and use of the available frequencies. Obviously, the assignment of frequencies can only take place after the decision has been reached on the number, location, and type of aeronautical stations required for a given operation or coordinated route operations.
84. "Mr. Chairman, I cannot find words strong enough to express the view that the need for complete and unbiased coordinated planning on an international basis, has been clearly illustrated by our work to date. The proposals contained in documents 200 and 228 call for a degree of international collaboration among the states and organizations concerned more advanced than thus far has been undertaken, the logic of such collaboration cannot be avoided if we are to have a satisfactory frequency plan."
85. Mr. COFFEY (Canada) said that the paragraph 2 of the conclusions was obviously a proposal in favour of frequency assignment to individual stations. Canada was not prepared to refer that question to regional conferences, and therefore the conclusions were not acceptable.
86. Mr. FAIGARONE (France) said that the member-states of ICAO had not been convened to study the problems facing the Conference. These problems were of major importance. Therefore it would be interesting to know whether the representative of ICAO had submitted this and other documents on his own initiative.
87. The Canadian delegation was not in agreement with the conclusions of Aer-Document 218, nor was the French delegation entirely satisfied with it. He would suggest that it be treated merely as an expression of personal opinion.
88. Mr. LECOMTE (Belgium) said that it was for each specialized agency to determine what value should be attached to statements made by its representatives. It was not for the Conference to interfere in the relations between ICAO and its representative. If the delegate of a member-state of ICAO considered that the representative of ICAO had exceeded his terms of reference, he could always take the matter up with the Council of ICAO. He had himself been the spokesman of international organizations at the Cairo and Montreux conferences, and he could assure them that it was difficult, indeed almost impossible, for a representative to refer back to his organization for instructions on every point that arose.

89. The delegate of France had implied that the representative of ICAO could not be said to speak for his organization on any particular point, unless specifically authorized to express an opinion by a meeting of all the member states of ICAO. That reasoning seemed to him excessively subtle. Each delegate present would have to answer to his government for his action at the Conference. The representative of ICAO had similar responsibilities towards his organization. If delegates had to refer to their governments on every point, a Conference would be impossible.
90. Mr. FALGARONE (France) said that member states of ICAO were consulted on very much less important questions than this one. He would continue to consider Aer-Document 218 as a mere statement of personal opinion.
91. Mr. GREVEN (ICAO) said that he was in possession of a document giving his terms of reference, and he assumed that representatives of ICAO at other conferences would have similar instructions.
92. Mr. LECOMTE (Belgium) said that the delegate of France would be better advised to communicate with the French representative on the Council of ICAO, if he still felt that there was cause for dissatisfaction.
93. Mr. JOUK (Bielorussian S.S.R.), supported by Mr. MITROVIC (Yugoslavia), said that if the representative of ICAO wished to submit his statement to administrations, that could be done without requesting the Conference to take action. If the document was to be considered in substance, he would have to disagree with it, and it was probable that other delegations, even of member states of ICAO, would have objections.
94. Mr. BARAJAS (Mexico) asked what sort of regional conferences were referred to in the document.
95. Mr. GREVEN (ICAO) said that the regions could be taken as either those of ICAO or of ITU, or of the newly-adopted Regional and Domestic Air Route Areas, in view of their similarity.
96. The CHAIRMAN said that discussion on this subject would be resumed at the next meeting.

CLOSING DATE OF THE CONFERENCE.

97. Mr. ROWLAND (United Kingdom) said that the Conference had at last taken a decision in favour of suspending its work. The Conference had dragged on for so long that a day's unnecessary delay at this stage was a source of real embarrassment to certain delegations. He would ask the Steering Committee to bear this in mind.
98. The CHAIRMAN said that the Steering Committee would take due note of this statement.

The Meeting adjourned at 6 p.m.

Chairman

Arthur L. LEBEL

A FORMAL STATEMENT MADE BY THE DELEGATION OF THE UNION OF SOVIET SOCIALIST
REPUBLICS IN CONNECTION WITH THE QUESTION OF COLLABORATION BETWEEN THE
INTERNATIONAL TELECOMMUNICATION UNION AND THE INTERNATIONAL CIVIL AVIATION
ORGANIZATION TREATED IN AER-DOCUMENT 245.

The Soviet Delegation considers that as a matter of principle, steps towards collaboration with the International Civil Aviation Organization cannot appropriately be taken, in view of the fact that this organization has acted in direct contravention of a recommendation adopted by the General Assembly of the United Nations in favour of expelling Fascist Spain from all specialized agencies of the United Nations. Furthermore the adoption of a resolution on collaboration with the International Civil Aviation Organization is improper, in that action taken by the International Civil Aviation Organization may, by virtue of that decision, affect states which are members of the International Telecommunication Union, but are not members of the International Civil Aviation Organization.

Considering the decision on the adoption of Aer-Documnt 245 to be wrong and in contravention of the recommendation adopted by the General Assembly of the United Nations, the Soviet Delegation hereby declares that its administration will not consider itself bound by this resolution with respect to any actions which may result from its adoption.

SUMMARY RECORD OF THE FOURTEENTH PLENARY MEETING

held in the Maison des Congrès, Geneva,
on Monday, September 13, 1948, at 9 p.m.

Chairman : Mr. Arthur L. LEBEL (United States)

1. STATEMENT PRESENTED BY THE REPRESENTATIVE OF ICAO ON THE PROBLEM OF FREQUENCY ASSIGNMENT TO INDIVIDUAL AERONAUTICAL STATIONS. (Aer-Document No 218).
2. Mr. COFFEY (Canada), seconded by Mr. JOUK (Bielorussian S.S.R.) proposed that this document be not sent to administrations, in view of the doubts to which it had given rise.
3. Mr. SOUTO CRUZ (Portugal); seconded by Mr. OOMEN (Netherlands), said that the document contained some stimulating ideas. He proposed that it be sent to administrations and included in the Final Report of the Conference.
4. Mr. GREVEN (ICAO) said that in the third sentence of the second paragraph on page 3 the words "These proposals" should be amended to read : "These suggested principles".
5. There seemed to be anxiety in some quarters lest ICAO should try to interfere in problems affecting domestic aviation, but the first two sentences of the second paragraph on page 3 made it quite clear that the suggestions contained in the document referred to international aviation.
6. Mr. FALGARONE (France) said that he would not oppose the sending of the document to administrations if it were made clear that the views therein expressed were purely personal.
7. The CHAIRMAN said that he would be exceedingly reluctant to ask any delegate to prove that his statements represented the views of his government and the same applied to the representatives of organizations. That was a subject over which the Conference had no jurisdiction. The point would be covered if to the title of the document were added the words : "Statement of views by the representative of ICAO".
8. Mr. LECOMTE (Belgium) supported by Mr. SUNDARAM (India) said that it was senseless to discuss the question of whether the views expressed were the official views of ICAO. If the representative of an international organization submitted a statement to which the delegations of certain member-states of that organization took exception, then it was for those delegations to make a formal reservation.

9. Within all organizations, there was a majority and minority opinion on every question, and if the representative of an organization had to wait for unanimity before he could express himself, then he might as well not be there. No delegate or representative had a right to express purely personal views.
10. Mr. SEARLE (New Zealand) said that there was no valid reason why the document should not be transmitted to administrations. Whether administrations took note of it or not was a matter for themselves. The Conference had no authority to challenge the status of ICAO's representative.
11. The fact that he did not object to the document being sent to administrations was not to be interpreted as meaning that he approved of it in detail.
12. Mr. MITROVIC (Yugoslavia) said that Aer-Document 218 laid down the action which should be taken by administrations after an R allotment plan had been prepared. At the fifth Plenary Meeting, a proposal submitted by the Soviet delegation had been adopted, according to which R frequencies would be allocated to administrations, which would themselves assign those frequencies to individual stations. Aer-Document 218 contradicted that resolution.
13. Mr. GREVEN (ICAO) said that there was nothing in the document to contradict that resolution. The two concluding paragraphs contained suggestions which had in fact been followed within ICAO regional meetings.
14. He would not object if to the title of the document were added, in parenthesis, the words : "Statement of views by the representative of ICAO".
15. Mr. MITROVIC (Yugoslavia) said that even if the views expressed were the official views of ICAO, they did not concern states which were not members of that organization. The Portuguese motion to include the document in the final report of the Conference was an attempt to impose the views of ICAO on non-member states.
16. Mr. JAROV (USSR) asked what would be the fate of the Soviet resolution adopted at the fifth Plenary Meeting if it were decided to send Aer-Document 218 to administrations.
17. The CHAIRMAN said that whereas the resolution had been adopted by the Conference, document 218 had not been adopted, and administrations would be aware of that from the title : "Statement of views by the representative of ICAO". He would put to the vote the Canadian motion that Aer-Document 218 be neither sent to administrations nor included in the final report with the understanding that if this motion were rejected, the Portuguese motion would automatically be adopted.
18. The Canadian motion was put to the vote and rejected by 10 votes to 16, with 9 abstentions.

19. The CHAIRMAN said he would therefore rule that, as agreed, Aer-Docum^{en}t 218 be sent to administrations.
20. It was agreed that the first line of paragraph (1), page 3, should be amended to read : "In the various international air navigation regions".
21. Mr. ARCIUCH (Poland) said that in the opinion of his delegation, any statement, proposal or reservation made by a full member of the Conference should, and indeed must, be included in the final report, if so requested. A statement made by the representative of an organization could be sent to administrations or other official bodies by that organization itself. Therefore he had voted against inclusion of Aer-Docum^{en}t 218 in the final report.
22. Czechoslovakia, for which he held a proxy vote, was a member of ICAO. Czechoslovakia had abstained and would reserve its position.
23. Mr. MITROVIC (Yugoslavia) :

"Considering, on the one hand, that the recommendations made in Aer-Docum^{en}t 218 have no connection with the preparation of a frequency allotment plan for the R bands, and

"Considering, on the other hand, that Aer-Docum^{en}t 218 is in contradiction with the resolution adopted at the fifth Plenary Meeting, concerning the aims of the present Conference,

"The delegation of the People's Federative Republic of Yugoslavia has voted against sending this document to administrations and makes reservations on this subject."

24. Mr. HARIZANOV (Bulgaria) said that Aer-Docum^{en}t 218 bore no relation to the R frequency allotment plan. Moreover, Bulgaria was not a member of ICAO. Therefore he had voted in favour of the Canadian motion.
25. Mr. JAROV (USSR) said that he had voted against transmission of Aer-Docum^{en}t 218 to administrations. His delegation considered it improper that the Conference should be used as an instrument to further the interests of ICAO. Aer-Docum^{en}t 218 had no connection with the preparation of an R frequency allotment plan, and its terms were in direct contradiction to the resolution adopted by the fifth Plenary Meeting, on the tasks of the Conference.
26. COMPROMISE PROPOSAL SUBMITTED BY THE FRENCH DELEGATION AND DRAFT PROPOSAL ON ITEM G OF THE AGENDA (Aer-Docum^{en}ts 221 and 232).
27. It was agreed that in view of the fact that no final frequency allotment plan had been produced, consideration of these documents would be premature.
28. COMMUNICATION FROM THE DELEGATE OF VENEZUELA TO THE P.F.B. (Aer-Docum^{en}t 253).

The CHAIRMAN said that he had replied to Mr. von Eichwald, delegate of Venezuela to the P.F.B., indicating that the letter and map which he

(Mr. von Eichwald) had addressed to the Chairman, had been published as a document of the Conference.

29. Mr. WHITE (U.S.A.) said that the document had been studied by the Western hemisphere group. In one respect, the information given in the document was not quite accurate. The estimated requirements of the area were ten frequencies. Allowance had been made for certain of the operations mentioned in the document when dealing with the requirements of NSAM1 and NSAM2. Therefore it was not quite correct to say that Venezuela had been allotted only 3 frequencies.
30. It was agreed that the necessary action had already been taken on this document.
31. UNITED KINGDOM PROPOSAL ON THE SHARED USE OF R FREQUENCIES (Aer-Doc,260).
Mr. ROWLAND (United Kingdom) said that the purpose of the proposal was to ensure the most economical possible use of R frequencies.
32. A clause in the radio regulations allowed frequencies to be used for any purpose at the discretion of administrations. This proposal would be in the interests of the I.F.R.B., which had to accept irregular assignments. He would move its adoption.
33. Mr. LECOMTE (Belgium) seconded the motion.
34. Mr. JAROV (USSR) said that since no plan was ready, discussion of the document was premature.
35. Mr. ROWLAND (United Kingdom) said that some such recommendation should appear in the final report. It was impossible to forecast requirements over the next five years, and unless the most rigorous economy were observed in the use of frequencies, it would be impossible to provide for any future expansion.
36. Mr. COFFEY (Canada) said that to allow Major World Air Route frequencies to be used for domestic operations under daytime conditions, the fifth line from the end should be amended to read: "frequencies on a secondary basis both inside and outside the specific area".
37. Mr. SEARLE (New Zealand) proposed the addition of a final paragraph (2) to the clause suggested for inclusion in the Final Acts: "That the terms of Articles 3 and 11 of the Atlantic City Radio Regulations are met".
38. Mr. ROWLAND (United Kingdom) said that he could accept these amendments.
39. Mr. FALGARONE (France) said that the document was merely a repetition of Articles 3 and 11 of the Radio Regulations.
40. Mr. PETIT (IFRB) said that that paragraph 88 of the Radio Regulations referred to derogations from the table of frequency allocations given in Chapter III of those Regulations. In this case, what was being discussed was not derogation from that table but from the plan to be prepared by

the Conference. It allowed frequencies which were not in the table to be notified. Those frequencies would be inscribed in the notification column, whereas the frequencies allotted by the Conference would be in the column headed "registration". That meant that frequencies apart from those already registered might be notified later.

41. The proposal gave a good deal of flexibility to the plan, and he would therefore support it.
42. The United Kingdom proposal contained in Aer-Document 260 was put to the vote and adopted by 24 votes to none, with 10 abstentions.
43. UNITED KINGDOM PROPOSAL FOR A RECOMMENDATION TO THE P.F.B. (Aer-doc.261)

Mr. ROWLAND (United Kingdom) said that the P.F.B. would be assigning frequencies to aeronautical fixed stations, regardless of whether those stations might have to use aeronautical mobile frequencies rather close to the aeronautical fixed frequencies. If nothing was done about this, it might be difficult to make alteration later.
44. The figure of 15 kc/s had been arbitrarily chosen as representing a safe separation from the band edge. He would move adoption of the resolution.
45. Mr. OOMEN (Netherlands) seconded the motion.
46. Mr. PETIT (IFRB) said that the Conference had already adopted a recommendation to the P.F.B. (Aer-Document 272) which seemed to cover the point completely.
47. Mr. ROWLAND (United Kingdom) said that the recommendation in Aer-Document 272 had been of a very general nature. His proposal would mean that individual aeronautical stations would not have to operate two services (fixed and mobile). Otherwise, if two aeronautical bands were contiguous, one station might have to operate two services near the junction of those bands.
48. After some discussion, it was agreed that the last two lines should be amended to read : "... from the junction of the two bands, in order to avoid the possibility of mutual interference between two stations situated at the same point."
49. Mr. PETIT (IFRB) proposed that the words in brackets "i.e. not less than 15 kc/s" should be deleted.

This amendment was adopted.

Aer-Document 261, as amended, was unanimously adopted.

50. UNITED KINGDOM PROPOSAL ON INFORMATION IN FORMS 1 AND 2 (Aer-Document 262)

Mr. ROWLAND (United Kingdom) said that the need for this had become apparent during the work done by the Eastern hemisphere group on the Forms 2 submitted at Atlantic City. Some countries had included details

- of the fixed services. If corrections were not made, those countries might find that no provision had been made for their fixed services.
51. Mr. PETIT (IFRB) said that the P.F.B. had not considered Forms 2 for the Aeronautical Mobile Service. Therefore it was for the Conference, rather than for the P.F.B., to take any action that might be considered necessary.
 52. The P.F.B. had set a time-limit for the submission of requirements and amendments (10 April, 1948). Additional requirements would be treated in accordance with paragraph 16 of the Atlantic City Resolutions - that is, demands presented during the life of the P.F.B. would be kept until the special Conference had fixed a procedure to be followed with regard to requirements.
 53. Mr. ROWLAND (United Kingdom) felt that the P.F.B. could hardly be asked to study the errors made by administrations. If the P.F.B. was unwilling, then the administrations themselves would have to submit their amendments to the special Conference.
 54. Mr. PETIT (IFRB) said he had not meant to imply that the P.F.B. would not consider amendments. The time-limit fixed had given rise to some controversy, and it was unlikely that the P.F.B. would be willing to reopen the question.
 55. But paragraphs 16 and 17 of the directives to the P.F.B. covered this question. It could not be maintained that amendments would receive no attention from the P.F.B.

Aer-Document 262, was unanimously adopted.

56. UNITED KINGDOM PROPOSAL ON THE USE OF AERONAUTICAL MOBILE R FREQUENCIES FOR AERONAUTICAL FIXED SERVICES (Aer-Document 263).
57. Mr. ROWLAND (United Kingdom) said that this was a matter of general interest. The proposal was not intended to deny administrations the right they enjoyed under Chapter 3, Article VII of the Radio Regulations, of using fixed service frequencies for purposes other than those laid down. But there was an urgent need for aeronautical mobile frequencies, and it was highly desirable that administrations should make most sparing use of their rights in this connection.
58. Mr. FALGARONE (France) said that the proposal was illogical and redundant. When the Atlantic City plan came into effect, it would cover this situation. Since the fixed and mobile services mostly depended on the same administration, the proposal amounted to no more than a recommendation to administrations not to harm their own interests. The matter could be better dealt with in ICAO. In any case, it had been covered by Article 3 of the Radio Regulations (paragraph 88).

59. Mr. ROWLAND (United Kingdom) said that he could think of at least one case in Europe where a mobile frequency was being improperly used for the fixed service, thereby causing difficulties for other administrations.

Aer-Document 263 was unanimously adopted.

60. Mr. PETIT (IFRB) said that paragraph 1 of the Preamble might lead to the erroneous conclusion that whereas the space allocated to the Aeronautical Mobile R Service was inadequate, the fixed services had been amply provided for. Nothing could be further from the truth. The aeronautical mobile bands had been considerably increased at Atlantic City. On the other hand, the space available for the fixed services had been reduced at that Conference by no less than 30% and since that time, demands in the fixed services had steadily increased.
61. This was an impression which he would like to correct once and for all. Generally speaking, all the services considered that the bands allotted to them were inadequate.

The meeting adjourned at 1. p.m.

Chairman :

Arthur L. LEBEL

SUMMARY RECORD OF THE FIFTEENTH PLENARY MEETING

held in the Maison des Congrès, Geneva,
on Friday, September 17, 1948, at 10.15 a.m.

Chairman : Mr. Arthur L. LEBEL (United States of America)

PRINCIPLES ADOPTED BY COMMITTEE 4 AND REVISED BY THE EDITORIAL COMMITTEE
(Aer-Document 220)

1. Mr. FALGARONE (France) introducing the document as Chairman of the Editorial Committee, said that the original text of sub-paragraph 1 (2) on page 1 had been submitted in French to Committee 6, and adopted. The last line of the paragraph, in the French text, laid down that no priority was to be given to any particular class of emission. That line had been mis-translated in the English and Spanish texts of Aer-Document 159 - of which Aer-Document 220 was a revised edition - duly adopted by the Plenary Meeting. According to the English and Spanish translations, no priority was to be given in principle to any particular class of emission.
2. The French text implied that if, for example, two administrations were in conflict over the use of a particular channel, one wishing to use A3 and the other A1 emission, then the type of emission, in itself, would confer no particular rights on either party.
3. It was agreed that the English, Spanish and Russian texts of sub-paragraph 1 (2) should be amended to correspond with the French text.
4. It was agreed that the last line of the English text should read :
"... no inherent priority being given to any particular class of emission".

Mr. ROWLAND (United Kingdom) proposed that the word "nonetheless", in paragraph 4, page 6, should be amended to read "nevertheless".

This amendment was adopted.

5. Mr. JAROV (USSR) said that Aer-Document 220 was merely a re-edition of Aer-Document 159 (Final Report of Working Group 4D). His delegation, disagreeing with the basic principles of Committee 4, had already voted against adoption of Aer-Document 159, and made reservations. He would renew these reservations with regard to Aer-Document 220.
6. Mr. MITROVIC (Yugoslavia) said that he had already made reservations with regard to the matters contained in this document, and he would renew them.
7. Mr. HARIZANOV (Bulgaria) said that the technical principles in Aer-Document 220 had been deduced from average data obtained from observation of the ionosphere, and he did not agree with them. His administration would reserve its rights.



8. Mr. ARCIUCH (Poland) said that his delegation disagreed with the channel separations and channel capacity to be found in Aer-Document 220. The Polish and Czechoslovak administrations would reserve their rights.
9. Aer-Document 220-E, as amended, was put to the vote and adopted by 26 votes to 9, with 3 abstentions.
10. TEXTS FOR THE MAXIMUM AND MINIMUM RANGE CHARTS OF THE FINAL REPORT, REVIEWED BY THE EDITORIAL COMMITTEE (Aer-Document 231).
11. Aer-Document 231 was unanimously adopted.
12. RECOMMENDATIONS AND RESOLUTIONS, REVIEWED BY THE EDITORIAL COMMITTEE (Aer-Document 272)

Mr. BETTS (Australia) said that the note on page 4 should be amended to read: ".... the English and Spanish versions of this text in the Atlantic City Radio Regulations read "shall be addressed", the French text, which is authentic, reads "peuvent être adressés", meaning: "may be addressed..."

The CHAIRMAN said that the "International Conference of life at sea", on page 15, should read: International Conference on Safety of Life at Sea".

These amendments were adopted.
13. RECOMMENDATION TO THE P.F.B. ON THE PROTECTION OF AERONAUTICAL RADIO-COMMUNICATIONS (page 1).

This recommendation was unanimously adopted.
14. RECOMMENDATION TO THE HIGH FREQUENCY BROADCASTING CONFERENCE OF MEXICO CITY ON THE PROTECTION OF AERONAUTICAL RADIOCOMMUNICATIONS (page 2).

This recommendation was unanimously adopted.
15. RECOMMENDATION ON THE DESPATCH TO ICAO OF COPIES OF COMPLAINTS ON INTERFERENCE IN THE AERONAUTICAL MOBILE BANDS (pages 3 and 4).
16. Mr. JAROV (USSR) and Mr. MITROVIC (Yugoslavia) said that they would renew the reservations they had previously made when this resolution was adopted by the Plenary Meeting.
17. This resolution was put to the vote and adopted by 28 votes to 8, with 5 abstentions.
18. Mr. HARIZANOV (Bulgaria) said that he had voted against the resolution. His administration would reserve its rights.
19. RESOLUTION CONCERNING THE HANDLING OF PUBLIC CORRESPONDENCE BY AIRCRAFT (pages 5 and 6)
20. This resolution was put to the vote and adopted by 23 votes to 3, with 15 abstentions.

21. RESOLUTION ON THE FORM OF THE FREQUENCY LIST FOR THE AERONAUTICAL MOBILE R SERVICE (Pages 7 - 9).
22. Mr. JAROV (USSR) said that when this resolution had been adopted at a Plenary Meeting, his delegation had abstained and made reservations with regard to the paragraphs on notification and registration of frequencies. It would renew these reservations.
23. Mr. MITROVIC (Yugoslavia) said that his delegation would renew the reservations it had already made on this matter.
24. This resolution was put to the vote and adopted by 27 votes to 0, with 11 abstentions.
25. RECOMMENDATION ON COORDINATION OF AERONAUTICAL AND MARITIME SERVICES (pages 10 - 20).
26. This recommendation was unanimously adopted.
27. RECOMMENDATION ON THE PUBLICATION OF SERVICE DOCUMENTS (pages 21 - 29)
This recommendation was put to the vote and adopted by 28 votes to 0, with 10 abstentions.
28. Mr. JAROV (USSR), Mr. MITROVIC (Yugoslavia), and Mr. HARIZANOV (Bulgaria) abstained from voting, having previously abstained when this recommendation was adopted by the Plenary Meeting.
29. Mr. ARCIUCH (Poland) abstained from voting. The delegations of Poland and Czechoslovakia would reserve their position on this question.

REPORT BY THE WORKING GROUP ON ADJOURNMENT OF THE CONFERENCE
(Aer-Document 298).
30. Mr. FALGARONE (France) introducing the document, said that the Working Group had been set up by Committee 6 to prepare a report based on Aer-Documents 200, 228, 236 and 248 (Australian, French, Mexican and Soviet proposals), on the resolution on adjournment which had been adopted by the Plenary Meeting, and on opinions expressed in Committee 6.
31. Mr. SEARLE (New Zealand) said that on page 1, "THE CONFERENCE" should be inserted above "CONSIDERING". In paragraphs 4 and 6, page 1, substitute "That" for "Whereas". In paragraph 7, line 1, replace 4) by 5). Page 4, delete the second line of the first note.
32. Mr. FALGARONE (France) said that the Group owed a particular debt to Mr. PETIT (IFRB) for advice which was always willingly given. They had tried to tell the truth, without, however, over-emphasizing the errors of which the Conference might have been guilty.
33. Mr. ARCIUCH (Poland) said that according to paragraph 4, the Conference had found it possible to study carefully the needs of the international services. He might point out that not a single frequency had been allotted to the Warsaw-Paris line.

34. Paragraph 5 said that essential information on regional and domestic requirements was not available, and if that was so, he would very much like to know exactly what.
35. Mr. FALGARONE (France) said that the expression "international services" should be changed to read: "services operating in the Major World Air Route Areas."
36. Mr. de HAAS (Netherlands Indies) said that if the delegate of Poland desired an answer to his second question, he might consult with advantage Aer-Document 242. This was a point that had been covered over and over again.
37. Mr. WHITE (United States) said that his delegation could support the document.
38. With regard to a date for the second session (paragraph 1.2), it would be unwise if the wording of that paragraph were to encourage administrations not to take the problem seriously. A definite date should be fixed. Therefore he would move that the second sentence of paragraph 1.2: "However, this last date may be altered by agreement between the administrations concerned..." be deleted.
39. Mr. de HAAS (Netherlands Indies) seconded the motion.
40. Mr. FALGARONE (France) said that the paragraph had been so worded in order ~~that distant countries might not be obliged to send separate delegations to the second session and to the special administrative conference~~.
41. Mr. ROWLAND (United Kingdom) said that ample time should be allowed for the second session to finish its work, and therefore the date of reconvening should not be extended beyond July 31, 1949. A certain interval between the second session and the special administrative conference might be very necessary, to allow for any supplementary work that might have to be done.
42. Mr. BETTS (Australia) suggested that a comma be put at the end of the first sentence in paragraph 1.2, and the second sentence be replaced by the following: "or on such a date as may be agreed upon by the administrations concerned".
43. Mr. PETIT (IFRB) said that this last proposal did not relate the date of the second session to the special administrative conference; he preferred the proposal submitted by the delegate of the United States.
44. In the Atlantic City resolution creating the P.F.B., it was laid down that that body must incorporate in its lists the frequency allotment plans prepared by service conferences, and this list must be sent to administrations for study at least two months before the special administrative Conference. Therefore, if they wished to respect the procedure duly laid down at Atlantic City, they should leave an adequate interval between the end of the second session and the special conference.

45. Mr. SEARLE (New Zealand) said that he would object to the deletion of the second sentence in paragraph 1.2.
46. Mr. FALGARONE (France) doubted whether the necessary information would have been received by the Conference before 30 June, 1948. If the second sentence were to be deleted, he would be inclined to favour postponing the date of re-convening by a month or two.
47. The CHAIRMAN, summing up, said that the main objection to deletion was that certain delegates attending the second session would also wish to attend the special administrative conference, and if there was a gap between the two, the administrations concerned would be put to some extra expense.
48. On the other hand, to set a fixed date for the second session might have a stimulating effect on administrations! It would also mean that administrations would have adequate time to study any plan prepared by the Conference before the special conference began its work. They should bear in mind that this latter conference might be postponed indefinitely.
49. The United States motion to delete the second sentence of paragraph 1.2 was put to the vote and rejected by 9 votes in favour to 4 against with 25 abstentions.
50. The CHAIRMAN said that in accordance with the rules of procedure, he would rule that the motion was rejected. The motion would have to be tried again at a later meeting, at which time no account would be taken of abstentions.
51. Paragraph 1), page 1.
- This paragraph was amended to read as follows: "1) That the final frequency allotment plan for the aeronautical mobile R services should satisfy as fully as possible the needs of all categories of this service".
- Paragraph 1, page 1, as amended, was adopted.
52. Paragraph 2) page 1.
- This paragraph was amended to read as follows: "2) That there exists unanimous agreement among the delegations present at this Conference that the requirements of the Major World Air Routes and those of the regional and domestic services should be examined and should be satisfied to the same degree."
53. Paragraph 3), page 1.
- This paragraph was amended to read as follows: "3) That the studies of the Conference and the information available to it show that the spectrum space allocated to the aeronautical mobile R service is inadequate to satisfy fully all the requirements of the different aeronautical mobile R services without further study."

54. Paragraph 4, page 1

Mr. JAROV (USSR) proposed that paragraph 4 be replaced by the following:
" That the Conference at the beginning of its work, having given more attention to the detailed study of the needs of the Major World Air Route Areas, underestimated the requirements of the regional and domestic air routes and did not take into consideration their peculiarities. As a result:

55. a) The requirements of the Major Air Routes were examined and satisfied in the first place to a large degree.
56. b) Attempts to satisfy the requirements of the regional and domestic routes by means of the remaining frequencies and by means of the repetition of Major World Air Route frequencies, did not give satisfactory results".

57. Paragraph 5 would then read as follows: " That with regard to the requirements of the regional and domestic services, the Conference does not dispose of certain information, in regard to the possibility of coordinating the use of frequencies with adjacent countries and regions, and the necessity of having such information did not become fully apparent until the Conference had proceeded to the stage where frequencies were being shared between the Major World Air Routes and the regional and domestic services."

Paragraph 6 would then be deleted.

58. Mr. MITROVIC (Yugoslavia), supporting the amendment, said that it reflected the discussions that had taken place on this subject and expressed ideas which all admitted to be true.

59. Mr. FALGARONE (France) said that this text reflected more objectively the chronological sequence of events within the Conference. They should have the courage to place facts like these before administrations.

60. The Soviet amendment to paragraph 4 was put to the vote and rejected by 11 votes to 26 with 2 abstentions.

61. After some discussion the following text for paragraph 4 was adopted:
" That it has been possible to study in detail the needs of the Major World Air Route Areas and to satisfy their minimum requirements to a large extent in this draft plan produced, while an attempt to satisfy the requirements of the regional and domestic services had to be accommodated with the remaining frequencies and with the repetition of the former one, and did not give satisfactory results."

62. Paragraph 5, page 1

It was agreed that the term "international services" should be replaced by Major World Air Route Areas.

63. Mr. JAROV (USSR) proposed the following amendment: " That in regard to the regional and domestic services, the Conference does not dispose of certain information relating the possibility of coordinating the use of frequencies in adjacent countries and regions..."

64. After some discussion, the following text was adopted: "That in regard to the regional and domestic services, the Conference does not dispose of certain essential information, especially that making it possible to coordinate the use of frequencies in adjacent channels and regions..."

Paragraph 5, page 1, as amended, was adopted.

The meeting adjourned at 6 p.m.

CHAIRMAN :

Arthur L. LEBEL

SUMMARY RECORD OF THE SIXTEENTH PLENARY MEETING

held in the Maison des Congrès, Geneva,
on Saturday, September 18, 1948, at 9 a.m.

Chairman : Mr. Arthur L. LEBEL (United States of America)

1. CONTINUATION OF DISCUSSION ON THE REPORT BY THE WORKING GROUP
ON ADJOURNMENT OF THE CONFERENCE (Aer-Document N° 298)

Mr. JAROV (U.S.S.R.) said that lack of information was not the only reason for adjourning the Conference. He would move that paragraph 6, page 1, be deleted.

2. Mr. MITROVIC (Yugoslavia) seconded the motion. Even if the second session of the Conference were provided with the most complete information, it would never succeed unless the basic technical principles already adopted were changed.

3. Mr. SOUTO CRUZ (Portugal): "Although lack of information might perhaps be the main reason for adjournment, it was not the only one. Although if the Conference had, at its disposal, similar data for the MWARA and for the RDARA, the number of frequencies required for both categories could be obtained using the same formula and the same standards.

"After this work was done, the Conference had, on the one hand, all the available frequencies and on the other hand all the requirements obtained by the application of a common formula.

"Then the main problem would lie in an equitable allotment based on the technical standards adopted. If the result were unjust, at least it would be equally unjust for all the different categories of the aeronautical R services."

4. Mr. JAROV (U.S.S.R.) said that, as was obvious from Aer-Document N° 242, only one quarter to one seventh of national requirements had been satisfied. Even if it were to be admitted that the Conference would be helped by more information, could it be maintained that such information, in itself, would enable demands to be satisfied?

5. Mr. SEARLE (New Zealand) said that paragraph 6 accurately reflected the present situation. Even if more information did not necessarily mean that all requirements could be met, it would at least enable requirements to be reduced in a more uniform and impartial way, in so far as Major World Air Route, regional and domestic air services were concerned.

6. Mr. WHITE (U.S.A.) said that this matter had been very fully discussed in Committee 6. He would move that a vote be taken on the Soviet motion forthwith.
7. The United States motion for closing discussion on this question, and voting on the Soviet proposal immediately, was put to the vote and adopted by 20 votes to 10, with 2 abstentions.
8. The Soviet motion for deletion of paragraph 6 was put to the vote and rejected by 9 votes for to 21 against, with 3 abstentions.
9. The CHAIRMAN said that in accordance with the rules of procedure, he would have to rule that further discussion on this point would be out of order.
10. Mr. MITROVIC (Yugoslavia) said that the matter under discussion was important, and such a ruling was wrong and irregular. They would never reach a satisfactory solution of their problems if discussion were prevented.

This was not the first time that such procedure had been applied at critical moments. It was one of the main reasons for the notable lack of success of the Conference.

11. Mr. FALGARONE (France) said that he and others wished to continue the discussion. He found it hard to believe that a free expression of opinion could be ruled out of order in this manner.

12. The CHAIRMAN :

" The motion to close debate is well known in all the parliamentary systems I know of. One of its purposes is to put it beyond small groups to prevent indefinitely a vote on a question which, in the view of the majority, has been sufficiently elucidated to warrant a reasonably sound decision. All delegates here represent sovereign governments, and the rights and powers of one are co-extensive with those of any other. If one delegate is entitled to request continuation of a debate for reasons of his own, any other delegate is equally entitled to seek the cloture of that debate for reasons which he deems cogent. Where the two are in conflict, the only known means of resolving the problem under a democratic process is to try the issue by vote. This has now been done in the case that occupies us, and a majority of nearly three to one has decided to close the debate. As Chairman I have no power to extend or stop debate against the wishes of the majority. We therefore have no alternative except to vote immediately on the substance."

13. Mr. ARCIUCH (Poland) :

" Being of opinion that an absence of some supplementary information regarding the demands for frequencies for the regional and domestic services (presented in Aer-document N° 71 on an official Form 2 and many times changed in accordance with the demands of the different working groups in the course of their work), was not only and single or the main

reason for the unequal sharing of frequencies between the MWARAs and Regions or States, the Delegation of Poland voted for the deletion of paragraph 6 from the "considerations" of the provisional Draft Resolution consisting in Aer-document N° 298."

14. Mr. JAROV (U.S.S.R.) said that he had formally inquired whether the majority of those present considered that lack of information was the chief reason for adjournment.
15. The CHAIRMAN said that this discussion was out of order, as the point raised had nothing to do with the specific subject now under discussion, namely, Aer-document N° 298. The delegate of the Soviet Union might however submit a formal motion for the addition of an extra paragraph on this point, provided his motion were related to that document.
16. Paragraphs 6, 7, 8, 9, and 1.1 (page 2) were adopted.
17. Paragraph 1.2, page 2.

Mr. WHITE (U.S.A.) said that at the previous meeting he had submitted a motion to delete the second sentence of this paragraph. There had been more abstentions than votes cast in favour and against. He would again move that the second sentence of the paragraph be deleted.
18. The United States motion to delete the second sentence of paragraph 1.2 was put to the vote and adopted by 22 votes to 3.
19. Mr. FALGARONE (France), supported by Mr. HARIZANOV (Bulgaria) said that there was a danger of reconvening too soon. He would therefore propose that paragraph 1.2. simply read as follows : "To meet again in Geneva on the 31st of July, 1949."
20. Mr. PETIT (I.F.R.B.) said that the frequency plan produced by the Conference must be examined by the special Administrative Conference, and, at least in theory, must be submitted in good time to the P.F.B. for transmission to administrations. Therefore, if they were to leave the date of the second session unrelated to that of the special Conference, they would be running counter to the resolution of Atlantic City.
21. Mr. FALGARONE (France) said that the Conference was under an obligation to respect that resolution. But the special Conference was very unlikely to meet before October, 1949.
22. The French amendment to paragraph 1.2 was put to the vote and adopted by 17 votes to 0, with 17 abstentions.

Paragraph 1.2, as amended, paragraphs 1.3, 2.1, and 2.2, were adopted.
23. Paragraph 3.1., page 2.

It was agreed that the words "at present" should be deleted, and that "provisional draft plan" should read "draft plan".

24. Paragraph 3.2., page 2.

It was agreed that this paragraph should be amended to read :
" To regard documents Nos..... as those containing other principles and other methods which might provide other solutions to the problem, but which have not been applied in practice, as they have not been adopted by the first session of the Conference."

Paragraph 3.2., thus amended, was adopted.

25. Paragraph 3.3, page 3.

It was agreed to discuss this paragraph when considering Aer-document N° 271.

26. Paragraphs 4. and 4.1. page 3.

It was agreed that the words : " To study all the work of the Conference" should be amended to read : "To consider the results of the work of the Conference".

Paragraphs 4 and 4.1. as amended, were adopted.

27. Paragraph 4.3., page 3.

Mr. FALGARONE (France) said that it would be for administrations themselves to decide whether they wished to organize, or participate in, the conferences mentioned in this paragraph. This point had not been studied in detail by the working group. It might be advisable to attach as an annex to the document a list of conferences (I.T.U., I.C.A.O., or other organizations) so as to give administrations some guidance.

28. Mr. WHITE (U.S.A.) said that if the United States proposal for the creation of an interim secretariat were adopted, one of the functions of that secretariat would be to advise administrations on such matters.

29. Mr. JAROV (U.S.S.R.) said that if the European countries represented at the Conference decided to hold a regional I.T.U. conference, such a conference would have to be planned by the I.T.U.

30. Mr. FALGARONE (France) said that it was difficult to go into greater detail in paragraph 4.3. Its wording was sufficiently broad to cover all contingencies.

31. Mr. PETIT (I.F.R.B.) said that it was not absolutely necessary that the Administrative Council should take the initiative in convening conferences. If a group of countries wanted to convene a conference, they could take the initiative, in accordance with Chapter II of the General Regulations annexed to the Convention.

32. Mr. JAROV (U.S.S.R.) proposed the following amendments : place a full stop after the words "regional or domestic basis".

Add a new sub-paragraph 4.4. : "The Conference does not pre-determine at this time the question in regard to the convening of regional conferences or of any other conferences, or any other meetings during the period of the recess, and leaves the decision on this question to the administrations themselves."

33. Mr. MITROVIC (Yugoslavia) seconded the motion.

34. Mr. FALGARONE (France) said that the following amendment would provide a neater solution to the problem : maintain paragraph 4.3., without change, and add a new paragraph 4.4. :

35. " 4.4. To take themselves all decisions relative to the conferences or other meetings which it might be desirable to convene during the Conference's recess. The Conference does not consider itself in a position to estimate the possibilities which may exist in this connection."

This amendment was adopted.

Paragraph 4.3., and the new paragraph 4.4. were adopted.

36. Paragraph 5.1.

Mr. JAROV (U.S.S.R.) said that the new paragraph 4.4. would mean that paragraph 5.1. would have to be amended in the following way : " If the administrations concerned consider it necessary to call regional conferences, to invite these conferences to undertake studies with the object....".

37. Mr. FALGARONE (France) said that in the original text, the Conference could invite regional conferences to study the problem of frequency coordination. The new amendment left to administrations the responsibility of instructing the Conference to refer these problems to regional conferences for consideration; the Conference would in any case have dispersed before decisions could be taken by administrations on this matter.

38. Mr. SEARLE (New Zealand), supported by Mr. WHITE (U.S.A.), said that some specific reference must be made to conferences of I.T.U. or I.C.A.O.

39. Mr. LECOMTE (Belgium) proposed the following amendment :

" 5.1. To invite the regional conferences which will be held in consequence of 4.3. and 4.4. above, to undertake studies "

This amendment was adopted.

Paragraph 5.1., as amended, was adopted.

40. Paragraphs 5.2.1., 5.2.2., and 5.2.3.

Mr. FALGARONE (France) said that the term "international services" had been used in these paragraphs because the Working group had felt that administrations would be unfamiliar with the terminology of the Conference. The term was intended to cover both Major World Air Routes and regional airlines, which were all international in character.

41. Mr. LECOMTE (Belgium) suggested that it might be sufficient, if other delegations representing European member-states of I.C.A.O. were to agree, if a note were added explaining that for those states, the term "international services" covered both Major World Air Routes and Regional routes.
42. Mr. JAROV (U.S.S.R.) said that two types of conference seemed to be intended. One group of conferences would be held for the member-states of I.C.A.O., and another for those states which were not members. If that were so, it seemed to him difficult to see how the essential coordination referred to in paragraph 7 of the considerations, was to be achieved. How could the requirements of the European region be coordinated without the cooperation of the Eastern states?
43. Mr. LECOMTE (Belgium) said that among the European states which were members of I.C.A.O., the habit of considering aeronautical problems in common had engendered particularly intimate relations amongst aeronautical specialists. Small aeronautical conferences held under the auspices of I.C.A.O. were likely to achieve more in the frequency coordination problem than larger I.T.U. regional conferences.
44. He would be the last to suggest that these problems could be solved without the cooperation of the Eastern states. But if the European member-states of I.C.A.O. could meet to discuss their problems, and if non-member states could meet to discuss theirs, then coordination of requirements on the level of an I.T.U. regional conference would be very much easier.
45. Mr. COFFEY (Canada) said that I.C.A.O. might appropriately be asked to study problems affecting the Major World Air Route Areas and Western Europe. To ask I.C.A.O. to produce a draft plan for both the Major World Air Route Areas and the regional services was to entrust it with a task of extraordinary complexity. He would therefore move that the expression "international services" be replaced by "Major World Air Route Areas".
46. Mr. SEARLE (New Zealand) said that I.C.A.O. was a sister-organization of the I.T.U., and as such had certain rights. I.C.A.O. had a right to study these problems and present its views on them. They should extend to I.C.A.O. every facility to present its views, both on the Major World Air Routes and the regional services.
47. Mr. LECOMTE (Belgium) said that for his country, European internal airlines were far more important than the Major World Air Routes. It would be no exaggeration to say that every commercial flight undertaken by a Belgian aircraft was an international one. An organization to coordinate the requirements of the European regional services was badly needed, and I.C.A.O. was perfectly qualified for this task.
48. Mr. MITROVIC (Yugoslavia) said that there were countries in Europe which were just as interested in regional services without being members of I.C.A.O. His country was not a member of I.C.A.O., and would not recognize any decision taken by a conference held under the auspices of that organization.

49. Mr. FALGARONE (France) said it was clear that I.C.A.O. conferences would have no priority over those of the I.T.U. As the delegate of Belgium had pointed out, the requirements of European states not members of I.C.A.O. would be coordinated with those of I.C.A.O. member-states, in the last resort, by an I.T.U. regional conference.
50. Mr. WHITE (U.S.A.), supporting the statement made by the delegate of New Zealand, said that all they proposed to do was to ask the advice of a sister organization.
51. The Canadian motion to substitute "Major World Air Route Areas" for "international services", in paragraphs 5.2.1., 5.2.2., and 5.2.3., was put to the vote and rejected by 11 votes for to 15 against, with 9 abstentions.
52. Mr. ARCIUCH (Poland) said that according to paragraph 6.3., I.C.A.O. was being invited to submit a plan in the same way as the regional conferences. Such a plan would represent the interests of I.C.A.O. member-states and of the Major World Air Route Areas, and would therefore be one-sided.
53. It might be true to say that I.C.A.O. had gained an established position in so far as the Major World Air Routes were concerned, and was the recognized link between groups of states having common spheres of interest. At the same time, I.C.A.O. was not being admitted to the Conference as a full member, but as an observer.
54. It was improper that an international conference should be used to further the interests of such an organization.
55. Paragraph 9 of the Considerations laid down that the Conference was the only body competent to draw up a frequency allotment plan for the aeronautical services, and this was not consistent with an invitation to I.C.A.O. to draw up such a plan, except for the Major World Air Routes.
56. He agreed with the delegate of Canada that I.C.A.O. mainly represented the interests of the Major World Air Routes, and would therefore move that paragraph 5.2.3. be deleted.
57. Mr. MITROVIC (Yugoslavia) seconded the motion.
58. Mr. JAROV (U.S.S.R.) suggested that paragraph 5.2.3. be amended to read : "To elaborate proposals taking into account the above, in regard to a draft frequency plan for the Major World Air Route Areas."
59. Mr. LECOMTE (Belgium) said that he had voted for the Canadian proposal to substitute "Major World Air Routes" for "international services". Only with that amendment would these paragraphs have any meaning.
60. Mr. ROWLAND (United Kingdom) proposed that paragraph 5.2.1. should read : "To study the part of the draft plan which concerns the international services of its member-states."

61. Paragraph 5.2.2. would then read : "To try, having regard to the fact that the regional and domestic requirements are heavy, to reduce the requirements of the Major World Air Routes to a minimum by applying the most suitable coordination methods."

62. Paragraph 5.2.3. would read : "To draw up, having regard to what has been said above, a draft frequency allotment plan for the international air services of its member-states."

These amendments were adopted. Paragraphs 5.2.1., 5.2.2., and 5.2.3., thus amended, were adopted.

63. Mr. JOUK (Bielorussian S.S.R.) proposed the insertion of a new paragraph 6.1.1., making the original paragraph 6.1.1. into paragraph 6.1.2.

64. " 6.1.1. The minimum requirements for the aeronautical mobile R frequencies, reviewed with due account of the situation created, and coordinated wherever useful with the other administrations concerned, either at regional conferences or in another way."

65. The new paragraph 6.1.1. was adopted, and the original paragraph 6.1.1., now 6.1.2., was adopted.

66. Mr. JOUK (Bielorussian S.S.R.), seconded by Mr. MITROVIC (Yugoslavia) proposed that the paragraph now numbered 6.1.3. be deleted.

67. What was really needed was a statement of the frequencies required for each country and each type of service.

68. The detailed statistics referred to in paragraph 6.1.3 would not in practice be necessary. Committee 7 had been able to produce a draft plan without it. Different countries had different methods of operation, and it would be found that any information submitted in accordance with paragraph 6.1.2. would be merely confusing. Forms 2, for example, were filled in differently by different countries.

69. The work of the second session would be immensely simplified if administrations were invited to submit their statements of requirements. After all, an administration was better qualified to assess its own needs than the Conference.

70. Mr. WHITE (U.S.A.) said that he could recall cases in which administrations had submitted statements of requirements covering types of operation for which provision had already been made. If they wished to sort the sheep from the goats, statistical information was essential.

71. Mr. BETTS (Australia) said that he would be inclined to agree with some of the points made by the delegate of Bielorussia. Not all the information listed in Aer-document No 242 would be necessary. But statistical information was undoubtedly needed, and he would therefore oppose the motion.

72. Mr. FALGARONE (France) said that Aer-document N° 242, paragraph 6, which was to provide the annex in question, would certainly have to be discussed.
73. Mr. JOUK (Bielorussian S.S.R.) said that the new paragraph 6.1.1. provided for coordination of requirements between states. The Conference would have to know the requirements of individual administrations. If those administrations saw fit to submit additional information to give backing to their statements, there could be no possible objection. But the Conference had no authority to demand such data.
74. The Conference had already wasted a great deal of time over the Major World Air Route Areas, simply because the requirements of these areas had not been prepared beforehand. They should avoid committing the same error with regard to the regional and national services.
75. The Bielorussian proposal to delete paragraph 6.1.2. was put to the vote and rejected by 9 votes for to 23 against, with 1 abstention.
- Paragraphs 6.1.3., 6.2., and 6.3., were adopted.
76. Paragraph 6.4.
77. Mr. LECOMTE (Belgium) proposed that the paragraph should be amended to read as follows : "that material referred to in paragraphs 6.1., 6.2., and 6.3. shall reach the Secretary General of the Union before June 30, 1949 -that date being subject to modification - before the opening of the second session of the Aeronautical Conference."
- This amendment was adopted.
78. Paragraph 6.4., thus amended, was adopted.
- The meeting was adjourned at 7.30 p.m.

Chairman :

Arthur L. LEBEL.

SUMMARY RECORD OF THE SEVENTEENTH PLENARY MEETING

held in the Maison des Congrès, Geneva,
on Sunday, September 19, 1948, at 10.15 a.m.

Chairman : Mr. Arthur L. LEBEL (United States)

CONTINUATION OF DISCUSSION ON THE REPORT OF THE WORKING GROUP ON THE
ADJOURNMENT OF THE CONFERENCE (Aer-Document 298).

1. Mr. FALGARONE (France) said it had already been admitted that the principles adopted should be revised by the second session of the Conference. In the resolution itself, administrations had been invited to study the principles of the present draft plan. This meant that those principles were not unchangeable. He would therefore submit the following proposal :

Between paragraphs 7 and 8 insert the following :

2. "7.b. That in addition, the principles implicitly or explicitly adopted by the Conference for the preparation of the present draft plan, are not necessarily the best, and must be studied and discussed in greater detail by the administrations or specialized agencies prior to any new attempt, in the light of procedures now in existence or to be established in the future for air traffic control services, international, regional, or national.
- "7.c. That the Conference is not in a position to carry out the supplementary studies mentioned in paragraph 7.b. above."
3. Mr. ROWLAND (United Kingdom) said that the first paragraph of the amendments was unnecessary. Nothing in the documents of the Conference implied that the best possible plan had in fact been produced. The effect of the proposal would be to cast discredit on that plan.
4. It was not true that the Conference could not carry out the supplementary studies mentioned in the suggested paragraph 7.c. These additional paragraphs were superfluous.
5. Mr. MITROVIC (Yugoslavia) said that in paragraph 6.1.1. they were inviting administrations to submit proposals with regard to the principles adopted by the Conference. It would be very logical to explain in the preamble the reasons for that indication. Otherwise the impression would be given that the first session of the Conference was trying to impose its views on the second.



6. Mr. FALGARONE (France) said that admittedly the Conference had not explicitly stated that its principles were the best, but since those principles had in fact been adopted, the implication was that they were the best.
7. Air traffic control rules for regional use were in existence. But there were no such rules for air traffic in certain of the Major World Air Route Areas, and it was for ICAO to establish them.
8. Mr. GREVEN (ICAO) said that the term "Major World Air Route Areas" was a new one, but the methods of air traffic control within those areas which had been established was not new.
9. Mr. FALGARONE (France) said that air traffic control procedures for the Major World Air Route Areas did in fact exist, but they were based on the plan produced by the Cairo Conference, not on that of Atlantic City. Since the time of Atlantic City, ICAO had not held a single meeting to make new rules based on the Atlantic City plan.
10. Mr. ROWLAND (United Kingdom) said that even if it were to be admitted that air traffic control procedures for the Major World Air Route Areas did not yet exist, it was hard to believe that such procedures could be laid down in detail within the next few months.
11. Mr. WHITE (United States) said that the document was clear as it stood, and the proposed additional paragraphs would serve no useful purpose.
12. Mr. SEARLE (New Zealand) said that to refer the study of the principles adopted to administrations would be to admit that the Conference was incompetent. What was wanted from the administrations was more detailed and better coordinated information.
13. Mr. FALGARONE (France) said that if the additional paragraphs were useless, then the whole of the preamble was without point. They had decided to call for more statistical information and had invited suggestions on the principles adopted, without however, questioning the value of those principles.
14. It was not true to say that all the principles adopted had been discussed. Some of them had been taken as axiomatic, for example the conception of frequency allotment by routes, the division of services into three categories, world wide, regional, and national. It had been taken for granted that the channel spacing adopted should provide for high capacity means of communication.
15. The point was that the Conference was not competent to discuss some of these fundamental principles. It was for ICAO to do so.
16. Mr. ROWLAND (United Kingdom) said that he knew of no intention to revise air traffic procedures within the near future. There would be no time to revise the draft plan on the basis of such procedures.

17. Mr. LECOMTE (Belgium) said that he could support the general idea behind the French proposal. It could do no harm to suggest that the principles so far adopted should be revised at a different level.
18. They had stated that administrations must try to reduce their requirements. If that were so, there were two alternatives - either they could keep their present principles, and satisfy only a part of requirements, or the principles themselves should be revised.
19. Mr. MITROVIC (Yugoslavia) said that the preamble laid much stress on the lack of information, but did not say that the principles adopted might be at the root of the trouble.
20. Mr. WHITE (United States) said that his delegation had never considered the principles adopted to be unsound and that the Conference had never expressed that view. Administrations had been led to believe that frequencies were available in large numbers, and had consequently submitted excessive requirements, thus creating the only difficulty that could have caused the Conference to suspend its work.
21. Mr. BETTS (Australia) proposed the following amendment to replace paragraphs 7.b. and 7.c. :

"That it is felt that all administrations should have the opportunity to study more fully the principles adopted by the Conference for the preparation of the draft plan prior to finalization of the frequency allotment plan, and that this study cannot be carried out by the present Conference."

22. Mr. FALGARONE (France) said that reference must be made to the appropriate specialized agencies. He could not believe that the two paragraphs he had proposed were really so dangerous.
23. Mr. SEARLE (New Zealand) said that the Conference was adjourning in order to obtain more information. He could not agree that the delegations represented at the Conference were incompetent to discuss the principles that had been adopted.
24. Mr. ROWLAND (United Kingdom) strongly opposed excessive emphasis on the need to revise the principles adopted. The main reason for adjournment was the need for more and better coordinated information.
25. Mr. FALGARONE (France) said that he did not mean to challenge the competence of certain delegates. The point was that the present Conference was not a specifically aeronautical one.
26. By agreement with Mr. BETTS (Australia) he would submit the following :

"7.b. That, in the light of present and foreseen aeronautical operational practices, the principles provisionally adopted by the Conference have to be studied by the administrations in connection with the study of their requirements and by the specialized agencies so that every means can be applied to reduce the number of frequencies required in the aeronautical mobile R service."

27. Mr. JAROV (USSR) proposed that after the words "provisionally adopted by the Conference" the following should be inserted : "also all other proposals for solving the problem proposed to the Conference, but which have not in practice been applied."
28. Mr. BETTS (Australia) and Mr. FALGARONE (France) accepted this amendment.
29. Mr. ROWLAND (United Kingdom) said that he would oppose the inclusion of these additional paragraphs. Aer-Document 298 was already sufficiently explicit in stating what was required of administrations during the recess.
30. The main reason for adjournment was the lack of statistical information with regard to regional and domestic services, together with inadequate coordination in the requirements submitted for those services. That information would have to be obtained before the Conference could continue its work.
31. He did not believe that the Conference lacked information on operational practices at present existing or likely to be introduced. Such an argument could not validly be adduced as a reason in favour of adjournment. Indeed, the addition of such paragraphs might even make it appear that there was no good reason to adjourn the Conference.
- Mr. QUIJANO (Colombia) supported this statement.
32. Mr. SEARLE (New Zealand) said that he would vote against this motion. It was not true that delegates did not possess information on operational practices.
33. Mr. MITROVIC (Yugoslavia) said that in accordance with article 16 of the Atlantic City Convention, he would call for a vote by nominal roll.
34. The French-Australian amendment to the preamble consisting in the addition of a new paragraph 7.b. was put to the vote and adopted by 14 votes to 11 with 13 abstentions.

For :

35. People's Republic of Albania; Commonwealth of Australia; the Bielorussian Soviet Socialist Republic; People's Republic of Bulgaria; Overseas Territories of the French Republic and Territories administered as such; France; Republic of Poland; Portugal; French Protectorates of Morocco and Tunisia; People's Federative Republic of Yugoslavia; the Ukrainian Soviet Socialist Republic; People's Republic of Roumania; Czechoslovakia; Union of Soviet Socialist Republics = 14 votes.

36. Against :

The Argentine Republic; Brazil; Colombia; Colonies, Protectorates, Overseas Territories and Territories under mandate or trusteeship of the United Kingdom of Great Britain and Northern Ireland; United States of

America; Netherlands Indies; Nicaragua; New Zealand; Netherlands, Curacao and Surinam; United Kingdom of Great Britain and Northern Ireland; Territories of the United States of America = 11 votes.

37. Abstentions :

Belgium; Canada; Chile; Cuba; Ecuador; Republic of Honduras; Ireland; Italy; Norway; Pakistan; Sweden; Union of South Africa and the Mandated Territory of South-West Africa; the Oriental Republic of Uruguay = 13.

38. Mr. COFFEY (Canada) said that he had abstained from voting. His delegation had never believed that there were adequate grounds for adjourning the Conference.

39. Mr. WHITE (United States) :

"It has been the practice of certain delegations to insert in the minutes of the Conference and its committees lengthy verbatim statements of minority points of view. As a result, there might be some inference in the minds of persons who have not taken part in the very full deliberations of this Conference, that decisions have been taken which have not been fully supported by complete and detailed expositions. This of course is not the case. The United States points to the extraordinary length of the debates as clear evidence of the voluminous and minutely detailed analyses and explanation - too full for complete inclusion in the minutes as a practical matter - which have been given. The United States delegation believes that the actions of the Conference and its committees speak for themselves as to the soundness and fairness of the decisions which have been taken by majority action in conformity with democratic processes.

40. "Further, there have been placed in the records of this Conference and its committees, at different times by certain delegations, statements purporting to construe or interpret the position taken by the United States or by the majority. These statements, either intentionally or unintentionally, have not reflected the true position of the United States and, we believe, do not reflect the position of the majority of the delegates present.

41. "In view of this, and in order to make crystal-clear the United States views, the following statement in summary form, of our position is furnished for the record.

42. 1. "We, that is, the United States delegation, believe that the standards and the method of approach prepared by this group of exceedingly competent delegates, and adopted by this Conference are operationally and technically sound.

43. 2. "We believe that this Conference would have failed had it not provided for the use of modern communication systems to meet the needs of modern high speed aircraft operation.

44. 3. "We believe that the plan provisionally adopted by Committee 6 and this Conference can be utilized as a basis for working out the ultimate plan of frequency utilization.
45. 4. "Under the terms of the resolution adopted by Committee 6, and adopted by the Conference, we will soon adjourn to meet at a later date. We sincerely hope that in the interval, all administrations will work together in reviewing their requirements so as to avoid duplication and provide maximum frequency conservation in the arrangement of regional and domestic services.
46. "We hope that administrations, collectively and individually, will review their stated requirements, and, perhaps even more important, will review the justifications for their requirements as compared with requirements of others. We express the further hope that during these deliberations it will be realized that the requirements of a modern system of aeronautical mobile communications, to meet the needs of individual nations and the world, cannot be fulfilled unless, through international cooperation under the plan adopted for the carrying forward of this Conference, we believe the limited number of frequencies available for this service can be equitably divided. This division cannot be brought about unless all factors are disregarded other than sound technical standards applied in ascertaining actual needs of the service. We hope that in the next few months, before the resumption of our session, administrations would address their best technical skills to this problem to the end that we shall obtain the best, most modern system of communications for safety of life and property in the air."
47. Mr. ROWLAND (United Kingdom) strongly supported this statement.
48. Mr. LAYZELL (IATA) said that the basic principles provisionally adopted by the Conference were in accordance with the recommendations of the airline operators.
49. The representatives of IATA were convinced that the basic reason for having to adjourn the Conference at that stage was not that principles were unsound but that adequate, accurate, and coordinated information with respect to regional and domestic requirements was not available.
50. Mr. Martins SILVA (Brazil) said that his delegation had voted against the inclusion of the additional paragraphs, being convinced that the main reason for adjournment of the Conference was lack of information.
51. Paragraph 6 of the Preamble.
- Mr. JAROV (USSR) seconded by Mr. HARIZANOV (Bulgaria) proposed that the following words be added to paragraph 6 : "However, this was not the basic and only reason for the recess of the Conference."
52. Mr. BETTS (Australia) and Mr. WHITE (United States) said they could not agree with this amendment. Lack of information was the main reason for adjournment.

53. The Soviet amendment to paragraph 6 was put to the vote and rejected by 11 votes for to 17 against, with 9 abstentions.

54. REPORT OF THE WORKING GROUP ON DOCUMENTS TO BE SENT TO ADMINISTRATIONS (Aer-document 271).

Mr. WHITE (United States) said that the Working Group had considered only the documents of Committee 6. The documents marked with an asterisk had been approved for transmission to administrations by that Committee. The group had not tried to place documents into the three categories given in paragraphs 3.1., 3.2., and 3.3. of Aer-Documment 298, as those categories had not existed at the time the group had performed its task.

55. The following decisions were taken :

Aer-document 2	- Chinese proposal on maximum loading factor - category 2.	
"	" 18 - South African proposal on frequency allotments - "	2.
"	" 21 (Annex) - Soviet statement	" 2.
"	" 28 - Chinese proposal on ICAO plan	" 2.
"	" 30 - French proposal on exclusive bands	" 2.
"	" 33 - Chinese proposal on classification of air services	" 2.
"	" 34 - IATA statement on division of the world into regions	" 3.
"	" 65 - Polish proposal for minimum field intensity signals	" 3.
"	" 67 - IATA - Major World Air Routes	" 3.
"	" 71 and 72 - with corrigendum in Aer-document 198	" 3.
"	" 110 - Polish proposal on allotment of high frequencies	" 3.
"	" 142 - Final report of the Working Group on unallotted space	" 3.
"	" 145 - Final report of Working Group 6.C (2)	" 3.
"	" 154 - Final report of Working Group 6.E	" 3.
"	" 169 - Resolution of Committee 6 on common channels	" 3.
"	" 192 - Summary of resolutions adopted by Committee 6	" 3.
"	" 199 (revised) - Description of regional boundaries	" 1.
"	" 206 - Description of Western hemisphere regional boundaries	" 1.
"	" 211 - Interim report of the Propagation Group	" 3.
"	" 216 - Second report of the Propagation Group	" 3.
"	" 218 - The problem of assignment of frequencies to individual aeronautical stations (statement submitted by ICAO)	" 3.
"	" 219 (revised) - Report of the Working Group on the requirements of Major World Air Route Areas	" 3.
"	" 226 - Pakistan proposal on meteorological frequencies	" 3.
"	" 239 - Third report of the Propagation Group	" 1.
"	" 240 - Egyptian proposal in connection with the minimum requirements of countries for domestic flights	" 3.
"	" 241 - Map of regional and domestic air route areas	" 1.

Aer-document	242	(with corrigendum) - Final report of the Working Group on the requirements of the Major World Air Route Areas -	category	1.
"	"	243 - Summary of recommendations adopted by Committee 6	"	3.
"	"	248 - Soviet proposal in connection with alteration of principles of the draft plan	"	2.
"	"	249 - Fourth report of the Propagation Group	"	1.
"	"	250 - Fifth report of the Propagation Group	"	1.
"	"	265 - Western Hemisphere 1 kW plan	"	1.
"	"	266 - Fifth report of the Western Hemisphere Group	"	1.
"	"	273 (excerpt) - Summary of decisions of Committee 6	"	3.
"	"	284 (revised) - with maps as annex	"	1.

56. Paragraph 3.3. of Aer-document 298.

The CHAIRMAN suggested that in the light of these decisions, this paragraph be amended to read : "to regard documents Nos..... as general documentation of the ideas which have been or could be taken into consideration."

57. It was agreed that this paragraph should be redrafted by the Editorial Committee.

58. It was agreed that a definition of the term : "Major World Air Route Area" should be added to page 1 of Aer-document 298 as a footnote.

The meeting adjourned at 5.30 p.m.

Chairman :

Arthur L. LEBEL

SUMMARY RECORD OF THE EIGHTEENTH PLENARY MEETING

held in the Maison des Congrès, Geneva
on Monday, September 20, 1948, at 2.30 p.m.

CHAIRMAN: Mr. Arthur L. LEBEL (United States)

REPORT OF THE WORKING GROUP ON DOCUMENTS TO BE SENT TO ADMINISTRATIONS
(Aer-Doc. 271)

1. Inclusion of Minutes.

Mr. JOUK (Bielorussian S.S.R.) proposed that to the documents to be sent to administrations be added the minutes of Committee 6, from the 30th meeting onwards, together with the summary records of the Plenary Meetings, from the 11th meeting. These documents would be placed in category 3 (as in Aer-Document 298).

2. Mr. ROWLAND (United Kingdom) said he could see no good reason why such documents should not be sent, but they should avoid bewildering administrations by sending too much paper. There was a danger that some arguments might be repeated.

3. It was agreed to send to administrations the summary records of the Plenary Meetings from the eleventh meeting onwards.

4. A Working Group was set up with the following terms of reference:

"To select from among the minutes of Committee 6 those which the Group thinks it advisable to transmit to administrations, in accordance with the terms of paragraph 3.3 of Aer-Document 298".

5. Membership :

Mr. BETTS (Australia) - Convener; Mr. OOMEN (Netherlands); Mr. COFFEY (Canada); Mr. ROWLAND (United Kingdom); Mr. JOUK (Bielorussian S.S.R.) and Mr. MITROVIC (Yugoslavia).

6. Inclusion of PC-Aer-Document 25 (Final Report of the Preparatory Committee).

The CHAIRMAN said that at the previous meeting Mr. Jouk (Bielorussian S.S.R.) had suggested that Aer-Doc. 1 (PC-Aer-Document 25) be sent to administrations.

7. Mr. WHITE (United States) said that PC-Aer-Document 25 made reference to certain other documents of the Preparatory Committee, notably to PC-Aer-Document 5 and to PC-Aer-Document 19. PC-Aer-Document 5 had been republished in an expanded form as Aer-Document 231 (text of Annex 1 to the Final Report). PC-Aer-Document 19 had been referred to Committee 5 and republished as Aer-Documents 71 and 72 (Flight Information Tables and Map). He would suggest that Aer-Document 1 should be included in category 3, and that a note should be appended informing administrations that the material referred to in that document would be found in Aer-Document 231, and in Aer-Document 71 and 72.



8. It was agreed that Aer-Document 1 should be included in category 3, and that Aer-Documents 220 and 231 should be considered when Aer-Document 302 was discussed.
9. The CHAIRMAN said that, apart from a decision as to the disposal of those documents, all that now remained to be done in connection with Aer-Document 298 (Report by the Working Group on adjournment of the Conference) was to determine the statistical information that administrations should be invited to provide. In Aer-Document 298 it was suggested that Aer-Document 242 (Report by the Working Group on the requirements of the Major World Air Route Areas) should be used as a guide to the information needed.
10. DRAFT RECOMMENDATION ON INFORMATION TO BE REQUESTED FROM ADMINISTRATIONS (Aer-Document 305)

Mr. de HAAS (Netherlands Indies) said that a small group had tried to calculate the minimum information which administrations should be asked to provide, and the results had been published as Aer-Document 305.
11. Section 1 "Air service statistics".

Mr. JAROV (USSR) said for reasons given by the Soviet delegation when paragraph 6.1 of Aer-Document 298 was considered, his delegation would abstain from all discussion on Aer-Document 305.
12. Mr. ARCIUCH (Poland) and Mr. MITROVIC (Yugoslavia) said they would take no part in discussion of this document.
13. The first three lines of the section headed "Air Service Statistics" were replaced by the following text: "It is important to note that any air service which is served solely by M.F. and/or V.H.F. communications should not be included in the information supplied under following sub-paragraphs".
14. Items 1 and 2.

Mr. FALGARONE (France) said that Aer-Document 71 contained statistics valid in January 1948. Unless a specific date were set, the Conference in its second session might be overwhelmed by the amendments submitted to Aer-Document 71. They should avoid having to start their calculations all over again.
15. Mr. LAYZELL (IATA) said that airlines normally operated in accordance with two distinct schedules, one for summer, and one for winter. Since the summer schedule was normally much greater than the winter one, and since it was usually published some time in May, it might be well to suggest that any amendments to Aer-Document 71 should include services in operation at the beginning of June, 1948.
16. Mr. COFFEY (Canada) suggested that it would be neither necessary nor desirable to recalculate all the loading factors for the Major World Air Route Areas, because of amendments which might be submitted before the second session of the Conference. It would be sufficient to call for the correction of any errors or omissions in Aer-Document 305, "on the original time basis".

17. Mr. LALUNG-BONNAIRE (Overseas France) said that it would be better to fix a date as far ahead as possible, in order to make the maximum provision for future increases. June, 1948 should be changed to June, 1949.
18. After some discussion it was agreed that item 2 should be deleted and item 1 should read as follows: "Amendments to Tables 1 and 2 of Aer-Document 71. These should include services in operation on the 3rd of June 1949, and known major service increases which will be in operation by the 3rd of September, 1949".
19. Percentage of domestic flight miles (Item 3).
- It was agreed that this should be amended to read: "The percentage of domestic flight mileage which is accommodated on international channels (either regional or MWARA)".
20. Domestic air route pattern plan (Item 4).
- Mr. LAYZELL (IATA) suggested that the words "and terminals" should be inserted after: "Domestic air route pattern indicating air routes". Communications centres within the pattern should be indicated.
- This amendment was adopted.
21. Section 2 "Aeronautical Stations Statistics (Regional and domestic only)".
- It was agreed that the first three lines of the section should be replaced by the following: "It is important to note that the following information is required only in respect of air service operations conducted in the H.F. aeronautical mobile R service bands, and should exclude approach and aerodrome control requirements, which are already provided for in the tentative allotment plan".
22. Item 1 "Name and location of each aeronautical station"
- Mr. ROWLAND (United Kingdom) said that it was important to know not only the average number of contacts per hour of each station but the average duration of those contacts.
23. Mr. GREVEN (ICAO) supporting the statement, said that the plan should be based on the worst conditions likely to be encountered.
24. Mr. LALUNG-BONNAIRE (Overseas France) said in some regions there were considerable variations in the number of flights carried out on any particular day. They should request information on the number of contacts per hour during peak periods.
25. The following text was adopted: "The station name, location of transmitters, service range and function of each aeronautical channel, showing, for each channel, the average number of contacts per hour during peak periods, the average duration of such contacts and the system employed (i.e. A3, A1 simplex, A1 adjacent channel simplex or any other system).
26. Mr. ROWLAND (United Kingdom) said that the term "adjacent channel cross-band" had been introduced by IATA, and meant exactly the same thing as "adjacent channel simplex". The latter definition had now been officially adopted by ICAO.

27. It was agreed that the representative of ICAO should submit a definition of adjacent channel simplex and that this definition should be added as a footnote.
28. Item 2 "Radiated power of stations engaged solely in domestic operations".
It was agreed that the term "radiated power" should be replaced by "power delivered to the antenna".
29. Mr. de HAAS (Netherlands Indies) said that the word "solely" should be maintained, since there were not enough frequencies for domestic purposes. He would suggest that this item be amended to read "minimum power conveyed to the aerial of stations engaged solely in domestic operations".
30. Mr. FALGARONE (France) said that the plan produced for the Major World Air Route Areas had been based on a radiated power of 1 kW and 200 watts, and administrations would automatically respect these limits.
31. Mr. de HAAS (Netherlands Indies) said that the power used depended on the size of the country. A small country could afford to use a low power. It was important to have this information, as it affected possibilities of repetition.
32. The CHAIRMAN said he did not think the administrations would interpret such a request to mean that they were bound to keep to certain figures.
33. Mr. SEARLE (New Zealand) said that the conference must know the powers used in any particular area in order to produce a plan. They should also ask for information on the powers used both on long and short distance international services.
34. The following text was adopted: "The power delivered to the antenna of stations engaged (a) solely in present domestic operations, (b) with present regional operations".
35. Item 3 "Suggested minimum number and order of frequencies to meet domestic requirements".
The following text was adopted: "Suggested minimum number and order of frequencies to meet domestic requirements, indicating in each case whether the frequency is needed: (a) for continuous service, (b) day service only (c) night service only".
36. Item 4 "Frequencies and orders required for regional meteorological broadcast services (ground to air only)".
37. Mr. WHITE (United States) said that it was important to ensure that frequencies submitted under this heading were properly coordinated. Administrations should be invited to give the number of frequencies they required for their share in the meteorological broadcast service.
38. Mr. FALGARONE (France) said that there was a danger that administrations would submit requirements for all meteorological broadcast services other than those specifically required for broadcasts to aircraft.

39. Mr. ROWLAND (United Kingdom) proposed the following amendment:
"Stating in each case if part of a net and listing the names of countries forming that net".

In the EU-MED area, such a network already existed. They must take every precaution to avoid duplication in demands. The Conference might be able to take the requirements submitted by individual administrations for meteorological frequencies and allot those frequencies to the net as a whole.

40. Mr. FALGARONE (France) said that no system was yet in existence for broadcasting meteorological information to aircraft in flight; at least, there was no service specifically designed for that particular purpose.

41. Mr. ROWLAND (United Kingdom) said that on the contrary, such systems did exist.

42. Mr. WHITE (United States) proposed the following wording: "Number and order of frequencies, stating in each case if this is part of a net, and if so furnishing a copy of the network arrangement".

43. This amendment was adopted.

Mr. de HAAS (Netherlands Indies) proposed that a new heading be added: "Any additional information which is considered pertinent".

44. This amendment was adopted.

A Working Group was set up to produce a revised document 305 in accordance with the amendments adopted above, together with a sample form, keeping as far as possible to the lay-out of Form 2.

45. Membership :

Mr. ROWLAND (United Kingdom); Mr. SEARLE (New Zealand); Mr. WEAVER (United States).

The meeting adjourned at 7 p.m.

CHAIRMAN

Arthur L. LEBEL

28 September, 1948.

SUMMARY RECORD OF THE NINETEENTH PLENARY MEETING

held in the Maison des Congrès, Geneva,
on Wednesday, September 22, 1948, at 2.30 p.m.

CHAIRMAN : Mr. Arthur L. LEBEL (United States of America)

REPORT BY THE AD HOC GROUP ON MINUTES TO BE FORWARDED TO ADMINISTRATIONS
(Aer-Doc. 306)

1. Mr. BETTS (Australia) said that Aer-Doc. 274 should be included in the list. Aer-Doc. 277 (33rd meeting) would have to be re-issued in a revised form, and Aer-Doc. 275 (31st meeting) would be amended by a corrigendum.
2. It was agreed that the following documents of Committee 6 should be transmitted to administrations in accordance with the provisions of paragraph 3.3 of Aer-Doc. 298 : 258 (Minutes of 30th meeting, forenoon session), 259 (Minutes of 30th meeting - afternoon session), 274 (34th meeting), 275 (31st meeting), 276 (32nd meeting), 277 (33rd meeting), 286 (37th meeting), 291 (Final Report of Committee 6, paragraph 4, subject to amendments by Committee 6).

REVISED ANNEX TO AER-DOCUMENT 298 (Aer-Doc. 305 revised).

3. Mr. ROWLAND (United Kingdom) introducing the document, said that it had been produced in a hurry. One or two changes of a substantive nature had been made to the original Aer-Doc. 305.
4. The percentage of operations conducted with various types of emission (Aer-Doc. 305, section headed "Aeronautical Stations Statistics") had been modified in the revised document, as it seemed to have no particular value. Sub-para 2.1 of section 2 of the revised document had been amended to read "System employed(i.e. A3, A1 simplex, A1 adjacent channel simplex *** or any other system.)"
5. Item 3 of the original documents had read "Suggested minimum number and order of frequencies to meet domestic requirements." This had been amended. An additional sub-paragraph had been incorporated dealing with regional operations. In item 2.3 it was suggested that the order of frequency for each channel should be given in megacycles to one place of decimals.
6. Mr. COFFEY (Canada) suggested that the word "channel" might be replaced by "frequency".
7. After some discussion, it was agreed that in the second line of sub-paragraph 2.1. in line 1 of paragraph 2.2 and in line 2 of paragraph 2.4. the word "channel" should be replaced by "frequency". In paragraph 2.3. the words "for each channel" should be deleted.

8. Mr. LALUNG-BONNAIRE (Overseas France) said that in column 8 the latitude and longitude of the transmitter or transmitters should be indicated. It was important to know when administrations proposed to use the same frequency at different points.
9. Mr. ROWLAND (United Kingdom) said that it might be well to note at the bottom of the form: "The remarks column should indicate cases where more than one station is using the same frequency."
10. After some discussion, it was agreed that under the heading "aeronautical stations", administrations should be invited to "list consecutively all locations using the same frequency" and under the remarks column they should "indicate those cases where the same frequency is shared with another administration."
11. Mr. WHITE (United States) proposed that a note should be added to column 8 to the effect that a geographical position accurate to the nearest 50 km would be sufficient. It might be that in certain cases a communications service would have to be completely reorganized, and it might be difficult for administrations to give in advance the exact position of transmitters.
12. Mr. ROWLAND (United Kingdom) said that the Group had tried to follow the lay-out of Form 2 as far as possible. A serial number had been added for the greater convenience of the Conference when it re-convened. It might be well to send a sample copy of the Form, as it should be filled in, to the administrations.
13. Mr. LALUNG-BONNAIRE (Overseas France) suggested that an extra column be added in which would be listed the reference number of each frequency. It would be good to take every precaution in order to avoid confusion between frequencies.
14. Mr. VIDAL (Argentina) referring to paragraph 1.3. said it was not clear what importance should be attached to the air route pattern plan and to the published time tables which administrations were being invited to send. He would propose the following amendment: delete the words "and/or published time-table" and read "and, as minimum information, time-tables of operating agencies."
15. Mr. LALUNG-BONNAIRE (Overseas France) proposed that after the words "frequency of operations" be added "and published time-tables".
16. Mr. WHITE (United States) said that if administrations were expected to give all their time-tables, the Conference would be overwhelmed by documentation from his own administration. He would however agree to the amendment suggested by the delegate of Overseas France if it were clearly understood that coordinated time-tables, such as his administration could provide, would be adequate.

The amendment to paragraph 1.3. proposed by the delegate of Overseas France was adopted.

CONTINUATION OF DISCUSSION ON AER-DOCUMENT 298 (Resolution on adjournment of the Conference).

17. The CHAIRMAN said that the date of July 30, 1949, given in Aer-Doc. 298, paragraph 1.2. of the Resolution, was subject to review. The Administrative Council had recently adopted a resolution, according to which the P.F.B. was to complete its list by May 17, 1949, and a special administrative conference was to be held on October 17, 1949.
18. Mr. WHITE (United States) supported by Mr. ROWLAND (United Kingdom), suggested that the date of re-convening should be July 1, 1949, and the final date for submission of material by administrations should be June 1, 1949.
19. Mr. MITROVIC (Yugoslavia) asked whether the R plan would be included in the new frequency list to be prepared by the P.F.B.
20. Mr. FALGARONE (France) said that there seemed to be a feeling within the P.F.B. that the Conference would not be finished in time for its plan to be included in the P.F.B. list. Although it was not strictly in order to submit the R plan only one month before the special administrative Conference, it was unlikely that any serious objection would be raised to such a procedure.
21. I.A.T.A. had made a very useful contribution to the work of the Conference, and the documents that were being sent to administrations should also be sent to that organization.
22. It was agreed that Mr. FALGARONE (France) and Mr. WHITE (United States of America) should together draft a short letter of transmittal to be attached to the documents to be sent to I.A.T.A.

APPROVAL OF MINUTES OF THE ELEVENTH, THIRTEENTH, TWELFTH AND FOURTEENTH PLENARY MEETINGS. (Aer-Doc. 285, 292, 293 and 299).

23. Mr. MITROVIC (Yugoslavia) said that a corrigendum to Aer-Doc. 222 had been published, and was inaccurate.
24. The last sentence of paragraph 65 of that document should read as follows: "He would move that consideration of this proposal be deferred, until the two Working Groups had finished their work, and that it be first considered by Committee 6."
25. Paragraph 76 should then read as follows:
"The first part of the Yugoslav motion to defer study of Aer-Doc. 200 until the working groups of Committee 6 had finished their work was adopted by 23 votes to 21, with no abstentions".
26. "The second part of the Yugoslav motion to defer the study of Aer-Doc. 200 to Committee 6, was adopted by 22 votes to 17 with no abstentions".

27. Aer-Document 285, 292, 293, 299 were adopted subject to amendments embodied in corrigenda to those documents.
28. Mr. JOUK (Bielorussian S.S.R.) said that the Soviet delegation made its corrections to the English text of the minutes. As far as the Soviet delegation was concerned, the English text was the basic one, against which the French and Spanish versions must be checked.
29. PROPOSAL OF THE STEERING COMMITTEE ON DOCUMENTS TO BE REFERRED TO ADMINISTRATIONS (Aer-Doc. 302)
30. Mr. FALGARONE (France), referring to page 2, said that Aer-Documents 220 (texts of Committee 4) and 231 (text of Annex 1 to the Final Report of the Conference), should be included, not within the proposed Volume I, but in the third category of documents, as laid down in Aer-Doc. 298.
31. Mr. SEARLE (New Zealand) said that Aer-Doc. 302 set out the results of the Conference in a very logical way, and within the spirit of the Brazilian resolution adopted at a previous Plenary Meeting. Aer-Doc. 220 and 231 contained the material of Committee 4, on which the whole of R plan had been based.
32. Mr. WHITE (United States of America), supporting this statement, said that the material of Committee 4 had been adopted by the Conference before the Brazilian resolution, and although the Conference might not have lived up to those standards, they were nevertheless thoroughly sound.
33. Mr. SOUTO CRUZ (Portugal) said that Aer-Doc. 231 should be in Volume I, as proposed by the Steering Committee. The charts in that document had been used as a basis for the OR plan, which had been approved, and therefore they could only be in the same category of documents as the reports of the Propagation group. In Aer-Doc. 231, he had been able to find all the technical information necessary to study the Soviet proposal contained in Aer-Doc. 248, which was based on different principles from those adopted by Committee 4. Aer-Doc. 231 would be of use no matter what kind of plan was considered, and was completely independent of Aer-Doc. 298.
34. Mr. FALGARONE (France) said that certain delegations seemed to consider the principles contained in Aer-Doc. 220 and 231 as finally adopted, because the OR plan had been based on those principles. There was a contradiction involved. If administrations found these two documents in Volume I, they would infer that the principles therein contained were final, but in Aer-Doc. 298 (Resolution on the adjournment of the Conference) they would see it laid down that the principles of the plan were subject to revision.
35. Therefore there were two solutions - either to consider those documents as relating exclusively to the OR plan, in which case they ought to go into Volume 2, or they should be included in category 3 of the documents to be sent to administrations (see Aer-Doc. 298).
36. Mr. SOUTO CRUZ (Portugal) said that it could be seen from the documents of the Conference that the principles of Committee 4 had been approved; on the basis of these principles, the Propagation group had drawn up a plan. That plan, however, had only been adopted provisionally. Therefore, Aer-document 220, containing the principles approved, could not have the same status as Plan 1, and the two could not be put in the same category.

37. They had decided to introduce in Aer-Doc. 298 a paragraph asking administrations to study the principles adopted in view of the fact that no definite decision had been taken.
- As result of that, administrations might submit any number of plans to the Second Session, and if one of the plans was much the best, the Conference could adopt it, but they were justified in asking administrations to respect the principles approved.
38. Mr. SEARLE (New Zealand), agreeing, said that no motion had been put before the Conference impugning the principles of Committee 4. A study of the documents of the Conference showed that there was only one reason for adjournment: the need to get additional information.
39. Mr. FALGARONE (France) said that he would not deny the excellence of the propagation data contained in those documents. On the contrary, the charts were very sound and, as had been said, could be used to study any plan. That consideration, however, was irrelevant.
40. Aer-Documents 220 and 231 implied the adoption of certain operational principles, although it was necessary to read between the lines to discover them. It seemed to him extraordinary that those documents should be sent to administrations in Volume I, with the implication that such principles had been definitely adopted, and that at the same time, in Aer-Doc. 298, administrations were being invited to study those principles. The only logical solution would be to include Aer-Doc. 220 and 231 in category 3 of the documents to be sent to administrations.
41. Mr. SOUTO CRUZ (Portugal) said that he had not considered the principles unchangeable. Those principles had been adopted by a majority vote, and the Second Session would decide whether to keep them intact or to change them in the light of the studies to be made by administrations.
42. Mr. ARCIUCH (Poland) said that lack of information was not the reason of the adjournment of the Conference. The real reason was the lack of any spirit of compromise. Minority opinion should be fairly represented in the documents to be sent to administrations. He would therefore support the proposal made by the delegate of France.
43. Mr. de HAAS (Netherlands Indies) and Mr. Martins SILVA (Brazil) said that the reason for adjournment was lack of information on regional and domestic requirements; they would support the statements made by the delegates of New Zealand and Portugal.
44. Mr. COFFEY (Canada) said that it was clear that some distinction ought to be made between the documents relating to the R and OR plans. Aer-Docs. 302, 220, 231, were documents referring to both, and should be made into Volume I. Aer-Doc. 298 should be the introduction to a new Volume IV, containing all documents in categories 1, 2 and 3.
45. Mr. MITROVIC (Yugoslavia) said that he would call for a vote by nominal roll, in accordance with Art. 16 of the Convention.

46. The French amendment to Aer-Document 302, in favour of removing Aer-Documents 220 & 231 from Volume I and including them amongst the documents covered by Aer-Document 298, was put to the vote and rejected by 11 votes in favour to 21 against, with 1 abstention.

For :

47. People's Republic of Albania; the Bielorussian Soviet Socialist Republic; People's Republic of Bulgaria; France; Republic of Poland; French Protectorates of Morocco and Tunisia; People's Federative Republic of Yugoslavia; the Ukrainian Soviet Socialist Republic; Roumania; Czechoslovakia; Union of Soviet Socialist Republics - 11 votes.

Against :

48. The Argentine Republic; Commonwealth of Australia; Belgium; Brazil; Canada; Colonies, Protectorates, Overseas Territories and Territories under Mandate or Trusteeship of the United Kingdom of Great Britain and Northern Ireland; United States of America; Republic of Honduras; Netherlands Indies; Ireland; Italy; Norway; New Zealand; Pakistan; Netherlands, Curacao and Surinam; Portugal; Portuguese Colonies; United Kingdom of Great Britain and Northern Ireland; Sweden; Territories of the United States of America; Union of South Africa and the mandated Territory of South West Africa - 21 votes.

Abstentions :

49. Overseas Territories of the French Republic and Territories administered as such.
50. It was agreed to make a Volume IV of Aer-Document 298 and the documents listed in the 3 categories of that document.
51. Mr. LALUNG-BONNAIRE (Overseas France), suggested that the 3 lines on page 2 of Aer-Doc. 302 "Technical and Operational principles admitted for the establishment of the plan for the allotment of aeronautical mobile frequencies", be amended to read: "Technical and operational principles utilized for the establishment of a plan for the allotment of aeronautical mobile OR frequencies, and for the draft R plan."
52. This amendment was unanimously adopted.
53. Mr. FALGARONE (France) proposed that as the new Volume IV would contain all documents relative to the R plan, it be renamed Volume III, and that the present Volume III should become Volume IV.
54. This amendment was unanimously adopted.
55. Mr. JAROV (U.S.S.R.) said that the Steering Committee had agreed to give special prominence to Aer-Document 298. If that were not done the report would read more like a final than a provisional one.
56. Either the preamble should be expanded or Aer-Document 298 should be used as a preface to the entire report.

57. The CHAIRMAN said that Aer-Document 298 was to have been included in Volume I, but had been relegated to Volume III by vote of the Plenary Meeting. It would be sufficient if, to give effect to the Steering Committee recommendation, the Secretary-General were to address a letter to all administrations, indicating that the reasons for adjournment of the Conference were given in full in Volume III. It would be sufficient if the Chairman were to compose a very short letter to the Secretary-General asking him to take this action.
58. Mr. JAROV (U.S.S.R.) said that the preamble should be enlarged to show the difficulties the Conference had had to face.
59. Mr. FALGARONE (France) said it would be advisable not to touch the preamble, which was already long, but to join Aer-Document 298 to the letter of transmittal, at the same time keeping it in Volume III.
60. It might be well to modify the last paragraph but one in the preamble by an extract from the Final Report of Committee 6.
61. Mr. JAROV (U.S.S.R.) proposed that pages 4, 5, 6, 7 of Aer-Doc.302 should be summarized in 1 or 2 pages. Pages 7 and 8 would be left, and page 9 should be enlarged by extracts from Final Report of Committee 6, to be determined by Committee 6 itself.
62. This proposal was adopted.
63. Aer-Document 302, as amended, was adopted.

The meeting adjourned at 11.30 p.m.

Chairman :

Arthur L. LEBEL.

AMENDMENT

received in Geneva on November 9th, 1948,
from Mr. MITROVIC (Yugoslavia)

Paragraph 56 : ("Mr. MITROVIC (Yugoslavia) said that he would reserve the position of his administration. The Yugoslav delegation had never agreed to delegate signature of the plan to anybody else),

should be replaced forthwith by the following text :

"Mr. MITROVIC (Yugoslavia) said that he would reserve the position of his administration in connection with the French resolution. Furthermore, the Yugoslav delegation had never agreed to delegate signature of the plan to anybody else."

SUMMARY RECORD OF THE 20th PLENARY MEETING

held in the Maison des Congrès, Geneva,
on Thursday, September 23, 1948, at 2.45 p.m.

Chairman: Mr. Arthur L. LEBEL (United States of America)

RECOMMENDATIONS AND RESOLUTIONS ADOPTED BY THE CONFERENCE
(Addendum to Aer-Doc. 272)

1. Recommendation on use of aeronautical mobile R frequencies for the aeronautical fixed service.
2. This resolution was unanimously adopted.
3. Recommendation to the P.F.B. on frequency assignments to stations in the aeronautical fixed service.
4. Mr. WHITE (United States of America) said that at a previous meeting, it had been decided to delete the phrase "At least 15 kc/s if possible". That phrase seemed to have been restored to the text. His delegation would not object, but thought that a lesser figure might be satisfactory.
5. Mr. PETIT (I.F.R.B.) said that he had proposed the deletion of that particular phrase. Later, he had come to the conclusion that he had not fully understood the United Kingdom proposal, and had agreed to restore these words to their original position.
6. Mr. LALUNG-BONNAIRE (Overseas France) suggested that a better wording would be as follows : "(approximately 15 kc/s if possible)".
7. This amendment was adopted.
8. Recommendation concerning the use of Forms 1 and 2, submitted to the P.F.B.
This recommendation was unanimously adopted.
9. Recommendation on the repetition of frequency assignment for the aeronautical mobile service.
10. This recommendation was unanimously adopted.
11. Resolution on cooperation between I.T.U. and I.C.A.O.

12. Mr. BETTS (Australia) said that paragraph (a) of the recommendation had originally read : "that each organization be automatically invited to attend without right of vote at meetings where matters of common interest will be studied." This had been replaced by the following : "that each organization notify the other of those of its conferences..." The Editorial Committee had made a change of substance which he could not accept.
13. Mr. PETIT (I.F.R.B.) said that the procedure by which international organizations should be invited to an ITU Conference was clearly laid down in Chapter 2, paragraphs 5 and 6 of the General Regulations of Atlantic City. It was for each conference to admit representatives of an organization. Therefore, it was not for the Administrative Council, which was bound by the Convention, to give a conference the authority to invite an international organization. In fact, however, the Administrative Council had taken upon itself to invite I.C.A.O. to send a representative to the Conference, but this invitation had been issued under rather abnormal conditions, since the Atlantic City Convention had not yet come into effect.
14. The CHAIRMAN said that the Conference was entitled to express an opinion on whether or not I.C.A.O. should be invited to attend. Adoption of the resolution would not constitute a legal breach of the Convention since this was a recommendation. In order to clear that point, however, it would be well to add to para. (a) the words : "subject to Chapter II, page 61 of the Atlantic City General Regulations."
- It was agreed that para. (a) of the recommendation should be amended to read : "that each organization be automatically invited to attend without right of vote at meetings where matters of common interest will be studied, subject to the provisions of Chapter II, page 61 of the General Regulations of Atlantic City."
15. Mr. ARCIUCH (Poland) said that his delegation had made reservations with regard to cooperation between ITU and ICAO, which were to be found in Aer-document 292 (thirteenth Plenary Meeting). His administration would reserve its position with regard to this resolution.
16. Mr. MITROVIC (Yugoslavia) said that he would maintain the reservations he had made on this question at the thirteenth Plenary Meeting (Aer-doc. 292).
17. Mr. KITO (Albania) said that at the thirteenth Plenary Meeting, his delegation had been represented by Yugoslavia, and he would associate himself with the reservations then made by the Yugoslav delegation.
18. Mr. BODEAGA (Roumania) said that he would renew the reservations he had made at the thirteenth Plenary Meeting (para. 37 of Aer-document 292).
19. Mr. JAROV (U.S.S.R.) said that his position on this question remained unchanged. His delegation would renew the reservations already made when this resolution was discussed at the 13th Plenary Meeting.

20. Mr. HARIZANOV (Bulgaria) said that his administration would reserve all its rights in this matter.

PLAN FOR THE ALLOTMENT OF AERONAUTICAL MOBILE OR FREQUENCIES (Aer-Document No 300).

21. Mr. DURLAND (Cuba) said that at the ninth Plenary Meeting, the delegate of Ecuador had protested that the requirements of certain countries had been neglected, in spite of the fact that they had duly submitted their requirements at Atlantic City. The delegation of Ecuador considered that the whole question of frequency allotment in the South American Region should be dealt with at Bogota in 1949, and would reserve its rights with regard to the plan produced by the Conference (See Aer-document 222).
22. Mr. SCHWERTER (Chile) said that the delegation of Uruguay wished to state that it would maintain the reservations it had made with regard to Aer-document 204 (Draft plan for allotment of OR frequencies) at the ninth Plenary Meeting (para. 22 and 23 of Aer-document 222).
23. Mr. FURZE (Australia) said that he had no authority to speak on behalf of the Egyptian delegation, but the delegate of Egypt had made reservations on Aer-document 204, and it was probable that he would have wished to renew them with regard to Aer-document 300. That reservation would read as follows :
24. "The Egyptian Royal Government desires to direct attention to the list of countries shown in Aer-document 300, as far as "Suez Canal Zone/UK" requirements are concerned, and to their intention to make, at the Special Administrative Conference, to approve the new frequency list, a formal reservation in this matter so far as their sovereign rights to regulate telecommunications in Egypt are concerned."
25. Mr. COFFEY (Canada) submitted a statement in the following terms : "The aeronautical mobile OR frequency allotment plan lists certain frequencies for Newfoundland (U.S.A. stations) and Labrador (U.S.A. stations). The Canadian Government reserves all rights with respect to any use of these frequencies in Newfoundland and Labrador after Newfoundland becomes a part of Canada."
26. Mr. WHITE (United States of America) submitted a statement in the following terms : "The United States accepts the OR frequency allotment plan but only subject to conditions that there be subsequent negotiations by the Governments of Region 2 as to matters affecting solely Region 2 for further adjustment of OR frequencies and subject further to the conditions that the plan may be reviewed at any time prior to final acceptance by the Special Administrative Conference."
27. Mr. de CALAN (France) proposed a motion in the following terms : "This Conference recognizes that Aer-document 300 (Frequency Allotment plan for the aeronautical mobile OR service) has been unanimously approved, apart from reservations made by Egypt, Uruguay, and Ecuador, and consequently

decides to transmit it forthwith, together with the assignment table drawn up by the Ad Hoc Group, to the P.F.B., for incorporation in the draft international frequency list."

28. Mr. JAROV (U.S.S.R.) said that he could not agree to approval of Aer-document 300 at the present time. The document could only be given final approval when all the results of the Conference were approved, at the second session. Hence he would object to sending Aer-document 300 to the P.F.B.
29. Mr. SOUTO CRUZ (Portugal), Mr. WHITE (United States), Mr. ROWLAND (United Kingdom), Mr. de HAAS (Netherlands Indies), and Mr. Martins SILVA (Brazil) supported the French motion.
30. Mr. FURZE (Australia) said that in Aer-document 302, which had been adopted by the Plenary Meeting, it had been proposed that the final OR plan should be inserted in Volume II of the documents to be sent to administrations, and he could not see why Aer-document 300 could not constitute that final plan.
31. If the plan were not finally adopted, it would mean that administrations would be obliged to send OR experts to the second session of the Conference. This was unnecessary, since the plan had already been agreed to by the OR specialists of those countries interested in OR communications.
32. Mr. SEARLE (New Zealand), supporting this statement, said the OR plan had been generally approved by the OR specialists at the Conference, and there was little reason not to regard it as final. It would of course still be subject to review by the Special Administrative Conference. Administrations would be put to much unnecessary expense if they were forced to send OR experts to the second session.
33. Mr. PETIT (I.F.R.B.), speaking as Vice-Chairman of that body, said that according to a decision taken by the Administrative Council, the Special Administrative Conference was to convene on the 17th October, 1949. The material work involved by the preparation of the P.F.B.'s frequency list would be enormous - he might point out that for the 700 kc/s of the aeronautical mobile service, the lists prepared by the Ad Hoc Group contained no less than 28000 lines. For these reasons, the P.F.B. was very anxious to receive any new material as early as possible.
34. Mr. LURASCHI (Argentina), supporting the French motion, said that its adoption would greatly facilitate the work of the P.F.B.
35. Mr. JAROV (U.S.S.R.) said that his delegation agreed with the plan for OR frequency allotment, but it would be wrong at this stage, before the Conference had finished its task, to send only part of its results to the P.F.B.

36. Mr. FURZE (Australia) said the only possible reason he could imagine for not transmitting this plan to the P.F.B. would be some future amendments to it. If the plan was complete, and he understood that the Soviet delegation had no objections to it in itself, he could not understand why it should not go forward.
37. Mr. JAROV (U.S.S.R.) said that his reasoning was simple. The task of the Conference was to allocate frequencies to the aeronautical mobile services. The work of the Conference was only partly finished. Therefore, as a matter of principle, he could not admit that some decisions should be adopted at this time, before final decisions had been taken on the work of the Conference as a whole.
38. Mr. ARCIUCH (Poland) said that the results of the Conference should be considered as an integral whole. The Soviet delegation obviously recognized that fact, and therefore he would support the statement just made, and vote against the resolution proposed by the French delegation.
39. Mr. MITROVIC (Yugoslavia) supported the statement made by the delegate of the Soviet Union.
40. Mr. JOUK (Bielorussian S.S.R.) said that the expression "unanimously approved" was inappropriate, and should be replaced by "accepted".
41. Mr. de CALAN (France) said that he would agree to modify his proposal by substituting "accepted" for "unanimously approved".
42. The French resolution thus amended, was put to the vote and adopted by 22 votes to 11, with 2 abstentions.
43. Mr. BETTS (Australia) said that South Africa had abstained from voting.
44. Mr. DURLAND (Cuba), and Mr. SCHWERTER (Chile), on behalf of the delegations of Ecuador and Uruguay, said that those delegations had voted against the motion.
45. Mr. HARIZANOV (Bulgaria) said that the delegation of the People's Republic of Bulgaria had voted against the motion. The tasks of the Conference had not yet been completed, and to transmit Aer-document 300 to the P.F.B. would therefore be premature.
46. Mr. KITO (Albania) said that the second session of the Conference would in any case be held after the P.F.B. had finished its work. There was no point in sending only part of the results of the Conference to the P.F.B. at that stage, and he had therefore voted against the motion.
47. Mr. BODEAGA (Roumania) said that to forward only part of the plan of frequency allotment was irregular; he had voted against the motion, and his administration would reserve its position on this subject.

48. Mr. JAROV (U.S.S.R.) said that the Soviet delegation strongly objected to forwarding the OR plan to the P.F.B. at this stage. Since the Conference had not completed its work and in contravention of the Rules of Procedure, the plan had not been signed by the delegations, it could have no operative force of any kind.

49. The Soviet delegation reserved the rights of its administration with regard to this plan until such a time as the second session of the Conference had produced final results.

50. Mr. ROWLAND (United Kingdom) on behalf of Pakistan and Ireland, said that these two countries had abstained from voting.

51. Mr. MITROVIC (Yugoslavia) :

"The delegation of the People's Federalativ Republic of Yugoslavia objects to sending to the P.F.B. the OR plan, has voted against the French resolution, and reserves all the rights of its administration until such time as the second session of the Conference has produced the final plan for the whole of the aeromobile service."

52. Mr. ARCIUCH (Poland) said that he had voted against the resolution, and would reserve the rights of his administration.

53. Mr. MITROVIC (Yugoslavia) said that it had been agreed in a former meeting that the final plan would be signed by all delegations before being transmitted to the P.F.B.

54. The CHAIRMAN said that, within its terms of reference, the Conference was an autonomous assembly, and could reverse previous decision by implication from subsequent action.

55. Mr. ROWLAND (United Kingdom) said that his delegation had no strong views on the question of signature. It seemed to him that the OR plan was one part of the final results of the Conference, and therefore the question of signing it at this stage was of no particular importance.

56. Mr. MITROVIC (Yugoslavia) said that he would reserve the position of his administration. The Yugoslav delegation had never agreed to delegate signature of the plan to anybody else.

57. The CHAIRMAN said that the meeting had given no one the right to sign. It had merely directed that the document in question be transmitted to the P.F.B.

THE PROBLEM OF ALLOCATION OF MEDIUM FREQUENCIES (Aer-Document 62).

58. The CHAIRMAN said that very early in the Conference it had become obvious that a serious problem existed with regard to the use of medium frequencies. The Conference, trying to help, had decided to act, although,

strictly speaking, the problem did not come within its terms of reference. The chief reason for this decision, at the time when it was taken, was that the Administrative Council would normally take action, but was not due to meet before September. At the time, that date had seemed very distant. Now, however, the Administrative Council was in session, and if the Conference were to continue with this matter, it might be encroaching on that body's jurisdiction.

59. Mr. ROWLAND (United Kingdom) said that the Steering Committee, in Aer-document 287, had agreed to refer this matter to the Administrative Council.

60. They should however try to make a recommendation to the Administrative Council. They might, for example, recommend the holding of an I.T.U. Region I conference, or of an I.T.U. European conference. He understood that the Conference which was to have been held in Oslo would now be held in Geneva, in April 1949, and it might be well to take advantage of that.

61. Mr. FALGARONE (France) said that they could not leave the question open. The least that could be done would be to make some sort of recommendation to the Administrative Council. An even better solution would be for the European delegates to the Conference to hold an unofficial meeting in order to make some suggestions to the Administrative Council.

62. Mr. OOMEN (Netherlands) fully agreed with the statement made by the delegate of the United Kingdom.

63. Mr. ROWLAND (United Kingdom) suggested that the relevant document be passed to the Administrative Council, with the recommendation that this problem be put on the agenda of the Conference which would be held in Geneva in April 1949. It was almost certain that there would be an I.C.A.O. Conference before that date. The Member States might therefore be able to coordinate their requirements at that time.

64. Mr. COFFEY (Canada) said that this problem had been brought to the attention of the Administrative Council, and consideration was being given to whether it should be placed on the agenda of the Region I meeting. A formal recommendation would be quite sufficient.

65. Mr. FALGARONE (France) suggested that the whole matter be simply deleted from the agenda of the Conference.

66. It was agreed that the medium frequency problem should be withdrawn from the agenda of the Conference.

CREATION OF AN INTERIM SECRETARIAT (Aer-Document 307):

67. Mr. WHITE (United States of America) said that his delegation, in response to opinions expressed in Committee 6, had produced a proposal for the creation of an interim Secretariat (Aer-Document 294). That had now been

revised by a Working Group of which Mr. Bartlett of the United States delegation had been a member and republished as Aer-document No 307.

68. Mr. BARTLETT (United States of America) said that the Assistant Secretary-General, in the course of informal discussions, had said that a need existed for a group of aeronautical experts to deal with the complicated problems likely to arise during the recess. The Assistant Secretary-General had pointed to the action taken by the High Frequency Broadcasting Conference of Mexico City, which had appointed a small ad hoc group to carry on its interim work.
- It was proposed that a similar ad hoc committee should be appointed for the period ending July 1, 1949, when the Conference would reconvene.
69. Adoption of the proposal would not commit administrations to the estimated cost, which would be for the Administrative Council to decide.
70. The terms of reference would be, first, those tasks laid down in Aer-Document 298. The Ad Hoc Committee would handle, for the Secretary-General, matters relating to the aeronautical Conference. He had been given to understand that the office of the Secretary-General would not be able to undertake this task, due to pressure of other work. The Group would assemble documents, collect studies made by administrations, and prepare a draft agenda for the second session. It would see that appropriate facilities were made available to the Conference when it reconvened; it might consider shortened procedures and make recommendations on this point. The Group considered that the estimated expenditure of 108,000 Swiss francs would be amply repaid by greatly shortening the length of the second session.
71. It had also been suggested that the Committee might suitably carry out, or arrange for administrations to carry out, certain technical experiments - perhaps experiments in antenna designs - in Europe. The resulting expenses would not be borne by the Conference.
72. Mr. JAROV (U.S.S.R.) asked what would be the precise functions of the Group apart from purely secretarial duties.
73. Mr. BARTLETT (United States of America) said that these duties had been listed in paragraph 6, sub-paragraphs (a) to (e) inclusive. Besides drafting an agenda for the second session, the Group would be usefully employed passing information from one region to another and performing coordinating work in connection with the number of informal regional meetings to be held.
74. With regard to the members of the Group, he had made informal inquiries. Some interest had been aroused by the proposal, and he thought that there would be no difficulty in finding the two people required. Perhaps one representative for Western Europe might be appointed and one from some other area.
75. It was probable that the cost of this Group would have to be shared as extraordinary expenses amongst the countries represented at the Conference.

76. Mr. COFFEY (Canada) said that his delegation did not consider that such services were greatly needed. The expenses would amount to perhaps 10,000 Swiss francs for a country in class I, and this might be difficult to justify.
77. Mr. JAROV (U.S.S.R.) said that obviously there would be a period of extra work immediately after the Conference, when documents would have to be prepared and sent off to administrations. It might be possible to justify the expenses that would be involved by such a group, but only for a few weeks. Further secretarial work could suitably be entrusted to the secretariat of the P.F.B. This solution would be all the more attractive, in that the aeronautical Conference would be represented within the P.F.B.
78. For these reasons, he would support the statement made by the delegate of Canada.
79. Mr. SUNDARAM (India) said that they had been given to understand that certain functions which the Secretariat was not in a position to discharge would have to be carried out by the group. According to the terms of reference in para. 6 it seemed that the group would be called upon to dispose of the secretarial work left behind by the first session of the Conference, and to prepare the ground for the second.
80. Article 9, para.2.c. of the Atlantic City Convention said very clearly that exactly such duties came within the province of the General Secretariat. If staff was inadequate, it was for the Secretary-General to approach the Administrative Council, in order to get it increased.
81. Mr. BARTLETT (United States of America) said that the duties of which he had been speaking exceeded the terms of article 9, para. 2.d. of the Convention. Apart from the purely mechanical assembling of documents, there was a good deal of analytical work which ought to be done. He had been given to understand by the Assistant-Secretary General that the existing Secretariat would not be sufficient to cope with this.
82. The High Frequency Broadcasting Conference had done what was being suggested in Aer-Documents 307. It was true that the group appointed by that Conference was appointed for a shorter period; but it was equally true that its duties were not as complicated as those of the group it was here proposed to create.
83. Mr. MITROVIC (Yugoslavia) thought that the best solution would be to confine such work to the P.F.B. The P.F.B. would be in continual session during the recess, and members would be able to give useful advice.
84. Mr. PETIT (I.F.R.B.) said that as the I.F.R.B. was independent of the General-Secretariat, he would take no part in the discussion. As to the suggestion that all this work should be given to the P.F.B., he would have to point out that according to a decision just taken by the Administrative Council, the P.F.B. was expected to finish its work on the 17th of May 1949.

85. Mr. FALGARONE (France) said that the actual work of dispatching documents to administrations was a part of the normal duties of the General Secretariat (Article 9, para. 2.c. of the Convention of Atlantic City).
86. He could not believe that the body it was prepared to set up would have much to do. Between now and the 1st of July 1949 was quite a considerable period, and it was very unlikely that administrations would submit anything concrete much before that date.
87. As to the carrying out of technical experiments, he thought that the best experiment was that of actual operation, and in that respect, the soundest advice would come from administrations.
88. For these reasons, his delegation considered that the proposed group was unnecessary.
89. Mr. SUNDARAM (India) said that the preparatory work to which reference had been made would largely consist in analysis of the documents which would be forwarded by the smaller regional conferences, and it was unlikely that those documents would arrive in any volume before the second session.
90. Mr. de HAAS (Netherlands Indies) said that the creation of such a group might mean that expenses of the second session would be reduced.
91. He thought that the group might be usefully employed in obtaining concrete data on service and interference ranges of stations operating in the lower megacycle orders. One of the major difficulties they had experienced was that requirements in those orders were particularly heavy. It might be that the actual repetition distances (for an antenna power of 200 watts) might be much lower than those on which the Conference was basing its calculations. Therefore, he favoured the proposal.
92. Mr. COFFEY (Canada) said that he would be prepared to endorse any recommendation that might be sent to the Secretary-General requesting that adequate staff be provided. As to the technical experiments, they might be useful, but administrations might be advised to conduct such experiments themselves.
93. Mr. ARCIUCH (Poland) said that para. 6 was couched in very general terms, and it was not clear who would have the supervision of such work as might be done by the group.
94. Mr. HARIZANOV (Bulgaria) said that the work of this group would seem to replace the work which would normally be done by administrations and by the C.C.I.R. The expenses involved would be difficult to justify, and therefore he would support the statement made by the delegate of France.
95. Mr. FALGARONE (France) said that there seemed to be very little support for the idea that the group should be charged with technical experiments.

There would be some work to be done before the second session, but the best way of doing that would be to set up a preparatory committee similar to the one which had sat before the first session.

96. Mr. BARTLETT (United States of America) said the group had submitted its proposal merely in order to be helpful in a practical way. The Conference would have to give the proposal its full support if it was going to be of any practical value.
97. Mr. BETTS (Australia) said that in the discussion on Aer-document 200, his delegation had made certain suggestions for a recommendation to the Administrative Council on a body which would maintain liaison with administrations during the recess. He had no strong views on the subject, but he thought that unless efficient preparatory work was done before the second session, that session might be very long and expensive. He was particularly impressed with the views expressed by the delegate of India and believed that it would be best in the circumstances to frame some recommendation to the Secretary-General mentioning the work which had to be done.
98. The CHAIRMAN said that it was inconsistent to object to the expense involved by the presence of one or two people over a period of several months and to advocate at the same time the creation of a preparatory committee, comprising perhaps 15 members, which would be expected to work for a month before the second session.
99. Mr. COFFEY (Canada) said that Mr. Betts might perhaps draft a paper drawing the attention of the Secretary-General to the need for appropriate liaison work during the recess. The delegate of the Netherlands Indies had made some interesting suggestions on technical investigations which might be carried out. He (Mr. de Haas) might draft a paper calling the attention of administrations to this point.
100. Mr. ROWLAND (United Kingdom) said that "there appeared to be a wide divergence of opinion as to the need for the creation of such a group. Having heard all the views expressed he, for one, would like a little more time in which to consider the matter. He would recommend therefore that no decision be taken before the next Plenary Meeting.

The meeting adjourned at 7.00 p.m.

Chairman :

Arthur L. LEBEL

25 September, 1948

SUMMARY RECORD OF THE 21st PLENARY MEETING

held in the Maison des Congrès,

GENEVA

On Friday, September 24, 1948, at 2.40 p.m.

Chairman : Mr. Arthur L. LEBEL (United States)

CONTINUATION OF THE DISCUSSION ON THE PROPOSAL OF THE WORKING PARTY
(Aer-Doc. 307)

1. Mr. BETTS (Australia) "said that at the preceding meeting he had suggested that a recommendation be sent to the Secretary-General in connection with the work to be done during the recess. As instructed by the Plenary Assembly he had prepared a draft recommendation. He believed that it would be necessary for the Conference as a whole, to be in agreement with the two central thoughts expressed in the opening paragraph of the recommendation, and would submit this para. only at this stage. If the Conference could not agree with the central thought in the para. he considered that the matter should be dropped and would not be prepared to proceed further with the proposal. The following text of the opening para. was then submitted":
2. "That the Secretary-General be advised that the Conference considers that there is likely to be a considerable amount of continuing follow-up action with administrations and specialised agencies during the recess, if all essential preparatory work is to be completed prior to the re-convening of the Conference".
3. Mr. BARTLETT (United States) said that he would support this suggestion, and withdraw his own proposal in favour of it.
4. Mr. SEARLE (New Zealand) said that he fully agreed with the wording of the text.
5. Mr. FAUGARONE (France) said that he could not agree. The "considerable work" to which reference had been made in the course of the discussion would in fact remain to be done, but it would not be that which was mentioned in Aer-Document 307. It would consist in the despatch of documents to administrations. When that had been done, there would be nothing else to do, unless it was proposed to turn the Secretariat into a new CCIR. Nor would there be any preparatory work before the second session, for the simple reason that no documents would arrive from administrations before the date already set.
6. The proposal was extraordinarily vague. If a paper was to be sent to the Secretary-General, it should at least contain some precise suggestions.
7. Mr WHITE (United States) said that the text was no more than an introduction to a more specific proposal.



8. There would be a great deal of correspondence to be handled during the recess. If it were not attended to, the second session would find itself overwhelmed with work and the working parties which would have to deal with it would waste a fortnight on the task.
9. Mr. OOMEN (Netherlands) fully agreed with the Australian proposal.
10. Mr. COFFEY (Canada) said that he agreed in principle. But it might be sufficient if the Secretary of the Conference were requested to bring the matter to the Secretary-General's attention. It was customary for the General-Secretariat to do the preparatory work of conferences.
11. Mr. JAROV (USSR) said that the discussion was a waste of time. It was true that there would be a good deal of work for a few weeks after the end of the Conference, but after that there would be nothing for a special group to do.
12. The CHAIRMAN, interposing, said that there was no question here of setting up such a body. Apparently all that Mr. Betts wanted to know was whether or not the Conference felt that the Secretary-General should be warned that much work would be required.
13. Mr. KITO (Albania) said that his was a small country grievously damaged by the war, and they had a duty towards such countries when considering anything that might involve extra expenditure. He could not agree that a special group was needed for work during the recess, and would vote against its creation. The work involved could be performed by the PFB, and after the end of the PFB, by the General Secretariat. If the General Secretariat was under-staffed, some PFB personnel might be re-engaged.
14. A preparatory committee would be unnecessary. It was true that such a committee had done useful work before the first session, but the second session was merely a continuation of the first, and as such would not need similar preparatory work.
15. A preparatory committee had been created for the Copenhagen Conference, but in spite of costing 200,000 Swiss francs, it had not been of much assistance to the Copenhagen Conference.
16. Mr. ROWLAND (United Kingdom) said that much time would be saved when the Conference re-convened if the original proposal contained in Aer-Documents 307 had been carried into effect. But there seemed to be much suspicion towards the group proposed, and there was no point in continuing discussion unless agreement could be reached.
17. In these circumstances they ought to stop discussion, and carry out the suggestion made by the delegate of Canada. However, he would like to pay a tribute to the United States delegation for a proposal which, had it been put into effect, would certainly have saved some money. It was all the more regrettable that this proposal had not been adopted since the major problems of frequency allotment concerned European countries which were least able to bear extra expense.
18. Mr. SOUTO CRUZ (Portugal) agreed in principle with the Australian proposal. All that it said was that work remained to be done.

19. Mr. MITROVIC (Yugoslavia) said that there would be some work to be done immediately after the Conference, but only for a few weeks, and could suitably be done by the Secretariat.
20. Mr. JOUK (Bielorussian S.S.R.) said that any work remaining after the Conference could be performed by the General Secretariat, and no special communication need be made to the Secretary-General.
21. The CHAIRMAN observed that the opinions expressed were fairly equally divided, the United States, Australis, New Zealand, United Kingdom, Portugal, and the Netherlands having declared themselves in favour, and the Soviet Union, Yugoslavia, France, Albania and Bielorussia having declared themselves against.
22. Mr. BETTS (Australia) said that he would withdraw his proposal.
23. APPROVAL OF MINUTES OF THE FIFTEENTH PLENARY MEETING (Aer-Document 308)
24. This document was unanimously adopted.

The meeting adjourned at 3.30 p.m.

Chairman :

Arthur L. LEBEL

September 28, 1948

SUMMARY RECORD OF THE 22ND PLENARY MEETING

held in the Maison des Congrès, Geneva,
on Saturday, September 25, 1948, at 2.45 p.m.

Chairman : Mr. Arthur L. LEBEL (United States of America)

RESOLUTION ON THE TEMPORARY SUSPENSION OF THE WORK OF THE CONFERENCE.
(Aer-Document 313)

1. Mr. BETTS (Australia) :

"In connection with para. 8 of Aer-Document 313, in view of the importance which seems to be attached to this paragraph, and certain statements made both in Committee 6 and the Plenary Assembly and records entered in the minutes the Australian delegation wishes to make its position clear.

2.

"As was explained in the discussion prior to the adoption of the amendment, it was the view of the Australian delegation that it was not unreasonable to include in the preamble an appropriate lead-in to paragraphs 4.2, 6.1.2 and 6.2 of Aer-Document 298, in which an invitation is extended to administrations to submit proposals regarding the principles and methods which may be used in the development of the final frequency allotment plan.

3.

"However in order to avoid any misunderstanding, the Australian delegation wished to stress that it does not hold the view that the principles used in developing the draft plan will necessarily have to be changed before it will be possible to prepare the final plan. Indeed the delegation still holds the view that the main reason for the inability of this Conference to complete its work at this time is the non-availability of essential information regarding the regional and domestic operations in certain areas coupled with the belief that the basic data required will not be available until further planning and coordination has been completed in the regional and domestic air route areas. This view has already been explained both verbally in Committee 6 and in Aer-Document 200 which has been in the hands of delegates now for some two months."

4. Mr. Souto CRUZ (Portugal) :

"The Portuguese delegation stated several times in Committee 6 and in Plenary Meetings that the lack of information in regard to the domestic services has been the main reason but not the sole reason for the failure of the implementation of the R frequency allotment plan. The other reason was the impossibility of reaching unanimous agreement in regard to the technical principles approved by the Conference.



5. "Since the very beginning of our work several delegations had refused to be bound by the principles adopted by the majority and have continually, even in technical matters, contrary (in our view) to the spirit of Rule 18 of the General Regulations annexed to the Convention of Atlantic City. This spirit persisted throughout the Conference in spite of concessions which were made to the minority view point.
6. "The Portuguese delegation respects their view points and realises how strong they feel about the rightness of their conceptions. However, my delegation feels that as we are working on a world-wide plan, only world-wide standards must be used and we all realise how difficult it would be to reach unanimous agreement in all the necessary standards used in drafting a plan.
7. "We have spent here months of continuous and hard work to finish plan 1. To re-start our work several times using the various standards suggested by the various delegations, which constitutes a minority in this Conference, seems to us an enormous, impossible and useless task. (It would still be no good because we have not got the coordinated domestic data.)
8. "A few days ago, the Conference decided on the final draft of Aer-Document 298. In voting for the inclusion of paragraph 7 b of the preamble it was the main desire of the Portuguese delegation to give the administrations that wish to produce draft plans based on different standards and methods the opportunity of doing so, in order that at the re-convening of this Conference, complete plans may be available for full discussion.
9. "The Portuguese delegation strongly believes in the rightness of the standards adopted by the Conference. This was the reason why our delegation devoted since the beginning all their time to the propagation group that produced plan No. 1. This was the reason why our delegation devoted the few hours of their spare time to the study of the suggestions contained in Aer-Document 248.
10. "The Portuguese delegation is ready to take part in all discussions about new plans that can be produced. It is their feeling that no more suitable, more flexible, more technically sound plan can be adopted, but this delegation is also ready to change their mind if the technical ingenuity of one administration is able to produce a better plan.
11. "In any case the Portuguese delegation is ready to accept any plan that is approved by the majority of delegations because it is their feeling that only by international cooperation and mutual understanding we may achieve our common aim : progress and security of operations in all kinds of the civil aeronautical services."
12. Mr. ARCIUCH (Poland) :

"In the past period of the work of our Conference, we have had much discussion on the different subjects in which technical or principal as well as other questions were involved.

13. "All this was done in order to find a proper solution of the problem in which we were all most interested - and this is mainly the problem of frequency allotment for the purposes of air transport radio communications.
14. "Also in the past, when it was time to give a straight answer to the simple, purely technical questions, we heard on many occasions that the problem could be solved in the future, but not immediately, because as some members from the majority side of the Conference mentioned, they had no "crystal ball" with them. In that case we laughed, as it was just a joke.
15. "In my opinion, this mysterious "crystal ball" appears at the end of our Conference as Aer-Document 298. This document, in its final and revised form, is now Aer-Document 313.
- "At the time being, after carefully reading Document 313, I cannot see any substantial changes in it in comparison with Aer-Document 298. In this case I would like to make my position clear in regard to Aer-Document 313. My objections are :
16. a) I do not agree with the opinion given in paragraphs 5 and 6 of the considerations of Aer-Document 313 that a lack of certain essential information in regard to the regional and domestic service requirements is the certain reason for the failure or recess of our Conference. The certain reason was a lack of the sense of compromise and fixed amounts for the Major World Air Route Areas.
17. b) I think, also, that point c of para. 15 of Aer-Document 313 would in future give further priority to Major World Air Route problems over regional or domestic ones.
18. c) The same applies to the third part of para. 16 in which are stated demands for some additional information, mainly from the regional and domestic side and its intention is firmly to establish in our administrations the belief that this information, at the proper time, was insufficient, improper and unsatisfactory and that this is the certain reason for the recess of the Conference.
19. "But how those important requirements and information were treated, we know from the Plenary Session of Committee 6, held on September 24, when it was disclosed that the document containing all that information for the Regions was simply ... lost. May be it will be established but facts speak for themselves.
20. "More, we tried to supply the Conference with the best informations which we can get. Three times in the course of the Conference we revised our requirements for Poland. We reduced them to the minimum. We were prepared, even, to adopt a new organization of our mobile radio communication service in order to make those minimum requirements real ones. We work in Geneva as delegates, but at the same time a considerable body of specialists worked in our administrations to help us. This costs time and money. The same was done by the

other delegates. And what are the results? The recess of the Conference. I would like to ask if a similar sacrifice was made by the Major World Air Route Areas?

"May be we cannot accept a proper solution if we based our work on the principles adopted, but it is clearly to be seen that it cannot be made a solution at all if the majority does not want to adopt a compromise. But this must be said clearly and in a proper form."

21. Mr. QUIJANO (Colombia) said that he did not entirely agree that it was necessary to adjourn the Conference at this stage. However, he would bow to the wishes of the majority.
22. He had no desire to reopen questions that were already decided. He had however carefully studied paragraph 8 of Aer-Document 313. It seemed that administrations were being invited to send in draft plans for the Second Session. The Conference, when it re-convened, might be faced with a bewildering number of conflicting proposals.
23. It seemed to him that paragraph 8 would merely serve to confuse administrations. The document was sufficiently explicit without it. He would therefore move that it be deleted.
24. Mr. SEARLE (New Zealand), seconding :

"The New Zealand delegation re-affirms its views that paragraph 8 of Aer-Document 313 is not a true reason for the Conference's adjournment. The reason for adjournment is a lack of coordinated information in respect of regional and domestic frequency requirements and this was visualised in the Brazilian motion for adjournment (Reference Documents 277 and 288).
25. "It is a natural sequence only, that the opportunity should be taken in the recess for a re-examination of principles; both those approved by the Conference and those not approved. This however is not a reason for adjournment in the New Zealand view.
26. "The principles adopted are sound ones and in conformity with modern requirements. The principle of providing bandwidths necessary for all types of radio communications was visualized in the Preparatory Committee and confirmed by the Conference, for all types of service. It was also visualised in the French plan for regional services. (Reference Aer-Document 30, paragraph 10 b). That such principles were good was not questioned either in the Australian proposal or in the French proposal concerning the procedure to be followed in drafting a frequency allotment plan (Reference docs. 200 and 228).

"In fact the French proposal states that regional conferences should use as a basis for their work the same technical rules and standards on the distribution and repetition of frequencies as were used in the draft plan for the Major World Air Routes. (Reference Aer-Doc. 228, page 3, paragraph 2 e).

27. "The New Zealand delegation favours the re-examination of all the work of the Conference in the recess, and visualised the fact that some slight changes may be made. However without the coordinated data in respect of frequency requirement, no safe and well engineered plan could satisfy the present demand. Therefore the demand has first to be re-examined.
28. "New Zealand will vote for the deletion of para. 8 of Aer-Doc. 313, but will otherwise support the document."
29. Mr. ROWLAND (United Kingdom) :
- "United Kingdom delegation is still one of the opponents of the inclusion of paragraph 8 in Aer-Doc. 298, now renumbered Aer-Doc. 313. Its reasons for so doing have already been stated but it might be well to repeat them. They are as follows:
- Firstly, the paragraph contains implied inaccuracies.
- Secondly, it is contrary to the spirit of the COSTA resolution already adopted and actually tends to destroy that spirit.
- Thirdly, it not only places undue stress on plans already rejected by the Conference, but actually gives them equal or greater status than the plan which has been tentatively established.
- Fourthly, it implies that we are incompetent or have been incompletely briefed.
- Fifthly, it is not a valid reason for adjourning, and, therefore,
- Finally, it casts doubt on the other stated reasons for the adjournment.
30. "Disparaging statements have been made with regard to the draft plan established by this Conference, and it is felt that, in all justice, something should be said in its favour.
31. "The United Kingdom is of the opinion that the principles on which the draft plan - Plan 1 - is based are sound, both from operational and engineering standpoints, and that they should not be altered in any way until it has been sufficiently demonstrated that no useful plan can be built on them.
32. "The draft plan - Plan 1 - may be regarded as the basic sharing plan, and it has great potentialities for development. It was not fully developed because it was obvious that no plan could provide for the full aggregate of stated requirements; the Atlantic City bands are just not large enough.
33. "As Plan 1 is a basic one, it is instructive so far as area 1 is concerned, to consider some of the further development possibilities which the plan presents.
34. "The following possibilities refer specifically to Europe. Nevertheless the principles are applicable in other areas.

35. "Division of each A3 channel into two A1 channels is possible by administrations who wished to use A1 simplex methods of operation.
36. "Additional sharing is possible based on more accurately known power requirements. This is particularly true in Europe where the power normally required is relatively small. Reference to Aer-Doc. 215, Table XV, for the 3 Mc/s band for instance shows that 42 % more channels are available with 200 W radiated than with 1 kW radiated. There are many cases where even lower power would suffice.
37. "Additional sharing will be possible within Europe when the exact terminals of the North Atlantic Route are decided by the States concerned.
38. "Additional sharing will be possible within Europe if the fourth "NA" frequency family is not required at the Eastern terminal of the route. The last two considerations will help Eastern Europe on the lower orders of frequency, particularly by day.
39. "Additional sharing of "SA", "NSA-1", "NSA-2" and "ME" frequencies will be possible in cases where it is decided operationally not to extend them into Europe, although such provision has been made. That is to say the "extended" families in Plan 1.
40. "Additional sharing between Areas and Sub-areas will be possible when more precise knowledge is available as to the areas of use of the frequencies concerned.

"A coordinated plan for the use of the "EU" Major World Air Route Area frequencies might result in the availability of more frequencies for regional or domestic use.
41. "A coordination of the use of regional frequencies between ICAO and non-ICAO states should relieve the domestic requirements of the latter, who may not have taken regional frequencies into account in assessing their requirements. Thus, remembering that Area 1 frequencies are available, for instance, in Sub-areas 1C and 1D, it will be seen that the position is not quite what appears at first sight from studying Plan 1.
42. "Additional sharing is possible under the terms of the U.K. resolution. This resolution will appear as Resolution No. 11 in Volume IV.
43. "All the foregoing suggestions will result in the availability of more channels under Plan 1. The list is not fully comprehensive, and indeed many other possibilities will no doubt occur to administrations. Some of the possibilities enumerated will be known when the member-states of ICAO have stated their requirements during the recess. The remainder will become clear during the investigations and collaboration to be undertaken by the administrations during the recess."

44. Mr. de HAAS (Netherlands Indies) :

"The Netherlands Indies delegation is of the opinion that the technical principles accepted as a basis for the work of the Conference were sound and that the main reason that the Conference could not finish its work on the R plan is due to the fact that the Conference had not sufficient information available of the frequency requirements for domestic and regional air services. That is why the delegation voted against the inclusion of what is now para. 8 in Aer-Doc. 313 and supports its deletion as proposed by the delegate of Colombia, wholeheartedly."

45. Mr. OOMEN (Netherlands) :

"The Netherlands delegation supports the motion for the deletion of para. 8 of Aer-Doc. 313. The delegation wishes to state here that in their belief the adjournment of the Conference is necessary mainly on account of the non-availability of certain information concerning the regional and domestic requirements, and in order to draw up plans for the coordination of the use of frequencies."

46. "It is furthermore the opinion of the Netherlands delegation that the principles applied in the establishment of the draft frequency allotment plan form a sound basis for the drawing-up of a final plan and that they should not be altered or degraded."

47. Mr. LURASCHI (Argentina) supported the motion to delete para. 8. The Conference was being adjourned not because the technical principles adopted were unsound, but because adequate information on regional and domestic requirements was not available.

48. Mr. Martins SILVA (Brazil) strongly supported the motion. His delegation had expressed its views on the subject in the Brazilian motion adopted by the Conference, in Aer-Documents 277 and 288, and had voted against inclusion of para. 8 in Aer-Documents 313.

49. Mr. QUIJANO (Colombia) said that after his motion had been put to the vote, he would have a further amendment to make regarding the date on which the Conference would be re-convened.

50. Mr. JAROV (USSR) said that his delegation strongly objected to deletion of para. 8. In accordance with article 16 of the Atlantic City Convention, he would demand a vote by nominal roll.

51. The Colombian motion for deletion of paragraph 8 was put to the vote and adopted by 18 votes to 13, with 8 abstentions.

52. For :

The Argentine Republic; Commonwealth of Australia; Belgium; Brazil; Canada; Republic of Colombia; Colonies, Protectorates, Overseas Territories and Territories under Mandate or Trusteeship of the United Kingdom of Great Britain and Northern Ireland; United States of America; Republic of Honduras;

Netherlands Indies; Italy; Nicaragua; Norway; New Zealand; Netherlands, Curacao and Surinam; United Kingdom of Great Britain and Northern Ireland; Sweden; Territories of the United States of America. - 18 votes.

53. Against:

People's Republic of Albania; the Bielorussian Soviet Socialist Republic; People's Republic of Bulgaria; Overseas Territories of the French Republic and Territories administered as such; France; Republic of Poland; Portugal; French Protectorates of Morocco and Tunisia; People's Federative Republic of Yugoslavia; the Ukrainian Soviet Socialist Republic; Czechoslovakia; Union of Soviet Socialist Republics; People's Republic of Roumania.-13 votes.

54. Abstentions:

Chile; Portuguese Colonies; Cuba; Ecuador; Ireland; Pakistan; Union of South Africa and mandated territory of South West Africa; Oriental Republic of Uruguay. - 8 votes.

55. Mr. QUIJANO (Colombia) said that it had been decided to re-convene the Conference on the first of July 1949. He would propose that that date be altered to the 31st of July 1949. The budgetary situation of the Union was seriously strained. Besides 4 million Swiss francs allotted for ordinary expenditure, one and a half millions were being set aside for the Mexico City Conference, over 2 millions for the Conference in Paris and for the special Administrative Conference to approve the new frequency list. In addition, the expenses of the Atlantic City Conference had yet to be met by administrations.

56. By reconvening later, the delegates attending the second session would be able to attend the special Administrative Conference, and that would mean a considerable saving. The second session should make a great effort to finish within two and a half months from the new date. If it had not finished before the special Conference, that Conference could be requested to put aeronautical problems toward the end of its agenda.

57. Mr. SEARLE (New Zealand) seconding, said that in the ad hoc group which had drafted this document, he had pointed out that small and distant countries were being placed in a difficult position. Strictly speaking, the two Conferences should not be held at the same time; however, the circumstances in which the second session would be held had not been foreseen at Atlantic City, and it would be desirable for one conference to follow the other in view of the present position.

58. Mr. PETIT (IFRB) said that in the ad hoc group, he had spoken in favour of July 31st as the date of reconvening. The reasons advanced by the delegate of Colombia were excellent, and he strongly supported the proposal.

59. The Colombian motion for reconvening on the 31st of July 1949 was unanimously adopted.

60. It was agreed that the date given for submission of documents by administrations (paragraph 20) should be changed to June 30, 1949.

61. Mr. JAROV (USSR) :

"In order to clarify the resolution on the adjournment of the Conference, the Soviet delegation has put forward a number of amendments. Some of these amendments concern the considerations of the resolution and their aim was to reflect in the most objective possible way the situation which has arisen, and the reasons why the Conference has not been able to achieve satisfactory results.

62. "The resolution makes reference to "a lack of information" and an attempt has been made to prove that this was the principal, indeed, the only reason for adjournment. This is not in accordance with the facts.

63. "Let us examine the work of the Conference.

64. "At the instigation of, and under pressure from certain delegations, the entire work of the Conference, of its committees and its working groups, the elaboration of operational and technical principles, was directed to the study and satisfaction of the requirements of the Major World Air Routes only, with a view to creating the most advantageous conditions for their operation. From the very beginning of the Conference it was obvious that these delegations tended to ignore the needs of national aviation, particularly in those areas which suffered in the war of 1939 to 1945.

65. "There is reason to affirm that the examination and satisfaction of the requirements of domestic aviation at this Conference did not suit the plans of certain delegations - delegations which have been particularly active in organizing and conducting the work of the Conference with a view to satisfying their narrow sectional interests.

66. "It was therefore no accident that data on national requirements should have been found "indispensable" precisely at the moment when the Conference, only because other delegations insisted on it, came to the examination of regional and domestic requirements. It was no accident that delegates were suddenly told that the Conference could not continue its work, because the data available on Form 2 were for some reason or other "inadequate", and because the problem could not be solved by the "weekly mileage" adopted by the Preparatory Committee."

67. "It stands to reason that the fault does not lie in the data submitted which were available to the Conference in accordance with the forms adopted at Atlantic City, and proved perfectly adequate.

68. "The fact is that the countries interested in providing frequencies for the Major World Air Routes, having succeeded in satisfying their requirements in this respect, failed to show the necessary spirit of cooperation; insisting on priority for the Major World Air Routes, they insisted on suspending the work of the Conference, declaring that the allocation of the remaining frequencies between countries should be done at regional conferences.

69. "This group of delegates soon saw that such a situation was unacceptable for the majority of the delegates, and that the Conference had reached a deadlock; they then began to proclaim that the data available was inadequate, trying in this way to throw all blame for the failure of the Conference on to the national administrations.
70. "This obvious reluctance to study regional and domestic requirements receives further confirmation from the fact that the original closing dates set for the Conference - the 30th of June and the 15th of July - did not allow for the consideration of such questions.
71. "Such are the real reasons for the failure of this Conference.
72. "The Soviet delegation proposed a second series of amendments to the operative part of the resolution, designed to throw into relief, without possibility of ambiguous interpretation, those proposals and recommendations which the Conference considers should be submitted to administrations.
73. "In the course of the debates, it became quite obvious that certain delegations, by an artificial classification of countries according to the ITU and ICAO systems, were trying to prevent the Soviet Union from taking any practical part in the preparation of the Second Session, together with a considerable number of the European popular democracies. It must be said in advance that this aim is foredoomed to failure.
74. "The Soviet delegation has no objection to some paragraphs of the resolution, but as to the reasons making adjournment of the Conference inevitable, the Soviet delegation cannot agree with the explanation given in the first part of the resolution, and with the decisions which follow from those explanations.
75. "For these reasons, the Soviet delegation cannot accept the resolution on suspension of the Conference (Document 313) as a whole, and hereby declares that it reserves the position of its administrations with regard to the submission of statistical data mentioned in para. 17 of Aer-Doc. 313 and further elaborated in the annexes and appendices to this document.
76. "Further, the Soviet delegation declares:
1. In view of the fact that the International Administrative Aeronautical Radio Conference (Geneva 1948) has not completed its work, and will continue after the recess, the Soviet delegation considers that all decisions of the Conference taken before the recess have no operative force.
 2. The Soviet delegation maintains all the reservations it has made during the First Session of this Conference.

77. Mr. Souto CRUZ (Portugal) said that he opposed the deletion of paragraph 8. He would like to propose the following amendment, based on paragraph 8, for insertion:

In the former paragraph 8, delete: "as well as all the other proposals submitted for the solution of the problem", and add after "the aeronautical mobile R service" the words "it being understood however, that administrations which consider they have a better solution to the problem shall have the right to submit them in the form of a plan which shall be as complete as possible, in order that it may be studied at the very beginning of the Conference's next session."

78. This proposal was not seconded.

79. Mr. FALGARONE (France) said that the ad hoc group which had drawn up the document wanted to reflect objectively the reasons for adjournment. With the deletion of para. 8, there was no hope of reflecting these reasons objectively. The deletion of that paragraph meant that the views expressed by a considerable number of delegations would not come to the notice of the administrations. This left the majority view, which was not in accordance with the mandate of the group.

80. He would therefore request that the declaration made by the French delegation at the first Plenary Meeting of the Conference be added to the list of documents shown in para. 13 c of Aer-Doc. 313.

81. Mr. SEARLE (New Zealand), said that paragraph 8 was not included by the group. It had previously been paragraph 7 b of Aer-Doc. 298, which had been included by the Plenary Meeting.

82. Mr. FALGARONE (France) said that he had himself brought up the matters contained in paragraph 8 in the ad hoc group, but there had been a certain amount of opposition. In view of the atmosphere of haste in which the group had been obliged to work, he had not insisted on the inclusion of such a paragraph, and the document had been submitted to the Plenary Meeting which had itself inserted the paragraph. Since that time, by a trick of circumstances, the majority view had become that of the minority.

83. It was agreed that the declaration made by the French delegation at the First Plenary Meeting of the Conference should be added to the list of documents contained in para. 13 c.

84. Mr. ROWLAND (United Kingdom) said that the first line of para. 13 c made no mention of Aer-Doc. 67, which should therefore be inserted.

This amendment was adopted.

85. Mr. KITO (Albania) :

"First of all I would like to stress that my delegation which opposed the adjournment of this Conference, does not agree with the reasons put forward for that adjournment in Aer-Doc. 313. For these reasons, I wish to make the following remarks on that document.

86. "1. The delegation of the People's Republic of Albania, with reference to para. 4 of Aer-Doc. 313, considers that it was impossible to satisfy the needs of the regional and national air services because this session of the Conference has not treated these services on an equal footing with the Major World Air Route Areas, and has given priority to the latter. It is for this reason that, whereas the Major World Air Route Areas have had their essential minimum needs satisfied, the regional and domestic services have not been able to receive satisfaction. The fact that the document in which the needs of the regional and national services were laid out has been lost shows clearly the small account taken of the requirements of these services.
87. "2. The delegation of the People's Republic of Albania disagrees with para. 5 and 6 of Aer-Doc. 313, and considers that the chief reason for which the requirements of the regional and national air services did not receive the same degree of satisfaction as the Major World Air Route Areas was not a lack of information. On the contrary, the information submitted was in accordance with the decisions of Atlantic City. It was the lack of consideration shown to the regional and national services by comparison with that accorded to the Major World Air Route Areas, and the lack of a spirit of compromise resulting in technical principles being imposed by the machinery of the vote which made it impossible to satisfy the requirements of the regional and national services.
88. "3. The delegation of the People's Republic of Albania, for the reasons given above, and particularly after the deletion of para. 8, considers that Aer-Doc. 313 is not objective and cannot be adopted, and will vote against this document; furthermore, the delegation of the People's Republic of Albania wishes to associate itself with the statement made by the Soviet delegation on the work of this session of the Conference and on Aer-Doc. 313.
89. Mr. MITROVIC (Yugoslavia) :
- "After four months work in trying to draw up a plan of frequency allotment for the R bands, Committee 6 has reached a deadlock. There has been admitted in one form or another by almost every delegation.
90. "At this moment, when we have to analyse in detail the causes of this situation and draw the necessary conclusion, certain of the delegations which today, by the play of circumstances, represent the majority of the Conference, refuse to face the facts.
91. "These delegations are trying to prove that the only reason for this lack of success has been lack of information on regional and domestic air services, claiming that the basic principle on which the draft plan of R frequency allotment has been drawn up are the best, and that they are unalterable. The Yugoslav delegation considers this view untenable, for the following reasons:

92. "1. The lack of information could have been avoided if Committee 6 had considered the domestic services at the same time as the Major World Air Routes. The course of its work shows that the majority of delegations long refused to consider this problem.
93. "2. The Conference had available to it the same sort of information for the domestic and regional services as for the Major World Air Routes; nevertheless, certain delegations proclaim that this information is inadequate, whereas it is amply sufficient for the Major World Air Routes. This shows that these delegations wish to give preferential treatment to the Major World Air Routes, and to leave them a great deal of flexibility, to the detriment of the regional and domestic services.
94. "3. This information is being requested in order to effect a considerable reduction in domestic requirements. To expect such a reduction is absurd, because no matter what additional data is submitted, the requirements as they stand now will never be reduced to 20 % of their present volume.
95. "The data required will be of no value, as the Conference has decided that the R plan will not include frequency assignments to stations. Such data would only complicate the task of the Second Session.
96. "The Yugoslav delegation considers that the main reason for the lack of success of this first session is to be found in the basic principles adopted and in the preferential treatment given to the Major World Air Routes.
97. "It will not be sufficient to coordinate requirements. Only by adopting standards and principles which are more realistic, will the Second Session of the Conference succeed in preparing an R plan which will be satisfactory for all services and all countries.
98. "This does not mean that the Yugoslav delegation is opposed to the future use of high capacity systems. It opposes the idea of adopting standards which will allow introduction of such systems at this time, since it is certain that such systems will be introduced only in the fairly distant future, and since the adoption of such standards means that the requirements of certain services will not be met.
99. "Advantage should be taken of the recess to study new principles and to coordinate requirements. Although in the resolution on adjournment of the Conference there is a paragraph timidly inviting administrations to submit their views on principles other than those already adopted, it is obvious from the statements made by the delegations which at present constitute the majority that they will never allow an R plan to be prepared which would give the same degree of satisfaction to the domestic services as to the Major World Air Route Areas.

100. "This becomes all the more evident, when it is realized that these delegations are opposed to convening a European regional I.T.U. Conference, but are endeavouring to limit work done during the recess to I.C.A.O., in order to frustrate any attempt to revise principles and standards.
101. "By so doing, they are trying to make of I.C.A.O. a tool by which they may impose their ideas on the Second Session of the Conference.
102. "The resolution on adjournment of the Conference clearly expresses the views of those delegations, and their intention of preventing any change in the methods, standards and principles already adopted.
103. "This will mean serious difficulties for the Second Session, and will prevent it from producing a plan acceptable for all services and all countries.
104. "For these reasons, the delegation of the People's Federative Republic of Yugoslavia cannot accept the resolution on the adjournment of the Conference, will vote against it, and reserve the position of its administration with regard to the decisions taken in this resolution and the consequences thereby resulting.
105. "At the same time, the delegation of the People's Federative Republic of Yugoslavia maintains all the reservations it has made in the course of the First Session of the Conference.
106. Mr. ARCIUCH (Poland) :
- "The delegation of the Republic of Poland, in accordance with the statement made at the beginning of the present Plenary Session of the International Administrative Aeronautical Radio Conference, will vote against the adoption of Aer-Doc. No. 313 and reserves for its administration any course of action which may be taken in regard to the above documents in the future, and also, on behalf of our administration and on behalf of the present delegation to the International Administrative Aeronautical Radio Conference, will preserve all the reservations previously made in the course of that Conference."
107. Mr. MITROVIC (Yugoslavia) demanded a vote by nominal roll, in accordance with Article 16 of the Atlantic City Convention.
108. Aer-Document 313, as amended, was put to the vote and adopted by 25 votes to 9, with 1 abstention.
109. For :
- The Argentine Republic; Commonwealth of Australia; Belgium; Brazil; Canada; Chile; Portuguese Colonies; Colonies, Protectorates, Overseas Territories and Territories under Mandate or Trusteeship of the United Kingdom of Great Britain and Northern Ireland; United States of America; France; Republic of Honduras; Netherlands Indies; Ireland; Italy; Norway; New Zealand; Pakistan;

Netherlands, Curacao and Surinam; Portugal; French Protectorates of Morocco and Tunisia; United Kingdom of Great Britain and Northern Ireland; Sweden; Territories of the United States of America; Union of South Africa and the mandated territory of South West Africa; the Oriental Republic of Uruguay. - 25 votes.

110. Against:

People's Republic of Albania; the Bielorussian Soviet Socialist Republic; People's Republic of Bulgaria; Republic of Poland; People's Federative Republic of Yugoslavia; the Ukrainian Soviet Socialist Republic; People's Republic of Roumania; Czechoslovakia; Union of Soviet Socialist Republics. - 9 votes.

11. Abstentions:

Overseas territories of the French Republic and Territories administrated as such. - 1 vote.

112. Mr. HARIZANOV (Bulgaria) :

"The Bulgarian delegation fully supports the statement made by the Soviet delegation on the adjournment of the International Administrative Aeronautical Radio Conference, Furthermore, the Bulgarian delegation, considering:

1. that the true causes for the suspension of the Conference, namely:
 - a) priority given to Major World Air Route Areas, to the detriment of the regional and national services,
 - b) frequency allocation based on a bandwidth for A3 emission,
 - c) technical principles not in harmony with operational experience -are not reflected in the resolutions contained in Aer-Doc. 313.
2. that a decision has been taken to impose on administrations the same technical principles and the draft frequency allotment plan for the aeronautical mobile R service, although they have not been accepted as satisfactory at the first session of the Conference, -

114. the Bulgarian delegation has voted against adoption of this resolution, does not consider itself bound by it, and reserves all the rights of its administration."

115. Mr. BODEAGA (Roumania) said the delegation of the People's Republic of Roumania considered that Aer-Doc. 313 did not give an objective account of the reasons which had led to adjournment of the Conference, and was an attempt to impose on the Second Session of the Conference the very principles and methods which had led to the present deadlock. His administration would reserve its position with regard to the decisions taken by the First Session.

116. ADDENDUM TO AER-DOCUMENT 313 (RESOLUTION CONCERNING IATA).

Mr. ARCIUCH (Poland) :

"As the Republic of Poland to some degree participates in the International Air Transport Association, then I would like to give my point of view in regard to the proposed resolution included in Aer-Doc. 313 concerning the study by I.A.T.A. of the results of the work of the first session of the Conference.

117. "I agree that the work done by the representatives of I.A.T.A. for our Conference, namely: by Mr. LAYZELL and Mr. ADAM has been indeed most helpful and useful to the deliberations of the Conference. I also think that without any doubts the results of the work of our Conference, in which the representatives of I.A.T.A. took so efficient a part, must be sent for the proper information of the I.A.T.A. authorities.

118. "But I do not agree that this should be done in the form of official resolution of the Conference inviting the authorities of I.A.T.A. to do additional work for the Conference, and also binding the mentioned authorities as well as the members of the Conference by the terms in which this work must be done.

119. "After all, the I.A.T.A. is an organization in which are involved not even the governments of the States participating as full members in our Conference, but just different air transport companies and, as such, I.A.T.A. represents only the interests of such companies. In accordance to that, the representatives of I.A.T.A. are participating in our Conference as an advisory body and also as observers of our work. I repeat, on behalf of I.A.T.A. and not the other way round.

120. "That is the reason why I think that it is best not to make any resolution binding the Conference as well as I.A.T.A., but simply to make a recommendation: "The copy of the final resolution of the First Session of the International Administrative Radio Conference with all the accompanying documents, should be sent to I.A.T.A., so that this organization may be able to make a proper study of results of our Conference to date."

121. "Such a recommendation may be sent to the I.A.T.A. authorities by the Secretary in a letter explaining the matter and signed by the CHAIRMAN of the Conference.

122. "If in future there is a need to get some advice or explanation from I.A.T.A., then our administrations will ask for that. And I hope that in this case, the I.A.T.A. authorities, having results of our Conference as basic material, would give a proper, objective and reasonable answer - not giving any preference to anybody.

123. "I think, Mr. CHAIRMAN, that this is the proper solution of the problem. In the case of its practical application, the member administrations of the Conference as well as the I.A.T.A. authorities, during the period of the recess of the work of the Conference, can do their best in order to bring about a proper solution of the problems involved, and at the same time can cooperate but will not be artificially bound by some rigid and bureaucratic body."
124. Mr. WHITE (U.S.A.) said that at a Plenary Meeting, it had been agreed that I.A.T.A. should be invited to study the results of the Conference and to submit its suggestions. He had been instructed to draft a paper, together with the Chairman of the Drafting Committee, and this had been done in the form of a resolution.
125. He would support the proposal made by the delegate of Poland.
126. It was agreed that the resolution should be deleted, and that the CHAIRMAN should prepare a short letter of transmittal, inviting I.A.T.A. to study the material submitted by the Conference, and to present its own suggestions.
127. This letter would express appreciation for the contribution made to the work of the Conference by the representatives of I.A.T.A.

ANNEX TO AER-DOC. 313 - INFORMATION TO BE SENT BY ADMINISTRATIONS.

128. It was agreed that in conformity with the decisions already taken, the date of June 1, 1949, contained in paragraph 1, should be amended to read June 30, 1949. It was agreed that para. 1 c should be amended to read ".... frequency of operations and published time-tables, or coordinated time-tables, if these contain the foregoing information."
129. It was agreed that the term "network schedule", in sub-para. b page 2, should be replaced by "copy of the network pattern".

This document was adopted, subject to the reservations made by certain delegations when this matter was discussed by the Plenary Meeting.

ADDENDUM TO AER-DOCUMENT 313 - INSTRUCTIONS ON HOW TO FILL UP THE FORM.

130. It was agreed that to the expression "power to the antenna" on page 2, should be added the words "mean carrier power".
131. PREAMBLE TO VOLUME I - AER-DOCUMENT 316.

This preamble was unanimously adopted.

APPROVAL OF MINUTES OF THE 16TH PLENARY MEETING - AER-DOC. 309.

132. Mr. PETIT (I.F.R.B.) said that the last sentence of para.30 should read "if a group of countries wanted to convene a conference, they could take the initiative, in conformity with Chapter II of the General Regulations annexed to the Convention."

This amendment was adopted.

133. Aer-Document 309, as amended, was unanimously adopted.

APPROVAL OF OUTSTANDING MINUTES.

134. It was agreed that the Chairman should approve outstanding minutes in their original form. Each delegate or representative would then be free to submit to the Secretariat of the Conference such amendments as he might wish to make to his own statements.

135. Mr. BETTS (Australia), as Chairman of Committee 6, said that he would undertake to stay in Geneva for twenty-four hours after the last documents of Committee 6 had appeared, in order to receive amendments to outstanding minutes of that Committee.

PREPARATION OF DOCUMENTS FOR DESPATCH TO ADMINISTRATIONS.

136. The CHAIRMAN said that the Secretariat would have a great deal of work to do after the end of the Conference in preparing documents for despatch to administrations. A certain amount of linguistic revision would be necessary. It would be highly desirable if the Chairman of the Editorial Committee could stay to supervise this work.
137. Mr. FALGARONE (France), as Chairman of Committee 3, said that he would be prepared to undertake this task. He hoped, however, that he would be able to count on the assistance of those English and Spanish-speaking delegates who would be staying in Geneva.
138. He wished to thank the members of the Editorial Committee for their efforts. A special word of thanks must be addressed to Mr. PETIT (I.F.R.B.), who had worked untiringly, and to Miss TRAIL (United States of America) for her part in the general organization of the Committee.
139. The CHAIRMAN said that all would wish to join with him in expressing their gratitude to Mr. Falgarone.
140. Mr. WHITE (United States of America) expressed the gratitude of the Conference to Mr. Betts, Chairman of Committee 6.
141. Mr. BETTS (Australia) said that he sincerely appreciated the cooperation given by members of his Committee during the long months that lay behind. He wished to thank the Vice-Chairman, and the Chairmen of the various working groups. He sincerely hoped that they would all meet again before very long to renew the friendship that had been formed.

142. Mr. COFFEY (Canada) said that he would like the privilege of telling the Chairman how much the Conference appreciated the capable and patient way he had presided over their work. They would all look forward to seeing him again the following spring.
143. The CHAIRMAN said it was a great distinction to have presided over this gathering of the world's most distinguished experts in the field of aeronautical communications. They had had their differences of opinion, but no results of lasting value were ever achieved without them. Delegates had been unfailingly kind and courteous to him, and for that he was deeply grateful.
144. The representatives of I.A.T.A. had made an outstanding contribution to the work of the Conference. Mr. GREVEN, of I.C.A.O., too, had not spared himself. He would like to express his appreciation of the work done by those who had laboured behind the scenes for the success of the Conference, and to Mr. KUNZ, their Secretary.
145. He particularly wished to express his appreciation of the way in which Mr. PETIT had placed his expert knowledge and great experience at the disposal of the Conference. He was grateful to Mr. PETIT both personally and in his capacity as Chairman.
146. He felt sure that when the Conference reconvened, it would be able to complete its tasks successfully.
147. The Committees of the Conference were formally dissolved.
148. The twenty-second and last Plenary Meeting of the First Session of the International Administrative Aeronautical Radio Conference (Geneva, 1948) adjourned at 10.20 p.m.

Chairman :

Arthur L. LEBEL