

Documents of the International Administrative Radio Conference for Aeronautical Communications (1st Session) (Geneva, 1948)

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International Administrative Aeronautical Radio Conference G E N E V A, 1948 Aer.DOCUMENT, No 1 - E 1 - F 1 - S

Preparatory Commission

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

Conférence internationale administrative des Radiocommunications aéronautiques

GENEVE, 1948

Commission préparatoire

MM. les délégués trouveront, ci-joint, le Document CP.-Aer, No25 qui contient le Rapport final de la Commission préparatoire de la Conférence internationale administrative des radiocommunications aéronautiques.

Conferencia Administrativa Internacional de Radiocomunicaciones Aeronauticas

G I N E B R A,1948

Comisión Preparatoria

Los señores Delegatos encontraran, adjunto a la presente, il documento CP - Aer No25 que contiene el Informe Final de la Comision Preparatoria de la Conferencia Administrativa Internacional de Radiocomunicaciones Aeronáuticas.



PREPARATORY COMMITTEE

C-Aer-Document No. 25-E

13th May, 1948

International Administrative Aeronautical Radio Conference GENEVA, 1948

FINAL REPORT

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CHAPTER I

Introduction

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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 $I_{\cdot}T_{\cdot}U_{\cdot}$ Administrative Council in its session of January 1948 which was later concurred in by the requisite number of members of the $I_{\cdot}T_{\cdot}U_{\cdot}$ The text of this resolution may be found in PC-Aer-Document No. 1.

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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:

Working Group

<u>Chairman</u>

A	-	Technical and Operational Rules	Mr. Charles Acton (Canada)
В		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	Mr. W.A. Duncan (United
		Conference	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).

A comparative analysis of the HF bands allocated exclusively to the aeronautical mobile service by the Atlantic Jity 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.

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.

As regards the Aeronautical Mobile (OR) service, the Committer 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 **O**ommittee has taken action to ensure that the Conference will have available accurate and complete information on requirements in this service.

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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.

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.

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CHAPTER II

Recommended Agenda for the International Administrative Aeronautical Radio Conference

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).

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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.

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CHAPTER III

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

Section (a) - Technical Principles

The technical principles requiring recommendations to enable the pre-810 paration 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.
- **E11** 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.

112 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.

- 6 -(PC-Aer-No. 25-E)

- 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 end 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

- **E13** Flight Information Tables have been prepared by the Preparatory Committee and may be found at Annex 4 to PC-Aer-Document No. 19.
- **61.4** 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.

- 7 -(PC-Aer-No. 25-E)

THE COMMITTEE CONSIDERS that the following formula is satisfactory 816 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 (Route miles x scheduled flights per week, % allowed for non 200 x 7 x 24 scheduled operation scheduled operations)

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

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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

818 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 intercontinental 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).

- 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.
 - 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.
 - 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

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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.

- B22 <u>Step 4</u> By application of the recommendation in Chapter III, Section (a), El2 (d) (e) (f) determine to what extent frequency orders established may be duplicated throughout the world.
- 823 <u>Step 5</u> Allot specific frequencies to the individual Major World Air Route Areas.

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- 824 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,
- 825 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 abbeviated procedures will be used, and that all other methods will be adopted to accommodate requirements for safe aircraft operation.
 - THE COMMITTEE RECOMMENDS the following method of approach:

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- (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.

- 9 -(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.)

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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.

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528 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.

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829 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.

B30 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.

- 10 -(PC-Aer-No. 25-E)

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.

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

- 631
- 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.

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B33 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.

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WHEREAS, in the above recommendations (\$33) 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. - 11 -(PC-Aer-No. 25-E)

- **E35** 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.
- 836 THE COMMITTEE CONSIDERS that the application of this recommendation may assist in the elimination of local interference.
- **537** 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.

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- 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,
- 839 WHEREAS, requirements for families of frequencies common to more than one Region will be assigned from allocations common to the Regions concerned, and,
- 840 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,
- 841 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.

- 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.

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- 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.

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- 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.

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- 13 -(PC-Aer-No. 25-E)

547 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.

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- 84.8 WHEREAS, the Committee notes that in the bands allocated on a worldwide 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.
- B51 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 8838, 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.

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- 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.

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The Committee discussed requirements common to both the (R) and (OR) services, namely, common calling, moteorological broadcast requirements and Air Search and Rescue, and its recommendations are recorded in Chapter III, Section (c), \$29 and \$30. - 14 -(PC-Aer-No. 25-E)

CHAPTER IV

Additional Recommendations

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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.

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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

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- 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:

- **857** <u>Committee 1</u> 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.
- **558** <u>Committee 2</u> To examine the credentials of the delegates to the Conference and to account therefore to the Plenary Assembly.
- **859** <u>Committee 3</u> (See Rule 22, Page 70-E, first part of the Atlantic City Final Acts).
- **360** <u>Committee 4</u> 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 eventuall by the Plenary Assembly of the Conference with such amendments or additions as would be deemed necessary.
- **861** <u>Committee 5</u> 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.
- **e**62 <u>Committee 6</u>
 - 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.

- 15 -(PC-Aer-No. 25-E)

- 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.
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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.

865 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.
- 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.
- 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 taks 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.

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International Administrative Aeronautical Radio Conference $G \in N \in V A$, 1948

Aer. Document nº 2- E

May 15th 1948

GERE

CHINA

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 Group 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 intercontinental routes) should be used in calculating probable peak loadings on Chinese domestic routes. In view of the fact that the Atlantic City Convention alloted an inadequate part of the radio spectrum to aeronautical mobile services, the figure 3 is adopted for the purposes of this document. This figure errs on the side of optimism.

Glass Al 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 forAl3 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 radiotelegraphy.
- 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.
 - The considerable volume of airline operational traffic.

4) 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 whire those actually meturned by three major domestic airlines for January, 1948

2. (Aer.Doc.2-E)

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	1369
Total:	15061 hours

Flying hours per day:

<u>15061</u> 31			23		486 hours
Number of aircraft per hour (probable peak loading)	:	4 <u>86</u> 8	=		60.1
Number of route frequencies of family constrained and frequencies required.	or ire	d:	<u>60.1</u> 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 increaing 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 alloted to aeronautical mobile services may best be effected as in Appendix 1, with two families of frequencies per area.

Annex to Aer-Document No 2 - E
Annexe au Aér-Document No 2 - F
. Anexo al documento Aer No 2 - S

REGIONS FORTHE DISTRIBUTION OF TEN FAMILIES OF FREQUENCIES ALLOTED , OR DOMESTIC AEROMOBILE SERVICE RÉGIONS DE DISTRIBUTION DE DIX FAMILLES DE FRÉQUENCES ASSIGNÉES AU SERVICE AÉRONAUTIQUE INTÉRIEUR REGIONES DE DISTRIBUCIÓN DE DIEZ FAMILIAS DE FRECUENCIAS ASSIGNADAS AL SERVICIO AERONÁUTICO INTERNO



International Admi Aeronautical Confer Geneva, 1948	nistrative ence	Aer.	Document no	3-E 3-F 3-S
Conférence internat des Radiocommunicat Genève, 1948	ionale administrative ions aéronautiques			
Conferencia Adminis de Radiocomunicacio Ginebra, 1948	trativa Internacional nes Aeronauticas			•
	Schedule of Meetings			
Tuesday, 18th May 1	<u>948</u> .		Room	
10 A.M.	Committee 4		II	
	Committee 7		I	
2:30 P.M.	Committee 5		II	5
	Committée 6		I	
Wednesday, 19th May	1948.			
2:30 P.M.	Plenary Meeting		B	
	HORATRE DES SÉANCES			
Mardi, 18 mai 1948,			<u>Salle</u>	
10 h	Commission 4		II	
	Commission 7		I	
14 h 30	Commission 5		II	
	Cormission 6		I	
Mercredi 19 mai 194	S.			
14 h 30	Séance plénière		В	
	PROGRAMA DE SESIONES			
<u>Martes 18 de Mayo d</u>	<u>e 1946.</u>		Sala	
10.00 h	Comisign 4		II	
	Comision 7	•	I	
14.30 h	Conision 5		II	
	Comision 6		I	
Miércoles 19 de May	<u>o de 1948.</u>			
14.30 h	Sasion plenaria		В	



International Administrative Aeronautical Radio Conference G E N E V A, 1948 Aer-Document No Li - E

CORRIGENDUM

21 May, 1948

Corrigendum to Aer-Document No 4 - E

The following is a full text of the statement made by Mr. FALGARONE (France) at the First Plenary Meeting, and should be considered as replacing the summary of his speech as given on page 3 of Aer-Document No 4-E.

<u>Mr.FALGARONE</u> (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.B.F., agreement would have been 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 be 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.

ARCHIVES U.I.T. GENÈVE (Aer-Doc.No4-E)

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 of the Conference.

In the opinion of his Delegation there was another reason for postponement - the speed with which the P.B.F. 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.B.F. 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.B.F. 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.B.F., 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 t the fact that they had not been dealt with by 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. - 3 -(Aer-Doc.No 4-E)

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 dismissed; 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 accomptical 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.

International Administrative Aeronautical Radio Conference Aer - Document No 4-E

15 May, 1948 Original : English

GENEVA, 1948

MINUTES OF THE FIRST PLENARY MEETING

held at the Maison des Congrès, Geneva, on Saturday, 15 May, 1948, at 3.p.m.

OPENING OF THE CONFERENCE AND ELECTION OF CHAIRMAN.

Mr. d'Ernst (Secretary-General of the International Telecommunications Union) said that this was the first conference called under the auspices of the I.T.U. for which there was no inviting government. The Administrative Council itself, on the basis of the new Convention of Atlantic City, had convened the Conference.

He wished to extend a hearty welcome to the representatives of the different administrations. In doing so he would like to express his gratitude to the Swiss Federal Authorities and in particular to the President of the State Council of Geneva for his efforts on their behalf over the last three months.

He asked the indulgence of members for any imperfections in organization of the Conference, and expressed his best wishes for the success of the Conference in the very difficult and delicate work which lay before it.

Mr. CASAI (President of the State Council of Geneva) said that although this Conference was not sponsered by an inviting government, the Swiss Federal Authorities and the City of Geneva were happy to extend a welcome. They would try to provide the necessary conditions for fruitful work. Thanks were due to Mr. d'ERNST and Mr. GROSS for what they had accomplished under considerable difficulties.

Switzerland was very interested in aviation problems. Aviation could make its contribution to international understanding by increasing contacts between peoples.

Mr. LURASCHI (Argentina) proposed <u>Mr.LEBEL</u> (United States) as <u>Chairman of the Conference</u>, in view of the excellent work he had accomplished in the Preparatory Committee. The proposal was seconded by Mr. GASTELU (Ecuador), who paid tribute to Mr.LEBEL' S qualities as a Chairman, and Mr.DUNCAN (United Kingdom).

Mr.JEBEL (United States) was elected Chairman of the Conference by acclamation.

The CHAIRMAN, thanking the Conference for the confidence shown in him, expressed his hope that this very important international conference would produce useful results within a reasonable time.

ELECTION OF VICE-CHAIRMEN OF THE CONFERENCE.

Mr. SELIS (Netherlands), seconded by Mr. DUNCAN (United Kingdom) and Mr. FALGARONE (France), proposed the chief delegate of Belgium in his absence as 1st Vice-Chairman. -2 -(Aer-Doc.No%)

The chief delegate of Belgium was elected 1st Vice-Chairman.

Mr.WHITE (United States), seconded by Mr. DUNCAN (United Kingdom) and Mr. FALGARONE (France), proposed <u>Mr. JAROV</u> (Union of Soviet Socialist Republics), as 2nd Vice-Chairman.

Mr.JAROV was elected 2nd Vice-Chairman.

COMMUNICATIONS FROM THE SECRETARIAT OF THE I.T.U.

Mr. Gross (Assistant Secretary-General of the Union) explained the arrangements made by the Secretariat for the Conference, and the document distribution system. He wished to express his gratitude to Mr. CASAI and to the directorr of the international Chinese library, Dr. YU, who had each made two additional rooms available for the Conference.

It was agreed that these arrangements should be approved, and that the Assistant Secretary-General should be directed to send a message of thanks to Mr. CASAI and Dr.YU.

ADOPTION OF RULES OF PROCEDURE.

Mr. WHITE (United States), seconded by Mr.BETTS (Australia), moved that the rules of procedure approved by Atlantic City be adopted by the Conference.

Mr.JAROY (Union of Soviet Socialist Republic) said that in practice, any plan of frequency assignment in the HF bands could only be implemented if accepted by all countries without exception. The Soviet delegation therefore considered that decisions on questions affecting the principles of frequency assignment, and on the plan itself, should only be taken if there was unanimous agreement among all the nations represented at the Conference.

The United States Motion to adopt the Rules of Procedure as laid down at Atlantic City, Annex 4 of the Telecommunication Convention, was adopted by 18 votes to 6.

APPROVAL OF AGENDA FOR THE CONFERENCE (PC-Aer-Document No25, Chapter II)

Mr.QUIJANO (Columbia) hoped that members would soon have available to them translations of this and all other documents in the three official languages.

Item A of draft Agenda - admission of international organizations.

Mr.ACTON (Canada), seconded by Mr.TABIO (Cuba) moved that IATA be admitted to the Conference as an observer.

It was agreed to admit IATA to the Conference as an observer.

- 3 -(Acr-Doc.No 4)

The CHAIRMAN explained that a representative of ICAO would participate in their discussions, by direction of the Administrative Council.

Item B - Report of the Preparatory Committee.

Mr. FALGARONE (France) wished to point out that the French civil aviation authorities had asked for a postponement of the Conference until Septemboralst, 1948.

Before the Conference could submit to the P.F.B. a detailed frequency assignment plan, agreement would have to be reached on questions of principle. Some of these questions were of a technical nature, and could be dealt with by the technical experts present, but others concerned the different methods of approach adopted by different States to the problem of aircraft control and security, and on this there was very little agreement. Hence the French civil aviation authorities considered that before tackling the problem of frequency assignment in the H.F. bands, agreement should first be reached on the uses to which they would be put. This could best be done by convening a worl aeronautical conference, which would comprise representatives both of the telecommunications services and of aviation, and would have laid a solid foundation for the present Conference.

The standards and practices adopted by ICAO were in no sense obligatory, and the French authorities were in fact asking that the standards and practices they found it difficult to accept be reconsidered before the present Conference was convoned. Four other countries, including Belgium, had asked for a postponement, and he was authorized to say that the Belgian aviation authorities fully associated themselves with his statement.

Postponement, until September, would not have affected adversely the difficult task being performed by the P.F.B.

The Forms 2, which had been hastily prepared at Atlantic City, were of no use for mobile civil aviation services, and the P.F.B. itself had decided not to study them. This was obvious from the start, as the detailed organization of civil aeronautical frequencies in the exclusive H.F. bands could not be undertaken before thes frequencies had been allocated by the Atlantic-City Conference.

It was not absolutely necessary from the point of view of mobile aeronautical services that the frequencies they would use in the exclusive H.F. bands be contained in the new frequency list. The Conference had to do two things - provide the P.F.B. with the information necessary for its new frequency list, and secondly (this was of capital importance for aeronautical services), allow these latter to function in a rational manner, in harmony with the principles governing their operation.

Many of the principles they might find it necessary to discuss would perhaps exceed their terms of reference. For example, the work of the Conference could hardly proceed without some measure of agreement on such questions as regional control, approach control, aerodrom control, etc. (Aer-Doc. No 4)

Hence it was true to say that most delegations had arrived at the Conference insufficiently prepared. The French delegation, however, had bowed to the dicisions taken, and had participated in the work of the Preparatory Committee with the greatest good will.

The draft plan submitted by the United States delegation, to which he woud would like to pay tribute, contained material without which the Conference could hardly undertake its work, But in view of the short time available to the Preparatory Committee, it had been impossible to discuss the principles involved. Hence the French delegation could only lend its support to the United States draft plan, in so far as it constituted one method of approach to the problem.

The plan finally adopted should not to based on principles which had not been fully discussed or to which exception had been taken; it should be flexible enough for any country to adapt its own methods to it. Moreover, since aeronautical technique was constantly evolving, the plan should be such as could be revised, if circumstances so required, without having to convene another administrative conference under the auspices of the I.T.U.

No plan would be either acceptable or workable unless it satisfied these conditions.

Item B of the draft agenda (PC-AcreDocument No 25.p.4. Ch.II) was adopted.

Items C to I inclusive of the Recommended Agenda (PC-Aer-Document No 25, Chapter II, page 4) were adopted.

TERMS OF REFERENCE OF COMMITTEES.

The terms of Goference of Committees I,II, III, IV, V, VI, and VII, as in PC-Aer-Document No 25, ChapterIV, together with paragraphs 68 and 69 were adopted.

ELECTION OF CHAIRMEN OF COMMITTEES.

It was agreed that the Chairman might propose names to the Conference for its approval.

Mr.FALGARONE (France) proposed <u>Mr.VERES</u> (Portugal) as <u>Chairman</u> of Committee 2.

Mr.VERES (Portugal) was elected Chairman of Committee 2.

Mr.FALGARONE (France) was elected Chairman of Committee 3, at his own request.

The CHAIRMAN proposed Mr.SELIS (Netherlands) as Chairman of Committee 4.

Mr. SELIS (Notherlands) was elected Chairman of Conmittee 4.

Mr. FALGARONE (France) proposed <u>Mr.DUNCAN</u> (United Kingdom), as Chairman of Cormittee 5.

Mr. DUNCAN (United Kingdom) was elected Chairman of Committee 5.

- 5 -(Aer-Doc. No 4)

The CHAIRMAN proposed Mr.BETTS (Australia) as Chairman of Committee 6. Mr.BETTS (Australia) was elected Chairman of Committee 6.

The Chairman proposed Mr.FRY (United Kingdom) as Chairman of Committee 7. Mr. FRY (united Kingdom) was elected Chairman of Committee 7.

It was agreed that, in principle, there should be no sessions of the Conference on Saturdays and Sundays, in order not to over-burden the Secretariat.

COMPOSITION OF COMMITTEES.

The following countries and organizations expresses a wish to participate: <u>Committee 2</u>: Chairman: Mr.VERES (Fortugal), France, United States.

<u>Committee 3</u>: Chairman: Mr.FALGARONE (France), Columbia, Honduras, United States, IATA, ICAO, IFRB. <u>Committee 4</u>: Chairman: Mr.SELIS (Notherlands), Argentina, Australia,

- <u>Committee 4</u>: Chairman: Mr.SELIS (Netherlands), Argentina, Australia, Byelorussian Soviet Socialist Republic, Canada, China,Denmark, Dominican Republic, Egypt, France, Italy, New Zeeland, Portugal, Sweden, Ukrainian Soviet Socialist Republic, Union of Soviet Socialist Republics, United States, United Kingdom, Yugoslavia, IATA, ICAO, IFRB.
- <u>Committee 5</u>: Mr. DUNCAN (United Kingdom), Argentina, Bulgaria, Byelorussian Soviet Socialist Republic, Egypt, France, Netherlands, United States, Yugoslavia, IATA, ICAO, IFRB.
- <u>Committee 6</u>: Mr.BETTS (Australia), Argentina, Byelorussian Soviet Socialist Republic, Canada, China, Columbia, Cuba, Czechoslovzkia, Denmark, Egypt, Ecuador, France, Italy, Netherlands, Netherlands East Indies, New Zealand, Portugal, Sweden, Ukrainien Soviet Socialist Republic, Union of Soviet Socialist Republices, United Kingdom, United States, Yugoslavia, IATA, ICAO, IFRB.
- <u>Committee 7</u>: Mr.FRY (United Kingdom), Argentina, Australia, Bulgaria, Byelorussian Soviet Socialist Republic, Canada, China, Cuba, Czechoslovakia, Denmark, Ecuador, Egypt, France, Italy, Honduras, Netherlands, New Zealand, Fortugal, Sweden, Ukrainian Soviet Socialist Republic, Union of Soviet Socialist Republics, United States, Yugoslavia, IFRB.

The CHAIRMAN said that any delegation might be represented on any committee at any time. It was proposed to hold not more than two meetings of R band committees at the same time. If three committees met simultaneously, at least one would be an OR band Committee.

The Meeting rose at 5. p.m.

Reporter: N. Langford The Chairman: A. Lebel International Administrative Aeronautical Radio Conference G E N E V A, 1948

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

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

SECOND PLENARY MEETING

19 May, 1948

Agenda

Assignment of items of the Final Report between Committees.

= =]= = = =

Deuxièmo séance plénière 19 mai 1948

Ordre du jour

Répartition des différents points du rapport final aux commissions.

= = = = = =

Segunda Sesión Plenaria 19 de mayo de 1948

Temario

Distribución de los puntos de estudio del Informe Final, entre las Comisiones.

= = = = = = =



Aer- Document No 5 - E F S

<u>Aer. Doc. No 6 E</u> 19th May, 1948

Committee 7

Submitted in : ENGLISH

REPORT ON AERONAUTICAL MOBILE (OR) REQUIREMENTS

Committee 7 requires information as to the state of the requirements submitted on Form 2 for the Aeronautical Mobile (OR) service, in order that it may ensure that no forms are mislaid or overlooked. It is requested therefore, that each delegation complete the form attached at Appendix "A" and return it to the Chairman of Committee 7 via the Secretariat.

It is also requested that delegations holding a proxy another country should complete a copy of the form at Appendix "A" for each such country.

These reports should be made as soon as possible and not later than 17:00 hours 21st May.

A. FHY

Chairman. Committee 7

(9-18-5)



- 2 -(Aer. Doc. 6 E)

APPENDIX "A"

REPORT ON AERONAUTICAL MOBILE (OR) REQUIREMENTS SUBMITTED ON BEHALF OF

(country)

To : Secretariat, Aeronautical Conference.

The status of AeM (OR) requirements submissions for the above country is as follows :

- (a) Original Submissions (Ref Atlantic City Final Acts "Resolution Relating to the Preparation of the New International Frequency List") :
 - * (i) Have been submitted to the Secretariat
 - (11) Will be passed to Secretariat by
 - * (iii) None to submit

(b) All deletions as well as additions to the above AeM (OR) requirements (Refer PC-Aer Telegram 2 May 1948) :

(date)

date)

(date)

- (i) Have been submitted to the Secretariat
- (ii) Will be passed to Secretariat by
- * (111) None to submit

(c) Supplementary Information (Refer PC-Aer Telegram 2 May 1948) :

- * (i) Has been submitted to the Secretariat
- * (11) Will be passed to Secretariat by
- * (iii) None to submit.

+ Strike out non-applicable entried.

- NOTE 1. Return this form (after completion) to : The Secretariat, Aeronautical Conference, Room 1, Maison des Congrès, NOT LATER THAN 1700 hours, 21st May.
- NOTE 2. Delegates holding proxies should submit a return for the country they so represent, in addition to the return for their own country.

(9-18-5)

International Administrative Aeronautical Radio Conference

GENEVA. 1948

Aer-Document No 7- E 18th May, 1948

Committee 4

Original : English

GENI

Report of the First Meeting

The meeting was opened by Mr Selis, Chairman, at 10:00 a.m. in committee room 2, with the following present:

1	· ·	
Devincenti. A C.		Italy
Jaron. A.	-	U.S.S.R
Jouk. I.		Bielorussian S.S.R
Harvey, G.A.		South Africa
Acton, C. J.		Canada
Chef		(France
	· .	(Protectorats Maroc et funisie
Bergman. L.C.H.M.	-	Netherlands
Mitchell. D.		U.S.A.
White, E.L.		U.S.A.
Gautier. T.N.	-	U.S.A.
Carnahan, W.J.		U.S.A.
Shores, E.V.		U.S.A.
Vidal. O.E.	 ,	Argentina
J. G. Adam		I.A.T.A.
L. M. Layzell		I.A.T.A.
P. J. Greven	-	L.G.A.O.
D. L. Givens	-	U.S.A.
G. Briem	** .	Iceland
K. Svenningsen		Denmark
Gunnar Pedersen		Denmark
G. Searle		New Zealand
W. A. Duncan	-	U.K.
H. A. Rowland	-	U.K.
E. G. Betts	. 	Australia
E. Tabis	-	Cuba
Souto Cruz	' 	Portugal
A. De Haas		Neth. East Indies
B.H.F. van Lent	-	Neth, East Indies

Mr. Acton of Canada was selected as Vice Chairman.

After some discussion it was decided that the proceedings of the Conference would be conducted generally in English and French with consecutive translation and that the Spanish speaking delegates would be assisted by a speech interpreter.

It was decided that the task of reporting the meetings would be divided among those countries using English, French, and Spanish on the basis of the man power available to each delegation. The U.S.A. delegation agreed to assume the task for the first meetings.

The recommendation of the Steering Committee that the working hours be from 10 to 12 and from 14:30 to 17:00 was concurred in. -- 2 -(Aer-Doc No 7-E)

The Chairman advised the Committee of the recommendation of the Steering Committee that the Report of the Preparatory Committee be discussed and agreement reached as to those portions which would be appropriate for consideration by Committee 4. The subject will be discussed at the plenary session, the afternoon of May 19, when it is proposed to ratify the terms of reference of each of the 7 committees.

The Final Report PC Aer. Document No 25 and associated documents of the Preparatory Committee was studied by Committee 4. It was determined that paragraphs (10) to (12), inclusive, were the paragraphs outlining the primary subjects to be considered by the Committee.

Paragraph 16 of the Final Report is to be assigned to either Committee 4,5, or 6, as agreed between the Chairmen of those three committees.

In Section (d) of the Final Report, Committee 4 will note paragraphs (33), (34), (35d), (43) to (47) inclusive,(51) and (52) to insure that the final documents produced by Committee 4 will contain information adequate to enable a sound decision on the part of Committee 7.

The U.S.A. delegation offered to supply copies of document "CRPL-1-3, 3-1" mentioned in PC Aer Document No 5 in order that the Secretariat may duplicate the charts contained therein.

The U.S.A. delegation offered charts showing the useful ranges of the various orders of frequencies in the various areas of the world. These charts were accepted and referred to the Secretariat for duplication.

The Chairman inquired weather any of the delegations present were in a position to submit additional propagation date: for consideration by the Committee. If no delegation offered such date, the Committee would consider for the present the propagation date contained in PC-Aer Document No 5 and such supplementary charts as were being supplied by the U.S.A.

There being no further business, the meeting adjourned at 11:30 a.m.

Reporter: E.V.Shores The Sheiman: O. Selis

International Administrative Aeronautical Radio Conference, GENEVA, 1948

Aer-Document No 5 - E 18th May, 1948 Submitted in: ENGLISH

COMMITTEE 5.

REPORT OF THE FIRST MEETING 18th May, 1948

The meeting opened at 14.30. The undermentioned delegations and organizations were represented :

Argentina		U.S.A.
Bulgaria		U.S.S.R.
U.K.		I.A.T.A.

The following preliminaries were dealt with at the outset:

Vice Chairman. Mr. M.Chef (France) was elected.

<u>Reporters.</u> It was agreed that a separate reporter should act at each meeting and that delegations should subscribe to this office in accordance with their strength. Mr. Rowland (United Kingdom) assumed responsibility for the present meeting. The United States agreed to provide the reporter for the second meeting.

Languages. It was agreed that English into French and French into English interpretation should be provided and additionally, that a Spanish interpreter should be available to furnish simultaneous translations for the benefit of the Spanish speaking delegates as required.

The Committee then moved on to a consideration of FC-Aer Document No 25, with a view to deciding which of the paragraphs in this document came within the field of responsibility of Committee 5. It was agreed that the following paragraphs applied:

Chapter III Section (b)

Paras 13, 14 and 15 (provisionally).

The Chairman explained that Para 16 had been decided, between the Chairman of Committees 4, 5 and 6, as being appropriate to Committee 6.

It was considered that, in addition to the above, Paragraph 17 might also have to be considered by Committee 5.


The Committee decided that, in order to facilitate its future work, the large scale map displaying information on "International Air Routes", at present mounted in the Plenary Meeting Hall, should be transferred to Room 2, in which it was assumed all future meetings of Committee 5 would be held.

The Committee further decided that the map should be amended as appropriate in order to take account of any further information available.

The Chairman reminded the meeting that all delegations would be expected to study the Route Maps (Annex 5 PG-Aer Doc. No.19) and the Flight Information Tables (Annex 4 to PG-Aer Doc. No.19) with a view to bringing these up to date, emphasising that the information contained in these documents was based partly on the Winter time-tables for 1947 and partly on services operating at September 1947 and did not include the additional services which would operate during the Summer of 1948.

The Reporter:

The Chairman:

H.A. ROWLAND.

W.A. DUNCAN.

International Administrative Aeronautical Radio Conference Geneva, 1948 Aer-Document No. 9E 19 May 1948

COMMUNICATION FROM THE SECRETARY_GENERAL OF THE INTERNATIONAL TELECOMMUNICATION UNION TO THE CHAIRMAN OF THE CONFERENCE.

Berne, 26 April, 1948.

INTERNATIONAL TELECOMMUNICATIONS UNION

Division of Radiocommunication

R 38/147

U.I.T. Geneng

To the Chairman of the International Administrative Aeromautical Radio Conference

Sir:

According to the Radio Regulations adopted at Atlantic City, the Secretary-General of the Union is responsible for publishing the following documents:

1. (452) Schedule V. List of aeronautical and aircraft stations.

2. (463) The Map of land stations open to public correspondence with aircraft.

3,

The Map of radionavigation land stations.

1. It is laid down, with regard to the list of aero4 nautical and aircraft stations, that only aircraft operating on international routes shall appear on this list.

The information we at present possess on aircraft stations seems to be out of date. Hence it would seem desirable to avoid publishing information of this kind and to publish, in so far as Part C is concerned (Particulars of aircraft stations) only data relative to aircraft operating on international routes.

We would be grateful if you would inform us whether the Conference concurs with this opinion.

2. No information is given, either in the Acts of the Atlantic City Conference, or in the documents of that Conforence, with regard to the way in which the map of land stations open to public correspondence with aircraft should be published.

(14-19-5)

- 2 -(Aer-Document No,9E)

(i) As provision is made for communication between aircraft operating over the sea and coastal stations, it would seem that these latter should also appear in the map of aeronautical stations. In our opinion, however, such an addition would overload the map to such a point as to make it difficult to uso; recourse should rather be had to the map of coastal stations already published by the Bureau in the form of a small 9-page atlas.

(ii) What areas should be shown on these maps? We would like to know how the world should be represented on the various maps (alternatively which particular areas and/or particular routes 19

(11i) What scale should be selected?

(iv) Which type of projection would be most suitable, bearing in mind the area to be represented and the specific purposes of the map?

An answer to these questions would enable us to determine the number of sheets in the maps which are to be prepared. In general, we would be extremely grateful for any guidance the Conference could give which would allow us to give satisfaction to all concerned and at the same time to avoid duplication with other maps of similar type.

3. The same remarks apply to radionavigation land stations.

(i) In view of the fact that there exists a maritime radionavigation service, and an aeronautical radionavigation service, the map should include the stations of both.

(ii) Consideration might be given to the question whether a map should be published showing both services, or whether separate sheets should be published for each of the two services.

(iii) This question having been settled, the areas to be shown on these maps might then be determined.

(iv) Choice of a scale for these maps.

(v) The type of projection to be used.

(vi) How should the stations be shown? in the case of radio-direction-finding a) stations. b)

in the case of radio-beacons.

(14 - 19 - 5)

(Aer-Document No. 9E)

In general, the general secretariat of the Union would be glad to know the sense of the Conference on the points mentioned above. It would be grateful if the distinguished specialists represented at the Conference could devote a few moments to their consideration, so that the secretariat might proceed forthwith to publish the documents ip question.

We beg to draw your attention to article X of the agreement between the United Nations and the ITU, according to which these two organizations will enter into consultation to avoid any possible duplication in their work. In this case, we have in mind the publications issued by ICAO--another specialized agency of the United Nations. Our own publications must not overlap with those of ICAO.

It may be remembered, in this connection, that the Economic and Social Council of the United Nations, on the 24th February, 1948, adopted a resolution (see annex) on the coordination of cartographic services between specialized agencies and international organizations.

The Secretariat of the Union would be glad if it could be informed when this subject is likely to be discussed, so that the member or members of the General Secretariat entrusted with the publication of these documents may be detached to the Conference.

We thank you in advance for the assistance to be given us in this connection, and send you every good wish for the success of your work.

> I am, Sir ... Your obedient servant,

> > The Director, Bureau of the International Telecommunication, Union,

Berne

(14 - 19 - 5)

(Aer-Document No. 9E) ANNEX

UNITED NATIONS

UN RESTRICTED E/695 24 February, 1948 Original:English

ECONOMIC AND SOCIAL COUNCIL

COORDINATION OF CARTOGRAPHIC SERVICES BETWEEN SPECIALIZED AGENCIES AND INTERNATIONAL ORGANISATIONS

Resolution of 19 February, 1948.

CONSIDERING:

That the full development of the world's resources pre-supposes the existence of accurate maps, as these resources are in many cases to be found in areas of the world comparatively little explored; and

CONSIDERING:

that such maps promote international trade, further the security both of aeronautical and maritime navigation, provide – data necessary for the study of such measures of peaceful settlement as are provided for in Chapter VI of the Charter, and for the implementation of the security measures provided for in Chapter VII of this Charter; and

CONSIDERING:

that the coordination of the cartographic services of the United Nations and of the specialized agencies, together with those of Member States, would mean a considerable saving in time, money and man-power, and would help to improve the technique and the value of cartography; and

CONSIDERING:

that a number of Member States have already announced their interest in the drawing-up of a coordinated programme of international cartography: (*)

The Economic and Social gouncil therefore recommends:

1) Member States to promote the carrying out of accurate surveys and the production of accurate maps of their own territory.

2) The Secretary-General to take all necessary steps within the limits of the financial resources available to:

a) Support efforts made with this in view, by promoting the exchange of technical data, and by other means; in particular, by preparing a study of modern methods of cartography which would deal at the same time with the establishment of uniform international standards in this respect;

(14-19-5)

(Aer-Document No. 9E)

b) Coordinate the plans and programmes drawnup by the United Nations and the specialized institutions on cartographic matters, taking into account the work done in this field by various inter-governmental and non-governmental organizations, and to report on this matter to the Council at a later session.

c) Cooperate closely with the national cartographic services of the Member States concerned.

* Documents E/257, E/258, and E/483. (14-19-5)

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

<u>Aer.- Document No 10-E</u> May 19th 1948 Submitted in English <u>Committee 7</u>

Report of the Committee on the Allotment of OR Frequencies (Committee 7) First Meeting May 18th 1948

The Chairman Mr. A, Fry (United Kingdom) opened the meeting at 10 a.m. Those present included :

> Mr. F. Olano ARGENTINA: AUSTRALIA: Mr. J.D. Furze Mr. Givko Krestev BULGARIA: CANADA: Mr. B.R. Rafuse Mr. N.N. Chen CHINA: Mr. Svoboda CZECHOSLOVAKIA: EGYPT: Mr. J. Boctor FRANCE: Mr. Chef HONDURAS: Mr. Basilio de Telepef **NETHERLANDS:** Mr. T. de Ruig NEW ZEALAND: Mr. A. L. Partelow PORTUGAL: Mr. Tavares SWEDEN: Mr. Thomas Overgaard Ħ Mr. G. Kruse 11 Mr. Sven Gejer SWITZERLAND: Mr. C. Gillioz 11 Mr. P. Senn UKRAINIAN SOVIET SOCIALIST REPUBLIC: Mr. P. Melnik UNITED STATES OF AMERICA: Mr. J.D. Flashman 11 Ħ Ħ 11 Mr. C.W. Janes 11 11 Ħ 11 Mr. W.B. Krause UNION OF SOVIET SOCIALIST REPUBLICS: Mr. N. Baikuzov Ħ 11 Mr. V. Belooussov

In response to a suggestion from the CHAIRMAN <u>Mr. J.D. Flashman</u> (United States) was appointed Rapporteur.

Concerning the question of language to be used in the work of Committee 7, it was agreed that both French and English would be used continually and that Spanish would be used only when required for clarity.

The CHAIRMAN indicated that all documents would be published in English, French and Spanish.



- 2 -(Aer-Doc.NolO-E)

The CHAIRMAN reviewed the terms of reference for the Committee and continued with a discussion of paragraphs 31 to 54 of PC-Aer.Document No. 25.

The explanation offered by the CHAIRMAN, of the material contained in the Preparatory Report was acceptable to the Members of the Committee. A number of paragraphs required relatively detailed analysis of the work of the Preparatory Committee in arriving at the recommendations contained in the Report. In this connection the document C.R.P.L.-1-2, 3-1 referred to in paragraph 47 was explained and the United States delegate agreed to furnish copies to delegations indicating to him their desire for such material.

The Australian delegate proposed continuation of a working group which had been established throughout the Preparatory Committee's deliberations. The terms of reference for this working group were defined as follows:

- (a) to examine the statements of "OR" requirements already submitted;
- (b) to carry out appropriate corrections to statements of requirements now received;
- (c) to make appropriate recommendations, concerning the statements of requirements, to Committee 7.

The terms of reference as specified were adopted.

With regard to membership the CHAIRMAN proposed the following:

Mr.P. de Calan (Convener) (France) Mr.J.D. Flashman (United States) Mr. T. de Ruig (Netherlands)

The above membership was approved and the motion for establishment of the working group to be known as Working Group No. 1, of Committee 7, was adopted.

The United States delegate pointed out that under the terms of the Preparatory Committee telegram of May 2, 1948, all deletions and additions to "OR" requirements were required to be in the hands of the Aeronautical Conference by May 15, 1948. The question was asked whether or not any delegation present had not been able to comply with the provisions of that telegram.

The delegation from China indicated that not all requirements had been submitted but that China expected to complete submission of her Forms 2 by 22 May 1948.

The USSR delegate indicated that requirements for that country were in process of preparation and were not yet submitted.

Considerable discussion followed concerning the difference between the two dates specified in the Preparatory Committee telegram of May??, 1948 namely: May 15 for submission of requirements and May 30 for submission of supplementary information called for in the same telegram.

The suggestion was made that requirements submitted after May 15 be considered on a basis secondary to those submitted prior to that date. (Aer-Doc.No 10-E)

Another suggestion was advanced that additional requirements be considered up to 30 May providing they were accompanied by a suitable explanation for delay, and providing further that Committee 7 would be empowered to determine disposition of the requirements submitted beyond the deadline.

A proposal by the delegation of Canada was adopted to the effect that, the Chairman of Committee 7 should circulate to all delegations a questionnaire asking for detailed information on the status of their Form 2 requirement submissions.

The delegate of China suggested that Working Group 1 advise Committee 7 of the status of requirements already received.

In response to a direct question concerning the status of requirements, the U.S.S.R. delegate indicated that he could not specify exactly when full requirements would be submitted but he hoped that they would be in the hands of the Secretariat by the 30 May 1948. The U.S.S.R. delegate further indicated that he would submit his requirements so far as possible along the lines suggested by Form 2.

It became apparent that the question of the exact date to be accepted by the Committee as the deadline date for submission of requirements was a very important one and could not be resolved at the first meeting. In response to a proposal, therefore, it was agreed that discussion of this point should be deferred until the next meeting of Committee 7.

The CHAIRMAN adjourned the meeting at 12.25 p.m.

The Reporter: Mr. J.D. Flashman The Chairman: Mr. A. Fry.

(1-18-5)

International Administrative Aeronautical Radio Conference G E N E V A, 1948 Aer.Document No 11-E

19 May 1948 Submitted in ENGI Committee 6

Report of the Committee on Allotment of R Frequencies (Committee 6) 1st Meeting 18 May, 1948

1. Committe 6 held its opening meeting during the afternoon of Tuesday, May 18th, 1948. The purpose of the meeting was to examine the Preparatory Committee's Final Report PC-Aer Document No 25), and to determine which sections of the report are pertinent to the task assigned to the Committee. Representatives of the following States' and Organizations :: were present:

ARGENTINA: AUSTRALIA: BYELORUSSIAN S.S.R: CANADA: CHINA: CHILE: CUBA: CZECHOSLOVAKIA: DENMARK: EGYPT: BCUADOR: FRANCE: ITALY: NETHERLANDS: NETHERLANDS EAST INDIES: NEW ZEALAND: PORTUGAL: SOUTH AFRICA: SWITZERLAND: SWEDEN: UNITED STATES OF AMERICA: UNION OF SOVIET SOCIALIST REPUBLICS: YUGOSLAVIA: IATA: ICAO.

VICE-CHAIRMEN:

2. Messrs. E. Tabio (Cuba) and Souto Cruz (Portugal) were elected 1st and 2nd Vice-Chairmen respectively.

LANGUAGES :

3. It was agreed that discussions would be conducted by means of consecutive translation into the English and French languages but that an interpreter to undertake English-Spanish and Spanish-English translation will be available continuously for use as required by the Spanish speaking delegations. The Committee wishes to record its appreciation of the action of the Spanish speaking delegates in agreeing to this procedure as it will result in a considerable saving of time in the work.

REPORTS :

4. It was agreed that the Committee's reports to the Plenary Meetings will be kept as brief as possible and will normally contain a brief summary of each day's preceedings, setting out in full the various proposals which have been considered together with the recommendations and conclusions of the Committee. In cases where any delegation wishes to place any reservation or observation on record, it will furnish the text to the reporter as soon as practicable after the close of the meeting.

REPORTERS:

5. It was agreed that in so far as practicable each delegation will be responsible in turn for providing a reporter for each meeting in order to distribute the work load as evenly as possible over the participating States. The following delegations indicated their ability to furnish reporters when required:



- 2 -(Acr.Doc.No 11-E)

NETHERLANDS

FRANCE: ICAO: NETHERLANDS EAST INDIES: NEW ZEALAND: PORTUGAL:SWITZERLAND: and UNITED STATES OF AMERICA:, whilst CANADA: IATA and SOUTH AFRICA, indicated that they would act when practicable by pre-arrangement with the Chair.

WORKING HOURS:

6. The Committee was advised of the decision of the Steering Committee that initially the working hous will be from 10 a.m. to noon; and 2.30 to 5 p.m., Monday to Friday with no work on Saturday, but that variations of these hours may be made later as agreed by the Committee.

WORKING PAPERS:

7			
- 1	٠		

- The Committee briefly reviewed PC-Aer Document No 25 and
- (a) Noted the provisions of paragraphs 3,4,6 and 7 as being pertinent to its work.
- (b) Agreed that paragraph 15 (determination of probable loading factor for non-scheduled operations) is a matter for consideration by Committee 5.
- (c) Agreed that paragraph 16 (determination of probable peak loadings) should be considered by Committee 6.
- (d) Agreed that paragraphs 18, 19, 20, 21, 22, 23, 24, 25 and 26 are matters for consideration by Committee 6.
- (e) Agreed that action in connection with paragraphs 27 and 28 should be discussed by the Chairmen of Committees 4 and 6 in order to ensure proper coordination between the two groups and that if Committee 4 adopts the recommendations, it will be necessary for it to give consideration to the areas in which special frequencies are required.
- (f) Agreed similarly that in connection with paragraphs 29, 30 and 54, it will be necessary for the Chairmen of Committees 4,6 and 7, to ensure proper coordination of the work of their Committees in due course if the recommendations are adopted.
- (g) Noted that provision is made in the Committees terms of reference (paragraph 63) for such other studies as may be deemed necessary in addition to the plan submitted by the Preparatory Committee, and that delegates should therefore endeavor to complete the preparation of any proposals they may wish to bring forward as soon as possible in order that Committee 6 may proceed with its work.
- (h) Noted that the Plenary Assembly may wish to refer some matters to it in connection with the suggestion contained in paragraph 70.

8. The Representative of ICAO advised that a limited number of copies of PC-Aer Document No 4, which contained a drawing showing the ICAO regions are available for information if desired by members of the Conference who did not participate in the Preparatory Committee work: - 3 -(Aer.Doc.Nofil-E)

9. A brief explanation of the evolution and application of the proposed formula for determination of probable peak loadings(paragraph16) was furnished by the $U_{\bullet}S_{\bullet}$ Delegation.

10. The Committee agreed that the Chairman will furnish a verbal report only on its opening meeting, to the Plenary Assembly.

The Chairman: E.G.Betts

International Administrative Aeronautical Radio Conference Geneva, 1948

Aer. Document No 12-E 12-F

Conférence Administrative internationale des Radiocommunications aéronautiques Geneva, 1948

Schedule of Meetings

Thursday, May 20, 19	48	Room
10 a.m.	Committee 4	I
	Committee 5	II
2:30 p.m.	Committee 6	I
	Committee 7	II
Friday, May 21, 1948		
10 a.m.	Committee 4	I
	Committee 5	II
2:30 p.m.	Committee 6	I
	Committee 7	II

The Steering Committee will meet after the Committees 6 and 7 have finished their work.

Horaire des séances

		Salle
Jeudi, 20 mai 1948		
10 h.	Commission 4	I
	Commission 5	II
14 h. 30	Commission 6	I
	Commission 7	II
<u>Vendredi, 21 mai 1948</u>		
10 h.	Commission 4	I
	Commission 5	II
14 h. 30	Commission 6	I
	Commission 7	II

La commission de direction se réunira après la fin de travail des commissions 6 et 7.



International Administrative Aeronautical Radio Conference G E N E V A ,1948 Aer. Document No 13-E 13-F 13-S

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

Conferencia Administrativa Internacional de Radio-Gomunicaciones Aeronauticas G I N E B R A , 1943

Communication from the Steering Committee Proposals submitted to the Conference

The Steering Committee begs delegations to submit their proposals to the Conference as soon as possible, so that the committees may lose no time in discussing them.

Delegations are asked to inform the Secretariat of their intentions by completed the attached form.

<u>Communication de la Commission de direction</u> Propositions soumises à la Conférence.

La Commission de direction recommande instamment aux délégations de soumettre leurs propositions aussitôt que possible à la Conférence afin de permettre aux commissions de les discuter dans les plus brefs délais.

Elle demande à cet effet aux délégations de faire connaître au Secrétariat, en utilisant la formule ci-jointe, si elles ont l'intention de soumettre des propositions.

Comunicación de la Comision Ejecutiva

Proposiciones presentadas a la Conferencia

La Comision Ejecutiva recomienda muy especialmente a las delegaciones que presentan sus proposiciones a la Conferencia tan pronto como les sea posible, a fin de que las comisiones puedan discutirlas con la menor demora.

A este efecto, ruega a las delegaciones que pongan en conocimiento de la Secretaria, utilizando para ello la fórmula que se acompaña, si tienen la intención de presentar proposiciones. - 2 -(Aer.Doc. No 13-E) 13-F 13-S

The delegation of (indicate date if possible) will not submit proposals.

1) Indiquer la date, si possible

1) Indiquese la fecha, de ser posible

International Administrative Aeronautical Radio Conference Geneva, 1948 Aer-Document No. 14-E 20 May 1948

<u>METHODS OF WORK</u> Suggested to the <u>Conference by the Steering Committee</u>

1. Proposals to be submitted to the Conference

Subject to Rules 13 and 14 of the Rules of Procedure (Annex 4to the Convention of Atlantic City), proposals submitted by delegations should be handed over to the Secretariat of the Conference. The latter will see to their publication as Conference documents, and, if necessary, to their translation into the working languages of the International Telecommunication Union.

Delegations are requested to submit original or amending proposals wherever possible in writing and as early as possible.

2. Minutes of Plenary Meetings.

The minutes of Plenary Meetings will be established according to Article 19 of the Rules of Procedure.

The text of statements to be reproduced in extense should be handed over to the Secretariat of the Conference within the timelimit prescribed (within two hours after the end of the meeting).

3. <u>Reports of Committees and Working Groups</u>.

Reporters are requested to hand over the text of their reports to the Secretariat of the Conference after approval by the Chairman, for registration, translation, reproduction and distribution.

In order to expedite publication of documents, reporters should, in so far as practicable, have available reports of each meeting in at least two of theworking languages of the Union.

The Secretariat will see to the translation of the document into the language or languages of which versions were not supplied.

4. Amendments.

Requests for amendments to minutes or to reports must be submitted to the meeting, which will have to adopt the minutes or report.

5. Schedule of Meetings.

The schedule of meetings will be established by the Steering Committee, and will then be distributed to delegates and posted up in the Conference forms.

(14 - 20 - 5)

(Aer-Document No. 14-E)

6. Meeting Rooms.

Indication of the meeting rooms will be made on the schedule distributed to delegates. The Committee Chairman meeding a room for an extraordinary meeting are requested to apply to the Secretariat to that effect.

.7. Interpreters.

Committee Chairmen requiring the services of an interpreter for a non-scheduled meeting are requested to submit their requirement to the Secretariat.

8. Graphs.

When graphs are embodied in proposals or reports, such graphs should be in black print on a white background and, if possible, be in the normal size of documents in order to permit their reproduction in a minimum time.

The Secretariat is in a position to supply the necessary information with a view to facilitating the reproduction of graphs.

(14-20-5)

International Administrative Aeronautical Radio Conference G E N E V A, 1948 Aer, Document No 15-E May 20, 1948 submitted in English Committee 5

Report

the Committee on Aircraft Operation Statistics

(Committee 5) Second Meeting May 20, 1948

h. The meeting opened at 10:00. The undermentioned delegations and organizations were represented:

Argentina Bulgaria Czechoslovakia France French Protectorates Netherlands East Indies Ukranian Soviet Socialist Republic United Kingdom U.S.A U.S.S.R. I.A.T.A.

2. The minutes of the first meeting(Aer-Document No 8-E) were approved without comment.

3. <u>M. Chef</u> (France) expressed his thanks for the confidence shown in him by the Committee in selecting him as Vice-Chairman

4. <u>The Chairman</u> stated that the 2nd Plenary Session had agreed that Committee 5 should deal with paragraphs 13, 14, 15 and 17 of Document PC-Aer No 25-E (annexed to Document Aer.No 1)

5. He went on to say that § 13 refers to the Flight Information Tables in Annex 4 of PC-Aer Document No 19. The details therin were not in every case accurate or complete. It was the task of Committee 5 to bring the Tables up-to-date as soon as possible, since the information was urgently required by Committee 6.

The Committee AGREED that all delegations should be asked to check the Tables and to include all services operating as on 1st June 1948.

Column 6 of Table I should be used to show non-scheduled flights. Column 7 would be left for the use of Committee 6 to indicate the peak loadings.

6. The <u>Committee agreed</u> to appoint a small working group to be changed with producing a new and up-to-date Table I and Table II. Mr.Carnahan (U.S;A.) would serve as Chairman of the Group with the assistance of such other delegations as might be able to help. Mr. Adams (IATA) would also serve with the working group.

7. <u>The Chairman</u> indicated that all Delegations would be called upon to check TableII in the same manner as Table I. It was agreed that a column should be added to Table II, giving the mileage for non-scheduled flights, as far as was practicable.



- 2 -(Aer.Doc.No 15-E)

8. <u>The Chairman</u> inquired whether the Delegation of the U.S.S.R. would be in a position to furnish information along the lines of that already set forth in Tables I & II.

The Delegate of the U.S.S.R. stated that the information would be submitted as soon as it was received, which would be in about one week.

9. <u>The Chairman</u> stated with regard to the preparation of an international air route map(\$ 14) the Chairman stated that the maps distributed as Annex 5 to PC-Aer.Document No 19 reflected all the information shown in the Flight Tables as they stood at present.

10.Annex 5 would also have to be amended by the working group and would be distributed to all delegates. Similarly the large wall map in Room II would be brought up to date.

11. <u>Mr. Adams</u> (IATA), asked whether § 15 meant that the figure of 33 1/3 % should be applied only to major air routes or to all international routes. He suggested the insertion of working in § 15 to indicate that this paragraph should apply only to major world air routes. It was decided that this question should not be dealt with until the additional information on non-scheduled flights had been received.

12. <u>The Chairman</u> stated that he wished to consult with the Steering Committee before taking any action on \$ 17. The Committee agreed to this action.

13. The Committee adjourned, after deciding that a short meeting would be held at 10.00 a.m., May 21, for the purpose of approving the minutes of this meeting.

The Reporter: Florence Trail The Chairman: W.A. Duncan

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

Aer - Document No. 16 - E

20 May, 1948 submitted in English <u>Committee 4</u>

Report

of Technical and Operational Committee

(Committee 4)

Second Meeting. 20 May, 1948

The Chairman, Mr. Selis, opened the meeting at 10 a.m. The following members were present :

Vidal, O. E. Betts, E. G. Furze, J. R, Jouk, I. Acton, C. J. A. Schwerter G. R. Gonzalez A. Chen, N. N. Tabio, E. Svenningsen, K. Boctor, J. Briem, G. de Vincenti, A. C. Berman, L. C. H. M. de Haas, A. Searle, G. Partelow, A. L. Gillioz, C. Fry, A. Rowland, H. A. Harvey, G. A. White, E. L. Mitchell, Donald Krause, W. B. Givens, D. L. Gautier, T. N. Bartlett, T. L. Jarov, A. Mitrovic, S. Petit, René Layzell, L. M. Greven, P. J.

Argentina Australia 11 Bielorussian S.S.R. Canada Chile 11 China Cuba Denmark Egypt Iceland Italy Netherlands Neth. East Indies New Zealand 11 Switzerland United Kingdom 11 11 Union of South Africa U. S. A. U. S. S. R. Yugoslavia I. F. R. B. I. A. T. A. I. C. A. O.

1. Although no Spanish translation of the report of the first meeting was yet available, the Spanish-speaking members agreed to consideration of the document, and it was approved with the following changes: Correction of the spelling of the names of Mr. Jarov and Mr. Tabio as they appear in the roster.

Change the word "speech" in the paragraph on languages to "simultaneous".



- 2 -(Aer-Doc. No. 16-E)

On page 2, in paragraph 5 "CRPL - 1 - 3 " should read "CRPL-1 - 2 $_{g}$ 3 - 1"

The last sentence of paragraph 7 on page 2 should read, "As no delegation offered such data the committee would consider for the present the propagation data contained in PC-Aer Document No, 5 and such supplementary charts as were being supplied by the U. S. A.

2. By decision of the second Plenary Session the working hours of the conference would be from now on 10 to 12.30 and 14.30 to 17.00

3. By decision of the second Plenary Meeting paragraph 16 of the final report (Doc. 25) was assigned to Committee 6

4. The United States Delegate reported that the charts from Document CRPL 1 - 2 - 3 - 1 would require at least ten days to reproduce and that in the meantime the Secretariat had agreed to secure ten copies of the original document for the use of the Committee. The charts showing useful range of frequencies had been given to the Secretariat and reproductions would be available in about ten days.

5. After a review of those paragraphs of the final report, which had been assigned to Committee 4 it was decided to consider first the question of channel separation.

Those paragraphs of the final document and those sections of the Atlantic City Radio Regulations pertinent to the subject of channel separation were read and discussed.

The Delegate of IATA stated that the channel separations and particularly the frequency tolerance proposal were not practicable at this time in large areas of the world and that they should be accepted only as an absolute minimum. <u>The Delegate from Cuba</u> stated that he agreed with the views of the representative of IATA.

6. <u>The Chairman</u> submitted the following proposal as a basis for discussion:

Considering:

- a) the need for high communication capacity, in view of the increasing speed of aircraft;
- b) the minimum bandwidth which may be utilized for high capacity means of communication;
- c) the tolerance set forth in the Atlantic City Radio Regulations;
- d) the number of kc per second allocated to Aeronautical Mobile service in the various order of frequency in the Atlantic Regulations.
- e) that low capacity means of communication can, and will be used in channels adequate for high capacity systems while the reverse is impossible.

Recommends:

1) That in the initial plan for the allotment of frequencies, provision be made for a communication bandwidth of 5000 cycles, with a practical tolerance of the order of 0.02 percent. That the following separation between assignable channels be used. (Aer-Doc.No.16-E)

	<u>Chan</u>	nel Separation
Mc. Order of Frequency		Channel Separation
2.8 3.0	}	
4.0. 5.0 6.0)	7 ko
8.0	/	8 kc
10 to 20		10 kc

In making the recommendation, it is desired to emphasize that this will require high standards of engineering in the design and installation of communication equipment. Consequently, it would be impossible to count on higher standards in any endeavour to produce more assignable channels.

The Chairman of Committee 7 stated that it would be wise to include the band 23 to 23.5 Mc inasmuch as the Preparatory Committee had recommended consideration of this band. Committee 7 would require guidance in this respect and immediate action on this item would be appropriate. After discussion it was decided to consider this band and the R band at 21 Mo: in the table as follows:

Mc.Order	<u>Channel Separation</u>
20 to 23.5	12 1 kc

The Chairman adjourned the meeting at 12:30 P.D.

The Reporter: Donald Mitchell

The Chairman : 0. Selis

- 3 -

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

Aer - Document No 17 - E

20 May, 1948 submitted in English

Committee 6

of the Committee on the Allotment of R Frequencies

(Committee 6) Second Meeting 20 May, 1948

- 1. The meeting was opened at 14.30 by the <u>Chairman</u>, who stated that inasmuch as the report of the first meeting (Aer-Doc.No 11) had not been translated into French and Spanish, its consideration would be postponed until a latter meeting.
- 2. The final report (PC-Aer-Doc. No 25) and the terms of reference for Committee 6 were then discussed by the Chairman, together with the methods of approach to the problems confronting Committee 6.
- 3. a) The Soviet proposal was briefly discussed and handed to the Secretariat for immediate duplication, in order that it may be discussed at the next meeting of Committee 6.
 - b) The delegate of France indicated that a proposal would be tabled at an appropriate time without interfering with the work of the committee.
 - c) The representative of IATA said that he would later submit a paper on regional allocations.
- 4. The method of approach contained in the Final Report (PC-Aer-Doc.No 25) was then discussed by the Chairman, by Way of explanation for those delegations who were not present during the meetings of the Preparatory Committee.
- 5. <u>Mr. White</u> (United States) explained the method of approach to the regional problem proposed for the inter-American regions.
- 6. The discussion followed on the methods of approach suggested during the meeting.
- 7. It was suggested that the equatorial zones be defined and mapped at a later date. <u>Mr. Selis</u> (Netherlands), pointed out there was no equatorial zone indicated in the regional approach for the Eastern Hemisphere.
- 8. It was agreed that Committee 6 would await the Soviet proposal before meeting again at 14.30 on May 21st.

The Reporter: P.J.Greven The Chairman: E.G. Betts



International Administrative Aeronautical Radio Conference G E N E V A, 1948 Aer-Document No 18-E 21 May, 1948

Submitted in English

Committee 6

UNION OF SOUTH AFRICA

<u>Suggested Method of Approach to</u> <u>the Problem of World Allocation</u> <u>of Aeronautical Frequencies</u>

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 <u>not</u> 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 recognised 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 available 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 factor, 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 aerials, 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. International Administrative Aeronautical Radio Conference G E N E V A, 1948 Amendment to : <u>Aer-Document No. 19 - E</u> 22 May, 1948

In paragraph 5, page 4 : the first sentence should read : "The total number of frequencies available, obtained in accordance with points 2, 3 and 4

Conférence internationale administrative des Radiocommunications aéronautiques G E N E V E, 1948 Amendement au : <u>Aér-Document, n°19 - F</u>

Lire comme suit la première phrase du paragraphe 5, page 4 : "Le nombre total des fréquences disponibles, d'après les paragraphes 2, 3 et 4



International Administrative Aeronautical Radio Conference G E N E V A, 1948 Aer - Document No. 19-E 21 May, 1948 submitted in: RUSSIAN

STATEMENT BY THE SOVIET DELEGATION TO THE PLENARY MEETING OF THE CONFERENCE RELATIVE TO THE REPORT OF THE PREPARATORY COMMITTEE (PC -Aer-DOCUMENT No.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 conferencein particular by Mr. Falgarone, the delegate of France - the Preparatory Committee carried on its work in an atmosphere of extreme haste. Many recommandations 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 No.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 No.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, t the most equitable course would be to reduce them all in equal measure.

However, in the recommendations of the Preparatory Committee, (Document No.25, Paragraph 26, Items 1, a, b) another method of approach



- 2 -(Aer-Doc.No 19-E)

is proposed: to satisfy in the first instance the requirements of the socalled Major World Air Route Areas and of the Tropical Belt alloting 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 recommandations of Document No.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 Al 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 ration 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.

2. 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

- 3 -(Aer-Doc.No 19-E)

PROPOSAL SUBMITTED BY THE SOVIET DELEGATION ON THE GENERAL PRIN-CIPLES OF HF FREQUENCY ASSIGNMENT IN BANDS ASSIGNED TO MOBILE AIR-CRAFT SERVICES

1.n 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, Al-

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 alloted to ground stations.

2. When frequency requirements for Aeronautical Mobile Services have been determined, the world shall be divided into regions and subregions 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 Al telegraphy by aircraft transmitters.
- c) A band reserved for Al telegraphy by ground transmitters.

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

5. The common reserve of frequencies remaining after Points 2, 3 and 4 have been carried out, shall be alloted 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 alloting 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. - 4 -(Aer-Doc, No.19-E)

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

International Administrative Aeronautical Radio Conference GENEVA. 1948

Gonférence Internationale Administrative des Radiocommunications Aéronautiques GENEVE, 1948 Aer-Document No 20-E F

21 May 1948, 21 mai 1948, 21 de Mayo 1948

COMMITTEE 5 COMMISSION 5 COMISION 5

Conferencia Administrativa Internacional de Radiocomunicaciones Aeronauticas G I N E B R A. 1948

UNION OF SOUTH AFRICA

Ammendment to Annex & to PC-Aer Document No 19-E

- 1 The domestic weekly mileage for the Union of South Africa is shown as 62,177.
- 2 It is desired to bring this information up to date as at April 1948. The figure should now be 87.280 miles.

UNION DE L'AFRIQUE DU SUD

Amendement à l'Annexe 4 au Document CP-Aer No 19-F

- 1 Les distances en milles parcourues hebdomadairement par des services intérieurs de l'Union de l'Afrique du Sud sont indiquées par 62,177.
- 2 Cette indication doit être mise à jour à la date d'avril 1948 comme étant 87,280 milles.

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UNION SUD-AFRICANA

Enmienda del Anexo 4 al Documento CP-Aer-19-S

- 1 Las distancias en millas recorridas semanalmente por los servicios interiores de la Unión Sudafricana han sido indicadas como 62.177.
- 2 Como se desea poner al dia esta información, se consigna aqui la cifra correcta hasta el mes de Abril de 1948,que es de 87.280 millas.



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

Aer-Document No. 21-E

21 May, 1948 Submitted in English

MINUTES OF THE SECOND PLENARY MEETING held at the Maison des Congrès, Geneva on Wednesday, 19 May, 1948, at 2.30 p.m.

<u>CHAIRMAN: Mr. A. Lebel</u> (United States of America) <u>Vice-Chairman</u>: <u>Mr. A. Jarov</u> (Union of Soviet Socialist Republics).

APPROVAL OF MINUTES OF FIRST PLENARY MEETING

It was agreed that consideration of Aer-Document No. 4 (Minutes of First Plenary Meeting) be postponed until the French and Spanish versions of this document have appeared.

ALLOCATION OF PARAGRAPHS OF THE FINAL REPORT OF THE PREPARATORY COMMITTEE

(PC_Aer-Document No.25) TO COMMITTEES

Mr. SELIS (Netherlands), Chairman of Committee 4, said that Committee 4 proposed to take the following paragraphs from the Final Report for its consideration: 10a, 10b, 11a, b, c, d, 12, a, b, c, d, e, f, 33,34, 35a, 43, 44, 45, 46, 47. Paragraphs 51 and 52 had been recommended for consideration by Committee 4, after they had been studied by Committee 7.

Mr. FRY (United Kingdom), as Chairman of Committee 7, said that his Committee considered that the following paragraphs should be studied within the Committee: 7, 33, 34, 35a, 43, 44, 45, 46, 47, 51 and 52. If Committee 7 adopted the recommendations contained in paragraphs 43 to 52 it might be necessary to refer them back to Committee 4.

It was agreed that the Chairmen of Committees 4 and 7 should <u>co-ordinate their work in this respect</u>.

It was agreed that Committee 5 should study paragraphs 13, 14, 15 and 17 of the Final Report.

<u>Mr. BETTS</u> (Australia), Chairman of Committee 6, said that his Committee had noted the provisions of paragraphs 3,4,6 and 7 as being pertinent to its work. It had agreed that paragraph 15 should be considered by Committee 5, that 16 should be considered by Committee 6, and that 18 to 26 inclusive be also considered by Committee 6. His Committee considered that . : action in connection with paragraphs 27 and 28 should be discussed between the Chairmen of 4 and 6 to co-ordinate the work done by their respective Committees, and if Committee 4 adopted these recommendations of these paragraphs it would be necessary for it to consider areas in which special frequencies were required.

With respect to paragraphs 29,30 and 54, his Committee thought that the Chairmen of Committees 4,6 and 7 should ensure proper co-ordination of work if the appropriate recommendations were adopted. His Committee had further noted in paragraph 63 a reference to the necessity of studying other proposals and he appealed to delegates to present any proposals they might have as soon as possible.

It was agreed that paragraph 16 be considered by Committee 6, together with paragraphs 18 to 26 inclusive.



<u>Mr. BETTS</u> (Australia) referring to the action that might be necessary in connection with paragraphs 27 and 28, said he had expressed the views of his Committee. Personnally, however, he thought that if Committee 4 adopted and passed on these recommendations, then the "areas" should be determined by Committee 6.

<u>Mr. SELIS</u> (Netherlands), referring to paragraph 27, said that the first sentence of the paragraph was contained in paragraph llc, so that this part of 27 might appropriately be considered by Committee 4 and the second part of the paragraph by Committee 6, after the first sentence had been dealt with.

It was agreed that this procedure be adopted.

It was agreed, in connection with paragraphs 29,30 and 54, that the Chairmen of Committees 4,6 and 7 should meet to ensure co-ordination of their work if the recommendations of these paragraphs were adopted.

ALLOCATION OF PROPOSALS TO INDIVIDUAL COMMITTEES

<u>Mr. WHITE</u> (United States of America) said that new proposals coming up in the course of the Conference should be assigned by the Steering Committee, without coming up formally before the Plenary Meeting.

<u>Mr. de CALAN</u> (France) said that the questions raised by paragraphs 70 being of an urgent nature, Committees 6 and 7 should cooperate to study them.

<u>Mr. WHITE</u> (United States of America) suggested the Chairmen of the various Committees might be authorized to confer on matters of common interest as they arose.

It was agreed that, in principle, the Steering Committee should be charged with the allocation of items, but that the Chairman of Committees should be authorized to exchange ideas on them before they were passed on by the Steering Committee.

It was agreed that Committee 7 should study paragraphs 31 to 54 inclusive. together with paragraph 70.

MEETINGS OF HEADS OF DELEGATIONS

The CHAIRMAN asked whether, in the opinion of the Conference, he should be authorized to call meetings of the Heads of Delegations. In his own view, the Steering Committee could do most of the administrative work of the Conference. But he emphasized that it was for the delegations to decide whether or not such meetings of heads of delegation should be convened.

It was agreed that the CHAIRMAN might convene a meeting of <u>Heads of Delegations</u>, should matters arise which, in his judgment, would justify such a course.

SIMULTANEOUS MEETINGS OF COMMITTEES

(1-20-5)

STATEMENT BY THE SOVIET DELEGATION

<u>Mr.JAROV</u> (Union of Soviet Socialist Republics) said that it had been made clear in the Steering Committee that the Plenary Meeting would consider the report of the Preparatory Committee before Committees 4,5,6 and 7 started their work. But the questions they had just been discussing - allocation of paragraphs to the various Committees - could easily be settled, either by the Steering Committee or by the Chairmen of the Committees between themselves.

The recommendations of the Preparatory Committee provided for the assignment of frequencies for simultaneous use in as many parts of the world as possible, leaving distribution within these areas to the administrations concerned, in the expectation that the high frequencies allocated by the Atlantic City Radio Regulations would be supplemented by the very high frequencies (PC-Aer-Document No.25-E, p.8, paragraph 25).

To make this quite clear, the Soviet delegation would submit the following resolution:

"TASKS OF THE AERONAUTICAL CONFERENCE, GENEVA, 1948. CONSIDERING :

1. That requirements of aeronautical mobile services can be satisfied within the limits of the HF bands laid down by Atlantic City only if they are fully shared between the various region of the world; and that :

2. different systems of communication are used by different areas and countries for aeronautical mobile services.

The Conference considers its task to be as follows:

a) To summarize the requirements of aeronautical mobile services,

b) To divide the world into regions, taking into account the distribution of airroutes and wave propagation conditions, for the maximum use of frequency sharing, and

c) to assign frequencies between countries and regions, bearing in mind the fact that further assignment of these frequencies within those regions and countries will be done by the administrations themselves or by regional conferences, should the administrations concerned find this necessary."

The CHAIRMAN said that there seemed to be no difference of substance between this resolution and the course the Conference was supposed to be taking. But the resolution seemed to require careful study, and if it were submitted in writing, the Conference might be able to discuss it at the next Plenary Meeting.

<u>Mr. JAROV</u> (Union of Soviet Socialist Republics) said that he would not object to this course of action.

The Soviet delegation had some concrete remarks to make on PG-Aer-Document No. 25 (Final Report of the Preparatory Committee), and he would like to make a statement. It had been agreed at the first meeting of the Steering Committee that the document should be considered as a whole by the Conference, before being submitted to individual committees.

- 4 -(Aer-Doc.No.21-E)

After some discussion, it was agreed that the Soviet delegation might make a statement of a general nature relative to the Final Report of the Preparatory Committee.

<u>Mr. JAROV</u> (Union of Soviet Socialist Republics) then read a statement on the Final Report. (See Annex).

The CHAIRMAN felt that in view of the issues raised by this statement, it should be prepared as a separate document and submitted for consideration at a later meeting.

It was agreed that a written text of the statement be submitted to Committees 4. 63 and 7.

HOURS OF MEETINGS OF COMMITTEES.

It was agreed that, in future, committees should meet from 10 a.m. to 12.30 p.m.

Reporter: N. Langford Chairman: A. Lebel

Aer - Document No. 21-E

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

ANNEX

STATEMENT BY THE SOVIET DELEGATION TO THE PLENARY MEETING OF THE CONFERENCE RELATIVE TO THE REPORT OF THE PREPARATORY COMMITTEE (PC -Aer-DOCUMENT No.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 conferencein particular by Mr. Falgarone, the delegate of France - the Preparatory Committee carried on its work in an atmosphere of extreme haste. Many recommandations 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 No.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 No.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, t the most equitable course would be to reduce them all in equal measure.

However, in the recommendations of the Preparatory Committee, (Document No.25, Paragraph 26, Items 1, a, b) another method of approach


- 2 -(Annex- ,Aer-Doc.No21)-E)

is proposed: to satisfy in the first instance the requirements of the socalled Major World Air Route Areas and of the Tropical Belt alloting 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 recommandations of Document No.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 Al 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 ration 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.

2. 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.

(Annexe-(Aer-Doc.No 2D-E)

PROPOSAL SUBMITTED BY THE SOVIET DELEGATION ON THE GENERAL PRIN-CIPLES OF HF FREQUENCY ASSIGNMENT IN BANDS ASSIGNED TO MOBILE AIR-CRAFT SERVICES

1.n 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 withoural reception, Al-

Provision shall be made for A3 telephony on the common frequencies air-to-ground and ground-to-air, together with, in general, Al 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 alloted to ground stations.

2. When frequency requirements for Aeronautical Mobile Services have been determined, the world shall be divided into regions and subregions 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 Al telegraphy by aircraft transmitters.
- c) A band reserved for Al telegraphy by ground transmitters.

4. The separation between adjacent frequencies in each band shall be done according to the frequency tolerances for band widths 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 alloted 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 alloting 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. - 4 -(Annex -(Aer-Doc. No.2D-E)

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

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

Aer-Document No. 22 - E 21 May, 1948 submitted in English

<u>Committee 7</u>

Report

of the Committee on the Allotment of OR Frequencies

(Committee 7)

Second Meeting

20 May, 1948

The CHAIRMAN, Mr. A. Fry (United Kingdom) opened the meeting at 2.35 p.m.

Those present included:

Argentina	1	Mr.	F. Olano
Australia	1	Mr.	J. D. Furze
Bulgaria	1	٩r.	Givko Kreste
Canada	1	Mr.	B. R. Rafuse
Chile	1	٩r.	A. Renato Gonzalez
Egypt	1	٩r.	J. Boctor
France	1	٩r.	Ph. de Calan
Honduras	ł	٩r.	Basilio de Telepnef
New Zealand	ł	٩r.	A. L. Partelow
Netherlands	1	٩r.	T. de Ruig
Netherlands East Indies:	1	٩r.	B.H.F. van Lent
Portugal	1	Ir.	Souto Cruz
Sweden	1	٩r.	T. Overgaard
Switzerland	N	٩r.	C. Gillioz
United Kingdom	M	٩r.	A. Fry
Ukrainian Šoviet	Ν	٩r.	P, Melnik
Socialist Republic			
United States of America	N	۱r.	W. B. Krause
tt tt tt	· N	13.	J., D. Flashman
Union of Soviet	ň	٩r.	N: Baikusov
Socialist Republics	ł	4r.	V. Beloousov

It was decided that both French and Spanish would be used at this meeting and appropriate interpreters were obtained.

The CHAIRMAN raised the question of election of Vice-Chairman; this question not having been considered at the first meeting.

The delegate from Sweden was nominated but said he could not accept due to pressure of other work. <u>The delegate from Australia, Mr.J.D.</u> <u>Furze</u>, was nominated and unanimously appointed by the Committee.

Consideration of Aer-Document No.10, (Report of 1st meeting of Committee 7) was deferred until a succeeding meeting when texts in languages other than English would be available.

Final date for submission of Form 2 : The United States delegate presented a proposal concerning this matter, which was seconded by Argentina and Australia and was subsequently adopted by the Committee without opposition. The text of the proposal is as follows:



- 2 -(Aer-Doc No 22)

"PROPOSAL CONCERNING FINAL DATE FOR SUBMISSION OF

DELETIONS AND ADDITIONS TO AERONAUTICAL MOBILE "OR" SERVICE REQUIREMENTS

1. It is resolved that the date of May 15, 1948 be the final date for submission of Statements of Requirements on Form 2 for the Aeronautical Mobile"OR" service, called for by the Atlantic City Radio Conference.

2. This date (May 15, 1948) has already been specified as the final date for such submissions by the Aeronautical Preparatory Conference, and notice to this effect is contained in PC-Aer. Committee telegram dated May 2nd, 1948.

3. It is recognized that delays in mail, under some circumstances, may have prevented the requirements of some countries from reaching the Secretariat by May 15, 1948. As a solution equitable to all, the Committee resolves that those requirements which have not been received by the 30th May 1948 shall be dealt with only after those which have been received <u>on or</u> <u>before</u> that date."

The CHAIRMAN indicated that the Netherlands representative on Working Group 1 of Committee 7, <u>Mr. T. de Ruig</u>, was unable to continue. <u>Mr. Souto CRUZ (Portugal</u>)was appointed in place of the Netherlands delegate.

The CHAIRMAN opened the meeting for discussion of proposals contained in Document No. 25 of the Aeronautical Preparatory Committee as well as any other pertinent proposal.

In connection with paragraph 31 of PC-Aer Document No 25, the <u>Soviet delegate</u> indicated that Soviet requirements might not be the same as those indicated in Form 2.

The proposal that Committee No.7 work directly from Forms 2, or from requirements similar in nature to Forms 2,(containing essentially the same information as called for) was adopted.

The Soviet delegate again expressed the earnest desire of his delegation to submit the Soviet requirements as closely as possible in accordance with Form 2 but felt that he could not guarantee that the Forms 2 themselves would be used.

<u>Mr. Melnik (Ukrainian Soviet Socialist Republic)</u> indicated that the Form 2 as drawn up by Atlantic City was not an accurate means of preparing and submitting the frequency requirements of the various countries. He supported a previous Soviet proposal: namely, "That frequency assignments should be based on territorial size with due consideration being given to different requirements for the different regions of the world".

The CHAIRMAN called for a vote on this point to determine whether or not it was in the view of the Committee that the <u>information</u> <u>essentially as called for on Forms 2</u> should be used as the basis for determining frequency requirements of the various countries: - 3 -(Aer-Doc.No 22-E)

In favour - - - - - 14 Against - - - - - 1 Abstentions- - - - 2

It was thereupon ruled that Form 2 should be the basis for determining requirements.

Considerable discussion followed concerning the proposal contained in paragraph 32 of PC-Aer Document No. 25, namely, the extent, if any, to which IBM methods would be used in compilation of Form 2 requirements. The proposal of the <u>French delegate</u> was ultimately adopted, namely, that the Committee would defer consideration at this time but make a recommendation concerning this question at an appropriate time after further study of Forms 2.

The CHAIRMAN said that discussion of paragraphs 33,34 et 35a should be postponed pending the decisions of Committee 4 with respect to these matters.

Paragraphs 35b and 37a were next discussed jointly. Numerous proposals were offered, but no concrete conclusions were reached. It was evident that many technical questions were involved, including the possibility of space if changes from broad band emission to narrow band emission were made and conversely the possibility of interference if changes from narrow band emission to broad band emission were undertaken. It was ultimately decided that consideration of this question should be deferred until the next meeting.

The delegate of France offered a motion that Committees 6 and 7 meet jointly to decide recommendations concerning disposition of bands:

315 - 325 kc/s and 325 - 340 kc/s

Discussion of this motion was deferred until the next meeting.

The CHAIRMAN adjourned the meeting at 5.05 p.m. with the statement that paragraph 35b of Document No.25, and the proposal of the French delegate, would be the first and second items for the agenda of the next meeting.

The Reporter:

The Chairman:

Mr. J. D. Flashman

Mr. A. Fry

International Administrative Aeronautical Radio Conference GENEVA, 1948

Aer-Document No 23-E 21 May, 1948

Submitted in : English

Committee 5

Report

o f the Committee of Aircraft Operation Statistics

> (Committee 5) Third Meeting 21 May, 1948

1 - The undermentioned delegations and organizations were represented :

Argentina	Netherlands East Indies
Bulgaria	Ukranian Soviet Socialist Republic
Chile	United Kingdom
France	U.S.A.
French Protectorates	U.S.S.R.
	I.A.T.A.

2 - The minutes of the second meeting (Aer-Doc.15-E) were approved with the following amendments :

Paragraph 6, line 1, read : "charged" instead of "changed".
" 9, line 2, delete the words "the Chairman stated".
" 11, line 2, insert the word "world" between "major" and "air".
" 11, line 3, read "wording" instead of "working".

The delegates of Argentina and Chile reserved approval of the Spanish text of the minutes.

- 3 The <u>Chairman</u> announced that M. <u>Beaufol</u> (France) had undertaken to serve on the Working Group formed at the second meeting.
- 4 It was agreed that delegations should be requested to hand in their amendments to the Flight Information Tables to the Secretariat office by Monday 31st May at the latest. The documents should be marked with the name of the delegation concerned and with the words "Working Group, Committee 5".
- 5 It was decided, for the guidance of the Working Group, that the wall map in Room II should first be corrected and that subsequently the amended version of the map issued as Annex 5 to PC-Aer-Doc. No 19 would be distributed as soon as possible.
- 6 With reference to Table I the question was raised as to whether, for the purposes of Committee 6, the data relative to International Regional Services should be shown separately from that relating to Major World Air Route services.

The <u>Chairman</u> undertook to consult the Chairman of Committee 6 on this point.



- 7 Concerning the figures for Non-scheduled flights to be shown in Column 6 of Table I and in the new Column 4 of Table II, it was made clear that only Non-scheduled operations utilising "Route" frequencies were to be included.
- 8 It was agreed that the Working Group would refer to the <u>Ghairman</u> any points of difficulty arising in the course of its work, so that, should questions of principle be involved, he might decide whether a meeting of the full committee should be convened.
- 9 The attached note recapitulates the action to be taken by delegations.

The Reporter :

The Chairman

F. A. Trail

W. A. Duncan

- 3 -(Aer-Doc.No 23-E)

NOTE

Amendment to Flight Information Tables (Annex 4 to PC-Aer-Doc.19-E)

1. It is requested that delegations check the information relating to their respective countries contained in Table I of the above Annex, and include therein all services operating as on 1st June 1948.

Non-scheduled operations utilising"Route " frequencies are to be indicated in Column 6 of this Table.

- 2. Table II should be similarly checked and an additional Column (4) inserted, in which are to be shown as far as practicable estimated mileage figures for Non-scheduled flights utilising "Route " frequencies.
- 3. The amended Tables should be handed in to the Secretariat Office (adjacent to Room I) as soon as possible and <u>not later</u> <u>than 10.00 hours 31st May</u>, addressed : "Working Group, Committee 5 ", and marked with the name of the delegation.

International Administrative Aeronautical Radio Conference GENEVA, 1948

Aer-Document No 24-E 21 May, 1948

Submitted in : English

Committee 4

Report

of the Technical and Operational Committee

(Committee 4) Third Meeting 21 May, 1948

The meeting opened at 10 a.m. nizations were represented :

Argentina Australia Byelorussian S.S.R. Canada Chile China Cuba Czecheslovakia Denmark Egypt France French Colonies Iceland The following delegations and orga-

Italy Morocco and Tunisia Netherlands Netherlands East Indies New Zealand Switzerland United Kingdom Union of South Africa United States Union of Soviet Socialist Republics Yugoslavia I.A.T.A. I.C.A.O.

The report of the second meeting (Aer-Document No 16), not having been circulated in French and Spanish, was not put forward for approval; however, it was agreed that paragraph 6 of the English version of the document, that embodying a draft proposal for the separation of frequency channels, should be considered.

Considerable discussion took place on the subject. The delegate from Byelorussian S.S.R. expressing disagreement on the frequency separation recommended by the preparatory Committee, made the following specific proposals for the separation of frequency channels in the high frequency bands of the aeronautical mobil service.

	For A	1 Operation		Fc	or <u>A3 Operatio</u>	<u>n</u>
Order of	Freq.(Mc/s):	Channel Separation To be announced	(kc/s) : :	Order of	f Freq.(Mc/s):	Channel Separa- tion (kc/s
Below 6	• •	later	3	Below 6	:	To be announc-
	:		:		:	ed later
6		6	:	6	:	10
8		8	:	8	:	12
10 an	d above :	10	:	10 and	above :	15

ARCHIVES U.I.T. GENEVE After further discussion on the Byelorussian proposal, and that contained in Paragraph 6 of Aer-Doc. No 16-E, it was decided to set up a working group, to be known as "Working Group 4A", with the following terms of reference :

To recommend channel separation for the high frequency bands of the aeronautical mobile service, for high capacity means of communication.

The undermentioned delegations and organizations expressed a wish to be represented :

<u>Canada (Chairman)</u>	Union of South Africa
Argentina	United Kingdom
Byelorussian Soviet Socialist Republic	United States
France	Yugoslavia
Netherlands East Indies	I.A.T.A.
	I.C.A.O.
	I.F.R.B.

The Chaiman stated that the next meeting of Committee 4 would take place at 10 a.m. Monday 24th May, or at some other time to be announced, by which time it was expected the report of Working Group 4A would be available for consideration.

The Reporter :

The Chairman :

H. A. Rowland

0. J. Selis

CHIVA

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International Administrativ Aeronautical Radio Conferenc Geneva, 1948	re Se	Aer. Document No 25 25 25
Conférence Administrative in des Radiocommunications aér Genève, 1948	ternationale onautiques	
Conferencia Administrativa I de Radiocomunicaciones Aero Ginebra, 1948	Internacional máuticas	
	Schedule of Meetings	
<u>Monday, May 24, 1948</u>	· · ·	<u>Room</u>
10 a.m.	Committee 4	I
2:30 p.m.	Committee 6 Committee 7	II II II
<u>Tuesday, May 25, 1948</u>		
10 a.m.	Committee 4	I
2:30 p.m.	Working Group 5A Committee 6	
5 p.m.	Committee 7 Committee 1	I II I
•	Horairs des Séances	· · · · ·
Lundi, 24 mai, 1948		<u>Salle</u>
10 h.	Commission 4	I .
14 h. 30	Groupe de travail 5A Commission 6 Commission 7	
<u>Mardi, 25 mai, 1948</u>		
10 h.	Commission 4	
14 h. 30	Groupe de travail 5A Commission 6	
17 h.	Commission 7 Commission l	II I
	Programa de Sesiones	
Lunes, 24 de Mayo de 1948		<u>Sala</u>
10 h.	Comisión 4	I
14 h. 30	Grupo de trabajo 5A Comisión 6 Comisión 7	II I II
<u>Martes, 25 de Mavo de 1948</u>		
10 h.	Comisión 4	I
14 h. 30	Grupo de trabajo 5A Comisión 6 Comisión 7	
17 h.	Çomisión l	I N

Comisión 6 Comisión 7 Comisión 1

International Administrative

<u>Aer-Document No 26 - E</u>

Aeronautical Radio Conference

GENEVA, 1948

24 May, 1948 submitted in FRENCH

Committee 1

Report

of the Steering Committee 3rd Meeting 21 May, 1948

CHAIRMAN : <u>Mr. A. Lebel</u>, Chairman of the Conference. Present:

Mr. Souto Cruz (in place of Mr. Veres, Chairman of Committee 2) Mr. Falgarone (Committee 3) Mr. Selis (Committee 4) Mr. Duncann (Committee 5) Mr. Betts (Committee 6) Mr. Fry (Committee 7)

Also present : Mr. Acton (Canada), Mr. Chef(France), Miss Florence Trail (United States).

The CHAIRMAN suggested that the following matters be considered :

- 1. Time-table of meetings
- 2, Schedule of dates of the work of the Conference

RECOMMENDATION RELATIVE TO THE STUDY OF MEDIUM WAVE BANDS.

<u>Mr. FRY</u> (Committee 7) said that the French delegate had proposed to Committee 7 that the Conference should recommend to those representatives of aeronautical administrations who would attend the Copenhagen Conference the preparation of an aeronautical frequency assignment plan in the 315-325 kc/s and the 325-405 kc/s bands. He asked whether the Steering Committee considered that this question ought to be studied by a joint meeting of Committees 6 and 7.

In the course of a lengthy discussion, <u>Mr. ACTON</u> (Canada) said that should the Conference adopt a recommendation on this point, not only area 2, but also all the frequency allocation areas dealt with in the Atlantic City plan should be considered. It had been agreed that the matter should be discussed by a Plenary Meeting of the Conference.

It was agreed that (1) this question should not be discussed by a joint meeting of Committees 6 and 7, and that 2) Mr. ACTON (Canada), together with Mr. FALGARONE (France), should draw up a draft resolution covering all the areas concerned. This draft resolution would be submitted to the Plenary Meeting, which might then decide on the terms of a resolution to be referred to the IFRB. The IFRB would then take appropriate action.

TIME_TABLE OF MEETINGS.

The Committee then decided upon a time-table of Meetings up to 26 May 1948 (See Aer-Document No.25).

ARCHIVES U.I.T. GENEVE

- 2 -(Aer-Doc.No26-E)

FINAL REPORT OF THE CONFERENCE.

The CHAIRMAN suggested that the main lines of the Final Report might be established forthwith .

<u>Mr. FALGARONE</u> (Committee 3), agreeing, proposed to submit such a summary plan some time during the following work. It seemed to him that the report should comprise three main points: A) Basic principles, B) The frequency assignment plan, C) Possible recommendations.

SCHEDULE OF DATES FOR THE WORK OF THE CONFERENCE;

The CHAIRMAN asked the Chairman of Committees if they could give dates by which the work of their committees would be finished.

After some discussion, <u>Mr. SELIS</u> (Committee 4) and <u>Mr. DUNCAN</u> (Committee 5), suggested the following dates :

Committee 4 28 May

31 May for the submission of data.

4 June for completion of the Committee's Report and Map.

MEETING OF THE CREDENTIALS COMMITTEE.

Committee 5 :

<u>Mr. FALGARONE</u> (Committee 3) reminded the Committee that according to the rules of procedure, the report of the Credentials Committee would have to be submitted during the **first** week of the Conference!

It was agreed that in the absence of <u>Mr. VERES</u> (Committee 2) who was not expected to return before 1 June, <u>Mr. Souto CRUZ</u> (Portugal) should convene Committee 2 forthwith, in order that a report might be submitted as soon as possible.

Reporter :

Chairman :

A. Lebel.

G. Corbaz

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

Aer-Document No 27 - E

24 May, 1948 Submitted in English Committee 7

Report

the Committee of the Allotment of OR Frequencies

(Committee 7) Third Meeting 21 May 1948

The CHAIRMAN, Mr. A. Fry (United Kingdom) opened the meeting

at 2 p.m.

Those present included :

Argentina Australia Bulgaria Canada China Egypt France Honduras Italy Netherlands Netherlands East Indies New Zealand Portugal 11 Sweden Switzerland Ukrainian Soviet Socialist Republic United States of America

Mr. F. Olano Mr. J. D. Furze Mr. Givko Krestev Mr. B. R. Rafuse Mr. N. N. Chen Mr. J. Bootor Mr. Ph. de Calan Mr. Basilio de Telepnef Mr. A. C. de Vincenti Mr. T. de Ruig Mr. B. H. F. van Lent Mr. A. L. Partelow Mr. Souto Cruz Mr. Viriato Tavares Mr: T. Overgaard Mr. G. Gillioz Mr. P. Melnik

Mr. J. D. Flashman Mr. W. B. Krause Mr. C. W. Janes

Union of Soviet Socialist Republics

Mr. N. Baikousov

The CHAIRMAN placed before the Committee consideration of paragraph 35 a of PC-Aer-Document No.25, discussion concerning which had not been completed at the previous meeting.

The <u>Australian delegate</u> presented the following proposal in this connection :

"That wherever practicable, assignments for emissions having the same band width be assembled into contiguous channels provided that this will not preclude change of the bandwidth of emission of any frequency and also provided that any such change does not cause harmful interference to adjacent channels."



- 2 -(Aer-Doc.No 27-E)

In spite of minor modifications proposed by the delegates of Egypt and France, the Soviet delegate felt that considerable change in the wording was necessary.

Thereupon the Soviet delegate submitted a proposal which was discussed at some length and to which a slight amendment was added by the delegate from the United Kingdom,

The text of the Soviet proposal as amended is as follows : "That wherever possible, similar types of emission should be assembled into contiguous channels and that the change-over from one type of emission to another shall be allowed in those cases where the band occupied by the new type of emission is approximately the same, in order to avoid harmful interference to stations operating on adjacent channels on the one hand and on the other hand in order to use the spectrum space to its full capacity ".

The Australian delegate then withdrew his earlier proposal and seconded the Soviet proposal as stated above and as amended by the delegate of the United Kingdom.

The Soviet proposal, as amended, was unanimously adopted by the Committee.

The Committee then proceeded to discussion of the second item of the agenda, namely, the French proposal made at the previous meeting. This ran as follows :

> " The French delegation proposes that a joint meeting of Committees 6 and 7 be convened for the purpose of discussing the shared bands 315-325 kc/s and 325-405 kc/s, in so far as Region I is concerned."

The French delegate said that this proposal had been submitted so that concrete recommendations might be placed before the forthcoming Copenhagen Conference. That Conference would deal with those shared bands and might with advantage assign frequencies in them.

The CHAIRMAN said that discussion of these bands might concern other regions, but perhaps not so intimately as Region I.

After much discussion on the limited extent to which the Aeronautical Conference should consider the question, the French proposal was seconded by the delegates from Canada and Bulgaria.

In the absence of opposition, the French proposal as stated above was unanimously adopted by the Committees

The CHAIRMAN indicated that he would arrange with the Steering Committee for a suitable time and place for the joint meeting.

The CHAIRMAN then placed before the Committee consideration of Aer-Document No.19, submitted by the Soviet delegation.

Due largely to the fact that Document No. 19 was not available at that time in all the appropriate languages, it was agreed that detailed discussion of the document should be deferred until the next moeting. - 3 -(Aer-Doc.No 27-E)

The CHAIRMAN then placed before the Committee for joint consideration, paragraphs 35 c and 37 relating to assignments of frequencies (in contiguous channels) to any one country.

In general, the points of view expressed in the discussion which followed, indicated that it was undesirable for a small country to have contiguous channel assignments but that problems of interference could be more quickly disposed of if interfering channels were controlled by the same administration.

The Canadian delegate summed up the difference of opinion, pointing out that the words "if practicable" would provide for unforeseen contingencies.

It was generally felt, however, that re-wording was necessary to provide for the difficulties foreseen by the Committee.

The Soviet delegate proposed a re-draft of paragraph 35 c, which was subsequently amended by the delegates of Australia and France.

The final text of paragraph 35c was proposed as follows : "Where a country so desires and geographical considerations permit, then whenever practicable, assignments for that country shall be assembled into contiguous channels."

In the absence of any opposition the CHAIRMAN then ruled the proposal adopted unanimously.

The CHAIRMAN referring to paragraphs 48,49,50 and 51, pointed out that the "83 frequencies" mentioned therein should be ignored for purposes of discussion, since this figure was calculated on the basis of proposed channel separations, which as yet had not been adopted.

The Soviet delegate stated that it was inopportune to discuss these paragraphs before consideration of the Soviet proposals contained in Document 19, since such proposals, if adopted, would considerably alter the Committee's views on the paragraphs in question.

The CHAIRMAN postponed consideration of this item of the agenda in order that the Committee might first study the document submitted by the Soviet Delegation.

The Meeting rose at 4.50 p.m.

The Reporter : Mr. J. D. Flashman The Chairman : Mr. A. Fry International Administrative Aeronautical Radio Conference G E N E V A, 1948 Aer-Document No 28-E 24 May, 1948 Submitted in ENGLISH

CHINA

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, adn, in general, is in agreement with the proposed boundaries of areas as shown on the map attached to Annex 7 of PC-Aer-Document No 19.

From the plan, it will be seen that three Major World Air Route Areas intersect at Shangai. If the plan were adopted by the Conference, the frequency allotment made would require the station at Shangai to provide at least three families of frequencies for international aviation. The provision of adequate equipment and personnal 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 responsability for the operation of ground aviation telecommunications facilities. It fears that the further development of international civil avaition 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, Shangai, Hongkong, Manila, Saigon and Bangkok (and/or Rangoon) were each assigned to one of the three families of frequencies alloted to the South East Asia Area.

THE CHINESE DELEGATION

NAI-NING CHEN



Annex to Aer-Document No 28 - E Annexe au Aér-Document No 28 - F Anexo al documento Aer No 28 - S

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International Administrative Aeronautical Radio Conference GENEVA, 1948 Aer-Document No 29-E May, 1948

Submitted in : English

Gombined Minimum and Maximum Distance

Range Gharts for Aeronautical Mobile

Radiotelephone Communications

The attached charts (33) show minimum and maximum ranges for aeronautical mobile frequency bands for sunspot number zero (solid curves) and sunspot number 125 (dashed curves), at every 10° of latitude from 40° S to 60° N inclusive in each of the three zones W, I and E, for summer noon at the midpoint of the transmission path. The curves are based upon figures 2-15 in PG-Aer Document No. 5.

The charts indicate the distance interval over which a frequency may be used. For example, in figure 1, which refers to the latitude 0° in the Wzone, the operating range of 9 Mc is approximately 400 - 850 miles at sunspot number zero, and 0 - 600 miles at sunspot number 125.








































































International Administrative Aeronautical Radio Conference G E N E V A, 1948 <u>Aer-Document No 30 - E</u> 24 May, 1948

Submitted in : FRENCH

FRANCE

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.

3.

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.

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.

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 belligerants 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.

4.

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.

On the other hand the nature of communications to be envisaged for the route system provided by the Cairo Regulations and 191918 shas 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.

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 these 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 require 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 anHHF world network.

There are several ways in which the available frequencies may be distributed between these two noticomes. 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.

8.

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.

6.

The bands specified below are proposed as a first approximation:

2-850 4-650 5-480 8-815 10.005 13-260	to 3.025 to 4.700 to 5.680 to 8.965 to 10.100 to 13.360	or or or or or	175 kc/s 50 kc/s 200 kc/s 150 kc/s 95 kc/s 100 kc/s
÷		4942 shaqada	na ang ang ang ang ang ang ang ang ang a

and

10.

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

680 kc/s

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

The system must :

Total, 6 bands

- a) be proportional to the traffic of each region,
- b) provide for possible use of all types of emissions, including Al,
- 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.

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 Al maddbetelegraphy 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 useoff radiotelephony was forbidden to public transport aircraft before 1939 in the member countries of the CINA.

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

(Aer-Doc.No 30-E)

As will be seen, this system is very flexible, and when developed to its fullest extent, resembled 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 allocations 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.

Designatio	on of	ban	ds_	,	<u>Total</u> <u>Width</u>	<u>Width</u> employed	Availability
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 :

<u>Calling zone</u>. 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 alls transmitted on the two side frequencies may also be heard when listening but 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 of increase iver (increase of selectivity, use of the BFO, etc.)

It is evident that the selection of calls is only possible with Type Al 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.

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 Al 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.

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 alloted 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 member 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 . aircrift.

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

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.

15.

16.

- 6 -(Aer-Doc.No 30-E)

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. <u>Procedure for use</u>.

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. <u>Watch for Distress Calls</u>.

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 rarety 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. 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) <u>Aircraft</u> : 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 (Al,A2,A3,A4, etc.) which are used at present or are likely to be used in the future.

b) <u>Ground stations</u>: 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 sizecand 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.

. <u>Ground Equipment.</u>

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 clatter 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.

25.

22



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27.

The French delegation will elucidate more fully the advantages and disavantages 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. International Administrative Aeronautical Radio Conference GENEVA, 1948

Conférence internationale administrative des Radiocommunications aéronoutiques GENEVE, 1948

Conferencia Administrative Internacional de Radiocomunicaciones Aeronauticas GINEBRA, 1948

BULGARIA

Amendments to Annexes 4 and 5 to PC-Aer-Document No 19.

BULGARIE

Amendements aux Annexes 4 et 5 au document CP Aér No 19.

BULGARIA

Enmiendas a los Anexos 4 y 5 al documento CP-Aer No 19.

1	-((In the Master Index, read	:	Belgrade - 244 - 946 a Bucharest - 329 - 106 - 244 -
	(Dans l'Index, lire :		946 b Praha (Czech) 550 - 925 - 83 -
	(247 - 297 - 324 - 329 - 331 - 446 -
	(En el Indice General, leer	:	760 - 904 - 946 a

(Add :	Moscou - 946 c
(Ajouter :	Sofia - 946 a
(Anadir :	

2 - In Table I, add into numerical order : Dans le Tableau I, ajouter à l'ordre numérique : En el Cuadro I, anadir a la orden numérica :

Sofia '	Belgrade	175	JUSTA-2	4	2
	Bucarest	160	TARS-2	4	2
X	Moscou	1055	Aeroflot-4	6	2
	Praha	635	$\delta VS - 2$ $\delta SA - 2$ BVC - 2	4	2
	Sofia '	Sofia 'Belgrade Bucarest `Moscou Praha	Sofia Belgrade 175 Bucarest 160 Moscou 1055 Praha 635	Sofia Belgrade 175 JUSTA-2 BVS - 2 Bucarest 160 TARS-2 BVS - 2 Noscou 1055 Aeroflot-4 BVS - 2 Praha 635 CSA-2	Sofia Belgrade 175 JUSTA-2 4 BVS - 2 Bucarest 160 TARS-2 4 BVS - 2 Moscou 1055 Aeroflot-4 6 BVS - 2 Praha 635 CSA-2 4



Aer-Document No 31-E

F

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3 - In Table II Read : Dans le Tableau II, lire : En el Cuadro II, leer :

II -

Annex 5

Europe	Bulgarie	4566	1400	
	Annexe 5	Anexo	5	

Annex 5. (Map of International Air Routes) must be completed according. to these amendments.

L'Annexe 5 (carte des routes aériennes internationales) doit être complétée conformément à ces, amendements.

El Anexo 5 (Mapa de las Rutas aereas Internacionales) debe ser completado en conformidad con estas enmiendas. International Administrative Aeronautical Radio Conference GENEVA, 1948 Aer-Document No 32-E 24 May, 1948

Submitted in : English

ENEN

Committee A

Report

<u>o f</u>

the Technical and Operational Committee

(Committee 4) Fourth Meeting 24 May, 1948

1 - The meeting was opened at 10:00 a.m. by the Chairman. Present :

ALBANIA : Mr. P. Kito Mr. V. E. Vidal Mr. E. G. Betts ARGENTINA : AUSTRALIA : BULGARIA : Mr. G. Krester BYELORUSSIAN SOVIET Mr. I. Jouk SOCIALIST REPUBLIC : GANADA : Mr. C. J. Acton CHINA : Mr. N. N. Chen Mr. A. Schwerter Mr. E. Tabio CHILE : CUBA : CZECHOSLOVAKIA : Mr. Z. Svoboda DENMARK : Mr. K. Svenningsen EGYPT : Mr. J. Boctor FRANCE : Mr. M. Falgarone ICELAND : Mr. G. Briem INDIA : Mr. N. V. S. Iyengar ITALY : Mr. A. C. de Vincenti NETHERLANDS : Mr. L. C. H. M. Bergman NEW ZEALAND : Mr. G. Searle NEW ZEALAND : Mr. A. L. Partelon NORWAY : Mr. N. J. Soeberg PAKISTAN : Mr. S. A. Sathar POLAND : Mr. S. Krasuski 111 Mr. A. Arciuch SWITZERLAND : Mr. P. Senn 11 Mr. G. Bois TUNISIA AND MOROCCO : Mr. G. Chef Mr. W. A. Dunsan UNITED KINGDOM : 11 II . Mr. A. Fry : 11 11 Mr. H. A. Rowland : UNITED STATES : Mr. E. L. White Ť1 11 Mr. E. V. Shores Į1 11 Mr. T. N. Gautier ** 11 Mr. D. L. Givens : 11 Mr. C. W. Janes 11 : Ħ 11 Mr. W. E. Weaver : Ħ 11 Mr. D. Mitchell : Ħ Mr. W. B. Krause

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- 2 -

UNION OF SOUTH AFRICA : UNION OF SOVIET SOCIALIST REPUBLICS : YUGOSLAVIA : I.C.A.O.: I.F.R.B. : I.A.T.A. :

Mr. G. A. Harvey Mr. A. Jarov Mr. S. Mitrovic Mr. P. J. Greven Mr. R. Petit Mr. L. M. Layzell Mr. J. G. Adam

- 2 The adoption of document No 16, still not available in French, was postponed.
- 3 The report of working group 4A (Annex A hereto) was presented.
- 4 The Chairman submitted a proposal embodying the channel separation discussion of Committee 4 and Working Group 4A. This proposal as modified during the course of the meeting is attached as Annex B.
- 5 The United Kingdom objected to the 50% probability factor used in the South African channel separation proposal, and submitted separations based on 75% probability factor. These are embodied in Annex B.
- 6 The South African delegate stated that his 50% probability factor was based on a French paper submitted to the PFB which showed that on the assumption that 0.02% variation is exceeded 10% of the time, 50% of 0.02%, or 0.01% would be exceeded 50% of the time.
- 7 Both South African and United Kingdom delegates suggested that the basis, i.e., modulation, bandwidth and tolerance, be stated for each proposal for a scheme channel separation.
- 8 The United States delegate offered a concrete proposal to replace the final paragraph of Annex B. This was not acted upon, and is shown as Annex C.
- 9 The delegate of Byelorussia asked if the United States' proposal excluded 0.05% tolerance. The United States delegate answered that in the case of Al, no; but in the case of A3, yes. The delegate of Byelorussia replied that in this case Byelorussia and the U.S.S.R. could not agree to the proposal.

The Reporter :

The Chairman :

T. N. Gautier

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(Aer-Doc.No.32.E)

ANNEX A

REPORT OF WORKING GROUP 4 A

OF

COMMITTEE 4

21 May, 1948

1 - Terms of Reference of Working Group 4A

"To recommend channel separations for the Aeronautical Mobile Service frequency bands for high capacity means of communication".

- 2 The delegate of <u>France</u> stated that the proposal of France would be handed in to the Secretariat for duplication on May 24, 1948. However, as it did not contain suggestions on technical principles it need not be discussed by this Working Group.
- 3 The <u>Chairman</u> suggested that all delegations present obtain a copy of P.F.B. Document No. 210 for study in connection with the problem at hand.
- 4 The delegate of U.S.A. supported the recommendation contained in Aer. Document No. 16, stating that it would satisfy the requirements for high capacity means of communication. It was suggested that though the Atlantic City documents indicated 6000 cycles per second for good quality A3 bandwidth, 5000 c.p.s. should be satisfactory.
- 5 The delegate of Byelorussia was asked to explain his proposal in this matter and, in essence, it was stated that he would suggest 6000 c.p.s. for A3 emission with a tolerance of 0.05%, as outlined in the Atlantic City documents.
- 6 The representative of the <u>I.F.R.B.</u> pointed out to the meeting that the figures contained in Appendix 5 of the Atlantic City Radio Regulations were purely examples and need only be considered as a guide.</u>
- 7 The delegate of <u>Colombia</u> suggested it might be possible to reduce the factor 2T in tolerance calculations by using bandwidths of 2700 - 3000 c.p.s., without undue interference, for A3 operation. In practice this would tend to reduce the tolerance to below 0.02%. Furthermore, in practice, with carrier shift within the tolerance limits suggested, and provided 5000 c.p.s. bandwidth were employed, the resultant probability of adjacent channel interference might not be more than 10% with practical geographic spacing between stations.
- 8 The delegate of <u>Union of South Africa</u> suggested that the meeting establish the bandwidths required for Al, A2 and A3 types of emission, by obtaining facts bearing on the problem from known tests. Mr. Rowland (U.K.) stated that the tests referred to had been conducted over wire communication facilities only, but that 5000 c.p.s. bandwidth should allow at least 80% intelligibility.
- 9 The representative of <u>I.A.T.A</u> supported the views of the delegate of Union of <u>South Africa</u> and suggested setting the bandwidth at 5600 c.p.s. thereby reducing the tolerances slightly but with greater intelligibility.

- 4

- 10 The delegate of <u>Byelorussia</u> explained his proposal, using the band at 6685 kc/s as an example, showing approximately 28 channels as against 23 in the recommendation shown in Aer Doc. 16. In explanation the band 6685 kc/s would be divided into three sub-bands, with approximately half the space for A3 emission, 10 kc/s band width; one quarter for
- 11 The delegate of <u>Byelorussia</u> then offered the following summarized proposal to the meeting :

Al channels of 6 kc/s width; and the balance for narrow band Al.

- (a) It happens that in telephone work with high standards of tolerance, in practice demands the same frequency separation as Al for equipment of lower tolerance of 0.05% at 6 Mc/s and above.
- (b) The second standard, to be determined for A3 for equipment which is presently in use with tolerance of 0.05%.
- (c) The third standard for high capacity means of communication which will demand high tolerance and more or less the same band width as Al of lower tolerance.
- 12 This was followed by a proposal by the delegate of <u>Union of South Africa</u>, (supported by the Netherlands East Indies and the U.S.A.) that :
 - The committee accept 3000 c.p.s. per side band as this will accomodate speech A3 at present and high speed communications of the future. Then determine the probability factor (suggested at 50% or B+T) using 0.02% tolerance as a basis.
- 13 It was suggested by the delegate of the <u>U.S.S.R.</u> that there were three proposals being discussed and that to allow for complete understanding of each proposal, more time for consideration should be given to study the three proposals, namely :
 - (a) The Aer-Doc. 16 recommendation
 - (b) The Byelorussian proposal
 - (c) The Union of South Africa proposal
- 14 See the attached appendix for details of bandwidth proposal discussed during this meeting.

The Reporter :

The Chairman :

P, J. Greven

C. J. Acton

21 May 1948

- 5 -(Aer-Doc.No.32-E)

A	Ρ	P	E	N	D	Ι	X
	_	-					

Mc/s	<u>Col 1</u> 2T	<u>Col 2</u> 2T	<u>Col 3</u> col 1	<u>Col 4</u> col 2	<u>Col 5</u> 0.02%
Order	at .05%	at .02%	+6000	+6000	+6000
、3	3000	1200	9000	7200	6600
, 5	5000	2000	11000	8000	7000
7	7000	2800	13000	8800	7400
10	10000	4000	16000	10000	8000
11	11000	4400	17000	10400	8200
13	13000	5200	19000	11200	8600
17	17000	6800	23000	12800	9400
23	23000	9200	29000	15200	10600

1 - Table showing bandwidth for varying tolerances :

1

2 - Table showing bandwidths proposed by <u>Byelorussia</u> for frequencies above 6 megacycles :

For	<u>A1</u>	<u>For A</u>	.3
Mc/s order	Band- width	Mc/s order	Band- width
. 6	6 Kc/s	6	10 Kc/s
8	8 "	8	12 "
10 above	10 "	10 above	15 "

3 - Table showing bandwidths as proposed by <u>Union of South Africa</u> as compared to those recommended in Aer-Doc.No. 16 :

	,	South Africa	Aer-Doc. No. 16
Mc/s order	• · · · · · · · · · · · · · · · · · · ·	Kc/s <u>bandwidth</u>	Kc/s bandwidth
2.8		6.5	7.0
3.0		6.5	7.0
4.0	•. •	6.5	7.0
6.0		7.0	7.0 -
8.0		7.5	8.0
10.0		8.0 -	10.0
13.0		8,5	10.0
15.0		9.0	10.0
17.0		9.5	10.0
20,0	to 23.5	10.5	12.5

(Aer-Doc.No.32-E)

<u>ANNEX</u> B

DRAFT PROPOSAL ON CHANNEL SEPARATION

The results of the study of the channel separation problems by the Preparatory Committee, the discussions on this subject in Committee 4 as well as the exchange of views which took place in the Working Group 4A indicate that there are several points of view with respect to channel separations which should be taken into consideration and which may be summarized as follows :

- 1) One or more countries (for instance, South Africa) proposed some slight changes in the channel separation for high capacity means of communications as mentioned in Document 16.
- 2) Some countries (for instance, France, U.K., Netherlands, and others) remark, as pointed out in the recommendations of Document 16, that low capacity means of communication can and will be used at least for some time and they want an indication from Committee 4 as to the channel width that would be available for this perhaps temporary use of Al.
- 3) In this connection, other countries (for instance, U.S.A. and Canada) emphasize that it would be unwise and short-sighted to adopt a plan which would foreclose the possibility of using high capacity means of communications in any part of the bands involved and in any part of the world as soon as industry is ready to adopt such types of communication.
- 4) Some countries pointed out that with regard to Al two different channel widths should receive consideration, i.e.
 - a) One for simplex and aircraft duplex (crossband).
 - b) One for ground station duplex (crossband).
- 5) Byelo-Russian proposal for channel separations :

Taking into consideration :

- (a) that the radio communication regulations of Atlantic City provide for the use of aircraft stations with a frequency tolerance of 0.05% up to 1953, and at the same time stations with a tolerance of 0.02% will also be used, and that the plan of frequency distribution for aeronautical-mobile service must allow the use of all such stations.
- (b) that the use of high capacity means of communication, such as A4, in no case requires a wider channel width than telephone communication A3,
- (c) that for high capacity means of communication only therew types of stations will be used having a tolerance not worse than 0.02%, and therefore in many cases it may be sufficient for such communication to accept channel separation which is essential to telegraph communication Al with a tolerance of 0.05%, the Byelo-Russian delegation proposes for the formulation of the plan for allocation of frequencies that the following standards of channel separation be accepted :

ANNEX B

(Aer-Doc.No.32-E)

A3 aircraft stations with low stability	A3 and A4 aircraft stations with high stability	Al aircraft stations with low stability
up to 6 Mc/s 10 kc	7 kc/s	6 kc/s
8 Mc/s 12 kc/s	8 kc/s	8 kc/s
over 10 Mc/s 15 kc/s	10 kc/s	10 kc/s

Ground stations with 0.02% frequency tolerance

2.8 to	3.5	Mc/s	1.5 kc/s	
	4.7	Mo/s	2.0 kc/s	
	5.7	Mc/s	2.5 kc/s	
	6.6	Mc/s	3.0 kc/s	
	, 8	Mc/s	4.0 kc/s	
10 to	13	Mc/s	5.0 Mc/s	
	15	Mc/s	6.0 kc/s	
17 to	18	Mc/s	7.5 kc/s	

Summarizing all these remarks of the different delegates the following basic recommendations on channel separation were studied as a basis for the eventual adoption by Committee 4 of a channel separation plan.

CHANNEL SEPARATION

T) For high capacity means of communication based on a tolerance of the order of 0.02%; simplex *)**

2-6 Mc/s	*.	7	kc/s
8 Mc/s		.8	kc/s
10-20 Mc/s	, ··· :	10	kc/s
20-23.5 Mc/s	· ·	12,	5 kc/s

2) For Al, based on a tolerance of 0.02 to 0.05%; simplex and aircraft duplex (crossband).

2-6	Mc/s		3.5	kc/s
8	Mc/s		4.	kc/s
10-20	Mc/s		5	kc/s
20-23.5	Mc/s	· ·	6	kc/s
- *) This channel separation may also temporarily be used in some parts of the world for Al, using old equipment with frequency tolerances up to 0.05% or for Al with application of adjacent crossband operations within the limits of the channel.
- ** The following is the channel separation scheme proposed by the South African delegate, based on a modulation bandwidth of 6 kc/s and 50% of 0.02% tolerance.

B	a n	<u>d</u>	<u>Chann</u>	el Width
2.8 to	4	Mc/s	6.5	kc/s
5 to	6	Mc/s	7	kc/s
7/1 to	8	Mc/s	7.5	kc/s
10 to	11	Mc/s	8	kc/s
x	13	Mc/s	8.5	kc/s
• •	15	Mc/s	9	kc/s
. 1	17	Mc/s	9.5	kc/s
21 t o	23	Mc/s	10.5	kc/s

The following is the channel separation scheme proposed by the U.K. delegate, based on 6 kc modulation bandwidth and 75% of 0.02% tolerance :

<u>Band (kc/s)</u>	Channel Separation (k /s
2850 - 3155	6.5
3400 - 4750	7.0
5480 - 6765	7.5
8815 - 9040 ,	8.5
10005 -10100	9.0
11175 -11400	9.5
13200 -18030	10.0
21850 -23350	12.0

For Al, based on a tolerance of 0.02 - 0.05%; ground station duplex

2-6 Mc/s	1.5 kc/s
8 'Mc/s	2 kc/s
10-20 Mc/s	2.5 kc/s
20-23.5 Mc/s	3 kc/s

,

4) For A3 especially for aircraft using old equipment with tolerances of the order of 0.04 - 0.05%, simplex

26	Mc/s	10 kc/s
8	Mc/s	12 kc/s
1020	Mc/s	15 kc/s
20-23.5	Mc/s	17 kc/s

.•

As a final remark it may be emphasized that Committee 4 not knowing what kind of frequency allocation plan will be adopted by the Committee 6 and 7 has to provide for all possibilities and has to give to these committees all the lists they perhaps need.

(Aer-Doc.No.32-E)

- 10 -

Draft Resolution Proposed for

Committee 4

CONSIDERING :

That the aviation service is growing rapidly and that the numbers of kilocycles allocated to the aeronautical mobile service is extremely limited, and

that the present trend toward higher aircraft speeds requires increasing speed in the handling of air ground messages and

that provision for the use of unstable equipment in the aviation service will require wide communication channels and

that the period between the close of this conference and the implementation of the plan prepared by this conference will give opportunity for the modification or retirement of unstable equipment.

IT IS RECOMMENDED BY COMMITTEE 4

1 -- That the following table of frequency separation be adopted ;

2850 - 3155 kc/s	6.5 ke/s
5400 - 4750 kc/s	7.0 kc/s
5480 - 6765 kc/s	7.5 kc/s
8815 - 9040 kc/s	8.5 kc/s
10005 -10100 kc/s	9.0 kc/s
11175 -11400 kc/s	9,5 kc/s
13200 -18030 kc/s	10.0 kc/s
21850 -23350 kc/s	12.0 kc/s

It is recognized : that as a practical matter it might be possible for two or more A-1 channels to be derived from each of the channels provided under this frequency separation plan

and that there is a present requirement for manual telegraph communication in many parts of the world.

However, the provision for channels on a permanent basis with a narrow separation would defeat the purpose of providing for the use of high speed means of communication on all channels without reallection. further

It is therefore/recommended that :

- (1) channel division be authorized
 - a) when an administration controls all the operations both airoraft or land in the area or over the route involved in the service provided by the frequency to be divided;

b) or by arrangement between all administrations having an interest in any phase of the aeronautical operation (including the operation of aircraft or land station) in the area or route served by the frequency proposed to be divided.

(Annex to Aer-Doc.No.19)

- 11 -

ANNEX C

(2) Such channel divisions to be made on a temporary basis and in the understanding that no interference is caused thereby to other aeronautic services rightfully operating on other routes or in other areas with provision for frequent review of the continued necessity , for division. International Administrative Aeronautical Radio Conference G E N E V A , 1948 Aer-Document No 33 - E

25 May, 1948

Submitted in : ENGLISH

CHINA

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 alloting 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 intercontinental 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.

<u>The delegate of the Netherlands</u>, in the course of the Conference, has stated that when frequencies other than those required for Major World Air Route Areas are to be alloted 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 alloting 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 proposal:

1. For the purposes of frequency allotment, air services shall be divided into two main categories :

a) Intercontinental services operating within Major World Air Route. Areas and

b) Regional and national air services.



- 2 -(Aer-Doc.No 33-E)

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.

THE CHINESE DELEGATION

NAL-NING CHEN

International Administrative Aeronautical Radio Conference

Aer-Document No.34-E 27 May 1948.

GENEVE, 1948.

Submitted in: ENGLISH

I. A. T. A. Regional Division of the World.

Introduction.

Before attempting to divide the world into Regions for the purpose of alloting 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 alloted 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



U.I.T. GENÈVE 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 obsorption 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.

- 3 -(Aer. 34-E)

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 Faper 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 cut 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.

(Aer. 34-E)

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 Gong 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, 167° 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.

.

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.

- 6 -(Aer, 34-E)

Far-East Region.

European 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° Jorth 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 alongthe 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 Fole 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, - 7 -(Aer. 34-E)

South American Region.

This region embraces the whole of Argentine, 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.



(Aer-Doc.No.32-E)

Annez B the Aer-Doc.Ne.35 7 June, 1948

THE FOLLOWING TEXT IS INTENDED TO REPLACE THE PRESENT

ANNEX B TO AER DOCUMENT No. 35 The results of the study of the channel separation problems by the Preparatory Committee, the discussions on this subject in Committee 4 as well as the exchange of views which took place in the Working Group 4A indicate that there are several points of view with respect to channel separations which should be taken into consideration and which may be summarized as follows :

- 1) One or more countries (for instance, South Africa) proposed some slight changes in the channel separation for high capacity means of communications as mentioned in Document 16.
- 2) Some countries (for instance, France, U.K., Netherlands, and
- others) remark, as pointed out in the recommendations of
 Document 16, that low capacity means of communication can and will beused at least for some time and they want an indication from Committee 4 as to the channel width that would be available for this perhaps temporary use of Al.
- 3) In this connection, other countries (for instance, U.S.A. and Canada) emphasize that it would be unwise and short-sighted to adopt a plan which would forecloce the possibility of using high capacity means of communications in any part of the bands involved and in any part of the world as soon as industry is ready to adopt such types of communication.
- 4) Some countries pointed out that with regard to Al two different channel widths should receive consideration, i.e.
 - a) One for simplex and aircraft duplex (crossband).
 - b) One for ground station duplex (crossband).
- 5) Byelo-Russian proposal for channel separations :

Taking into consideration :

- (a) that the radio communication regulations of Atlantic City provide for the use of aircraft stations with a frequency tolerance of 0.05% up to 1953, and at the same time stations with a tolerance of 0.02% will also be used, and that the plan of frequency distribution for aeronautical-mobile service must allow the use of all such stations,
- (b) that the use of high capacity means of communication, such as A4, in no case requires a wider channel width than telephone' communication A3,
- (c) that for high capacity means of communication only therew types of stations will be used having a tolerance not worse than 0.02%, and therefore in many cases it may be sufficient for such communication to accept channel separation which is essential to telegraph communication Al with a tolerance of 0.05%, the Byelo-Russian delegation proposes for the formulation of the plan for allocation of frequencies that the following standards of channel separation be accepted :

· · ·	(Aer-Doc.No.32-E)	<u>ANNEX B</u>
A3 aircraft stations with low stability	A3 and A4 aircraft stations	Al aircraft stations
up to 6 Mc/s 10 kc	7 kc/s	6 kc/s
8 Mc/s 12 kc/s	8 kc/s	8 kc/s

10 kc/s

2 ..

10 kc/s

Ground stations with 0.02% frequency tolerance

2.8	8 to	o 3.5	Mc/s	1.5 kc/s	
		4.7	Mc/s	2.0 kc/s	
		5,.7	Mc/s	2.5 kc/s	
		6.6	Mc/s	3.0 kc/s	
		. 8	Mc/s	4.0 kc/s	
10	to	13	Mc/s ·	5.0 Mc/s	
		15	.Mc/s	6.0 kc/s	
17	to	18	Mc/s	7.5 kc/s	

over 10 Mc/s 15 kc/s

;

Summarizing all these remarks of the different delegates the following basic recommendations on channel separation were studied as a basis for the eventual adoption by Committee 4 of a channel separation plan,

CHANNEL SEPARATION

T) For high capacity means of communication based on a tolerance of the order of 0.02%; simplex *)**

2-6	Mc/s		7	kc/s
8	Mc/s	,	8	kc/s
10-20	Mc/s		10	kc/s
20-23	.5 Mc/s		12.	5 kc/s

2) For Al, based on a tolerance of 0.02 to 0.05%; simplex and aircraft duplex (crossband).

2-6	Mc/s	3.5	kc/s
8	Mc/s	4.	kc/s
10-2 0	Mc/s	5	kc/s
20-23.5	Mc/s	6	kc/s

(Aer-Doc.No.32-E)

- *) This channel separation may also temporarily be used in some parts of the world for Al, using old equipment with frequency tolerances up to 0.05% or for Al with application of adjacent crossband operations within the limits of the channel.
- ** The following is the channel separation scheme proposed by the South African delegate, based on a modulation bandwidth of 6 kc/s and 50% of 0.02% tolerance.

	Ba	n	đ	Channe	<u>el Width</u>
2.8	to 1	4	Mc/s	6.5	kc/s
5	to 6	6	Mc /s	7	kc/s
7 1	to 8	8	Mc/s	7.5 .	kc/s
10	to]	11	Mc/s	8	kc/s
]	13	Mc/s	8.5	kc/s
	נ	15	Mc/s	9	kc/s
]	17	Mc/s	9.5	kc/s
21 to	2	23	Mc/s	10.5	kc/s

The following is the channel separation scheme proposed by the U.K. delegate, based on 6 kc modulation bandwidth and 75% of 0.02% tolerance :

Band (kc/s)	<u>Channel Separation (k /3</u>
2850 - 3155	6.5
3400 - 4750	7.0
5480 - 6765	7.5
8815 - 9040	8.5
10005 -10100	9.0
11175 -11400	9.5
13200 -18030 -	10.0
21850 -23350	12.0

For Al, based on a tolerance of 0.02 - 0.05%; ground station duplex

			•	•	
	2-6	Nc/s		1.5	kc/s
	8	Mc/s	·	2	kc/s
10)20	Mc/s		2.5	kc/s
2)-23.5	Mc/s		3	kc/s

(Aer-Doc.No.32-E)

ANNEX B

For A3 especially for aircraft using old equipment with tolerances of the order of 0.04 - 0.05%, simplex

2-6	Mc/s	100 - 1 00 - 100 - 100	• ,	10 kc/s
8	Mc/s	•		12 kc/s
10-20	Mc/s	•		15 kc/s
20-23.5	M.c/s	•		17 kc/s

As a final remark it may be emphasized that Committee 4 not knowing what kind of frequency allocation plan will be adopted by the Committee 6 and 7 has to provide for all possibilities and has to give to these com-mittees all the lists they perhaps need.

4)

Corrigendum to Aer-Document No 35-E

27 May, 1948 Submitted in : ENGLISH

Annex C

The last line of the table of frequency separations given in Annex C, page 5, should read as follows :

" 21850 - 23350 kc/s

12.0 kc/s "



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

Aer-Document No 35 - E May 25, 1948 Submitted in ENGLISH

Committee 4

Report of the

Technical and Operational Committee

(Committee 4) 5th Meeting May 24, 1948, at 4.30 p.m.

CHAIRMAN : Mr. Selis (Netherlands)

Representatives of the following countries and organizations were present :

Albania Argentina Australia Bielorussian S.S.R. Canada Chile China Cuba Czechoslovakia Denmark Egypt France French Protectorates Iceland India Netherlands Netherlands East Indies New Zealand Poland Roumania Sweden Switzerland Union of South Africa Union of Soviet Socialist Republics United Kingdom United States United States Territories Yugoslavia I.F.R.B. I.A.T.A. T.C.A.O.

Draft Proposal on Channel Separation (Annex B)

In the course of a discussion of this document, <u>the Chairman</u>, pointed out that it in fact represented a summary of the various proposals submitted and of the views expressed both in previous meetings of the Committee and in Working Group 4 A.

Draft Resolution on Frequency Separation Submitted by the United States Delegation.

The delegate of the United States, seconded by the delegate of the United Kingdom, moved the adoption of this resolution.

<u>Mr. Petit (IFRB</u>) suggested that the final recommendations of the United States proposal be amended to include grouping of adjacent channels as well as channel division. This amendment was accepted by the delegates of the United States and the United Kingdom.

Some discussion followed on the channel separation of 6.5 kc/s for the 2850-3155 kc/s as recommanded in the United States draft resolution.



- 2 -(Aer, Doc.No 35-E)

The delegate of the United Kingdom, seconded by the delegate of the United States, moved that this figure be changed to 7 kc/s.

The United Kingdom amendment was put to the vote and adopted by 15 votes to 0, with 6 abstentions.

The United States resolution, as amended, is shown as Annex C. Annex B and Annex C. as appended, were put to the vote and adopted by 16 votes to 6. with 4 abstentions.

Reporter :

T: N. Gautier

Chairman:

O. J. Selis

- 3 -(Aer-Doc.No 35-E)

<u>Annex</u> B

DRAFT PROPOSAL ON CHANNEL SEPARATION

General Review of proposals and discussions.

The results of the study of the channel separation problems by the Preparatory Committee, the discussions on this subject in Committee 4 as well as the exchange of views which took place in the Working Group 4A indicate that there are several points of view with respect to channel separations which should be taken into consideration and which may be summarized as follows :

- 1. One or more countries (for instance, South Africa) proposed some slight changes in the channel separation for high capacity means of communications as mentioned in Document 16.
- 2. Some countries (for instance, France, U.K., Netherlands, and others) remark, as pointed out in the recommendations of Document 16, that low capacity means of communication can and will be used at least for some time and they want an indication from Committee 4 as to the channel width that would be available for this perhaps temporary use of Al.
- 3. In this connection, other countries (for instance, USA and Canada) emphasize that it would be unwise and shortsighted to adopt a plan which would foreclose the possibility of using high capacity means of communications in any part of the bands involved and in any part of the world as soon as industry is ready to adopt such types of communication.
- 4. Some countries pointed out that with regard to Al two different channel widths should receive consideration, i.o.
 - a) One for simplex and aircraft duplex. (crossband)
 - b) One for ground station duplex. (crossband)

Taking into consideration all those remarks of the different delegates the following plans for channel separations were studied as a basis for the eventual adoption by Committee 4 of a frequency separation plan.

CHANNEL SEPARATION

1. For high capacity means of communication based on a tolerance of the order of the order of 0.02%; simplex*) **

2 - 6	Me	7	kc
8	Me	- 8	kc
10 -20	Mo	10	ke
20-23.5	Me	121/2	kc

2. For Al, based on a tolerance of 0.02 to 0.05%; simplex and aircraft duplex (crossband)

2	- 6	Mc	•	3	5 kc
	8	Mc		4	kc
10	-20	Mc		5	kc
20	-23.	5 Mo		6	ke

- 4 -(Annex to Aer-Doc.No 35-E)

*) This channel separation may also temporarily be used in some parts of the world for Al, using old equipment with frequency tolerances up to 0.05% or for Al with application of adjacent crossband operations within the limits of the channel.

**) The following is the channel width scheme proposed by the South African delegate :

	Band	•	· · · ·	<u>Chann</u>	el Width
2.8	to 4	Me		6.5	kc
5	to 6	Mc		7	kc
,7	to 8	Mc	· ·	7.5	ke
10	to 11	Mc	,	8	ke
	13	Mc		8.5	kc
	15	Me		. 9	kc
	17	Mc		9.5	kc
21	to 23	Mc		10.5	kc

3. For Al, based on a tolerance of 0.05%; ground station duplex.(crossband)

2	- 6	Mc	1.5	kc
	8	Mc	 2	kc
10	-20	Mc	2.5	kc
20	-23.5	Мс	3	kc

4. For A3 especially for aircraft using old equipment with tolerances of the order of 0.04 - 0.05%; simplex

2	4 6	Me	10	kc
	8	Mc	12	kc
.10	-20	Mc	15	kc
20	-23.5	Mc	17	ke

- 5 -(Aer-Doc.No 35-E)

Annex C

RESOLUTION ADOPTED BY COMMITTEE 4

CONSIDERING :

That the aviation service is growing rapidly and that the numbers of kilocycles allocated to the aeronautical mobile service is extremely limited, and

that the present trend toward higher aircraft speeds requires increasing speed in the handling of air ground messages and

that provision for the use of unstable equipment in the aviation service will require wide communication channels and

that the period between the close of this conference and the implementation of the plan prepared by this conference will give opportunity for the modification or retirement of unstable equipment.

IT IS RECOMMENDED BY COMMITTEE 4

1 - That the following table of frequency separation be adopted :

2850 - 3	155 kc/s	7.0) kc/s
3400 - 4	.750 kc/s	7.0) kc/s
5480 - 6	765 kc/s	7.	5 kc/s
8815 - 9	040 kc/s	, 8.	5 kc/s
10005 -10	100 kc/s	9.0) kc/s
11175 -11	400 kc/s	9.4	5 kc/s
13200 -18	030 kc/s	10.0) kc/s
21850 -23	340 kc/s	12.(kc/s

It is recognized : that as a practical matter it might be possible for two or more A 1 channels to be derived from each of the channels provided under this frequency separation plan

and that there is a present requirement for manual telegraph communication in many parts of the world.

However, the provision for channels on a permanent basis with a narrow separation would defeat the purpose of providing for the use of high speed means of communication on all channels without reallocation. It is therefore further recommended that :

(1) division of channels or grouping of adjacent channels be authorized

- when an administration controls all the operations both aircraft. and land in the area or over the route involved in the service provided by the frequency or frequencies to be divided or grouped.
- b) or by arrangement between all administrations having an interest in any phase of the aeronautical operation (including the operation of aircraft or land station) in the area or route served by the frequency or frequencies proposed to be divided or grouped.
- (2) Such channel divisions or groupings to be made on a temporary basis and in the understanding that no interference is caused thereby to other aeronautic services rightfully operating on other routes or in other areas with provision for frequent review of the continued necessity for division or grouping.

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

<u>Aer-Document No 36 - E</u>

25 May, 1948 Submitted in FRENCH <u>Committee 6</u>

> U.I.T. OENENE

Report of

the Committee on Allotment of R Frequencies

(Committee 6) Third Meeting 24 May, 1948

CHAIRMAN : Mr. BETTS (Australia)

Representatives of the following delegations and organizations were present :

Albania, Argentina, Australia, Bielorussian Soviet Socialist Republic, Canada, China, Cuba, Czechoslovakia, Denmark, Egypt, Ecuador, France, India, Iceland, Italy, Norway, New Zealand, Netherlands, Poland, Protectorates of Morocco and Tunisia, Roumania, Sweden, Switzerland, Union of South Africa, Union of Soviet Socialist Republics, United Kingdom, United States of America and Territories, Yugoslavia, ICAO, IFRB, IATA.

7 <u>The Chairman</u> submitted the report of the 1st Meeting (Aer-Document No 11) for the approval of the Committee.

<u>Aer-Document No.11 was unanimously adopted.</u>

It was agreed that the report of the 2nd meeting would be considered at the next meeting, the French' and Spanish versions of this document not having appeared.

Consideration of the Soviet proposal (Aer-Document No.19)

The Chairman said that an amendment to the first sentence of paragraph 5, page 4 of this document had appeared, which ran as follows :

" The total number of frequencies available, obtained in accordance with paragraphs 2,3 and 4 . . . "

He proceeded to examine the document pargraph by paragraph, emphasizing the main points on which the document expressed disagreement with the recommandations of the Preparatory Committee.

The Preparatory Committee had proposed that the Equatorial Zone, by reason of its special reeds, should be treated on a special footing. The Soviet proposal, however, made no special provision for this Zone, and suggested that the requirements of every region comprised in this Equatorial Belt be considered in the same way as those of other parts of the world.

Paragraph, 5 (Aer-Document No.19) showed a large measure of disagreement with the views of the Preparatory Committee.

The delegate of Bielorussia emphasized that the task of the Conference was to determine frequencies and to distribute them between States.

The delegate of China said that he would shortly submit a plan of frequency allotment similar to that proposed by the Soviet delegation. - 2 -(Aer-Doc.No 36-E)

The delegate of Bielorussia said that, in principle, the allocation of bands as provided for in the Soviet plan, would be done on a world-wide basis, but he would agree to certain modifications being made as a result of regional agreements.

<u>Mr. Petit</u> (IFRB) asked whether, on the Soviet plan, bands would be unalterably divided into three sub-divisions, i.e., whether any change could be made to the plan during the next five years, supposing it to be adopted.

The delegate of Bielorussia said that he did not expect that a periodical revision would be necessary, but the Conference should make a ruling on this point.

The Meeting rose at 4.20 p.m.

Reporter: V.M.Beaufol Chairman : E.G.Betts International Administrative Aeronautical Radio Conference G E N E V A, 1948

Aer-Document No 37 - E

25 May, 1948 Submitted in : ENGLISH

Committee 7

Report

of the Committee on the Allotment of OR Frequencies

(Committee 7) Fourth Meeting May 24, 1948

The Chairman Mr. A. Fry (United Kingdom) opened the meeting at 14.30 Those present included :

> Argentina Australia Bulgaria Canada Chile France Honduras Netherlands East Indies

Norway Portugal Sweden Switzerland Ukrainian Soviet Socialist Republic United States of America Union of Soviet Socialist Republics

New Zealand

The Committee approved Aer-Document No.10 with the provision that the Spanish-speaking members might reopen discussion on this document if they so desired after the Spanish text had appeared.

The Chairman stated that he would try to speed up the production of the documents in the three languages.

The Chairman opened discussion of Aer-Document No.19 by a request to the delegate of U.S.S.R. to state what portions of this document were pertinent to Committee 7.

The Delegate of the U.S.S.R. replied that all of this document was pertinent to "OR" but that he did not advise consideration of Document No 19 until after Committee 4 had acted upon certain points contained in this document.

The Chairman indicated that Paragraph 8 was of concern to this Committee, whereupon the Delegate of U.S.S.R. stated that Paragraph 3 was also of concern to this Committee.

The Chairman requested clarification of Paragraph 8 as it concerned the allocation plan of "OR" frequencies.

The Delegate of U.S.S.R. stated that the substance of Paragraph 8 is to establish the "OR" requirements of CEHefbasismofeserritory and geographical considerations and peculiarities, and, secondly, on the basis that "OR" is an irregular service and therefore requirements cannot readily be determined. Furthermore, frequency allocation cannot be solved by formula for more than one case. He considered that small territories cannot have requirements as large as the larger territories. However, at this time he could not give a good formula regarding the relationship of size of territories to frequency allocation.



(Aer-Doc.No.37-E)

The Delegate of the <u>United Kingdom</u> stated that his Government's view was at the opposite extreme from the U.S.S.R. The United Kingdom was is a small geographical area but had very considerable requirements in the "OR" bands. Although the U.S.S.R. considered that "OR" at present has no permanent basis, it was the experience of the United Kingdom that it must have a permanent basis in order to arrange for an efficient method of dealing with this problem.

He considered that geographical size had no relation to requirements and that the United Kingdom considers that fact unalitarable. As an example, he stated that larger countries may have smaller requirements than a large country. Some colonial territories had areas much greater than the United Kingdom, yet the United Kingdom had much greater frequency requirements within the United Kingdom. He cited two examples of what might happen if the U.S.S.R. proposal were adopted :

> 1. The U.S.S.R.wds 100 times the area of the United Kingdom and since approximately 80 channels were available, the United Kingdom would receive less than one frequency and

2. In the case of Gibraltar, an area on only two square miles, the number of frequencies allocated would be practically nil. He considered, therefore, that there was no relation of "OR" frequency assignment on a geographical basis and therefore no one could give such a formula.

The Delegate of the <u>Republic of Honduras</u> supported the views of the Delegate of the United Kingdom.

The delegate of <u>France</u> stated that "OR" requirements were the same over land or sea. If the areas of the sea between a country and its territories were included in the proportional calculations, France could accept the U.S.S.R. proposal. However, the best method of solving this problem is on the basis of requirements.

The Delegate of the <u>United States of America</u> summarized the proposal of Document 19 as being contained in Paragraph 8. He then asked the Delegate of the <u>U.S.S.R.</u> why a small country could not have large frequency requirements.

The Delegate of <u>Canada</u> stated that the Form 21 was the only equitable method of submitting requirements and expressed hope that the U.S.S.R. would agree that geographical method is impractical to satisfy the aeronautical mobile needs.

The Delegate of <u>Portugal</u> did not agree that Form 21 should be the basis alone but did consider that the telegram sent by the Preparatory Committee did contain a formula which made Form 32 entirely acceptable.

The Chairman asked the Delegate of the U.S.S.R. for comment in view of the statements made by the various delegates in regard to Paragraph 8, of Document 19.

The Delegate of the U.S.S.R. indicated that there was some misunderstanding of the proposal by the other delegations, namely, that the allocation plan would be drawn up in direct proportion to geographical area as the basis. He agreed that the area of the surface of the seas between a country and its territories should be taken into consideration as this was only equitable. In reply to the question from the Delegate of the <u>U.S.A</u> as to why small countries could not have large requirements, he stated that in the case of a small country surrounded by other countries a great portion of their flights would be international and therefore came within international air routes. He further stated that he believed the U.S.S.R. should get more frequencies because they had greater geographical size and therefore have greater requirements.

The Chairman inquired of the Delegate of the U.S.S.R. that if his interpretation of proportional geographical area was not correct, what was the correct interpretation of Paragraph 8.

The Delegate of the <u>U.S.S.R.</u> stated that in his country they considered two kinds of proportion, namely, direct proportion and general proportion.

The Delegate of the <u>Ukraine</u> stated that the U.S.S.R. had in mind its proposal to find the best frequency allocation plan. Document 19 took the cultural, geographical and economic level of a country into consideration, whereas Form **2** did not. Therefore, Form **2** was not acceptable.

Before closing the meeting, the Chairman urged that all countries submit their Forms 21 and the information requested in the Appendix to Document 6, as soon as possible.

The Chairman adjourned the Meeting at 17.30

The Reporter :

Mr. W. B. Krause

The Chairman : Mr. A. Fry

Amendment to Aer - Doc. Nº. 38-E

Replace page 3 by the following:

5. The <u>Australian delegate</u> proposed that a small drafting committee should be formed to prepare a draft proposal utilizing the information of 10 aircraft maximum for a single frequency and 12 aircraft for a family of frequencies, with the understanding that no meteorological information, ground-to-air, be passed over these channels.

6. The <u>U.S.A.</u> and <u>South Africa</u> seconded this proposal, which was unanimously adopted.

7. The <u>Chairman</u> stated that he had been informed by the delegate of Chile (Mr. Schwerter) that Argentina was celebrating her independence day.

It seemed appropriate that the meeting should express its respects to the great Republic of Argentina and should congratulate it sincerely on this occasion.

The delegate of <u>Argentina</u> replied and thanked the Committee for their kind remarks.

The Reporter: G.A. Harvey The Chairman: 0.J. Selis

(6-3-6)





International Administrative Aeronautical Radio Conference GENEVA, 1948

Aer-Document No. 38-

25 May, 1948

Submitted in : English

Committee 2

REPORT

of the Technical and Operational Committee

(Committee 4) Sixth Meeting 25 May, 1948, at 10 a.m. CHAIRMAN : Mr. Selis (Netherlands)

1-Present : -

Albania :	Mr. P. Kito
Argentina :	Mr. O. E. Vidal
Australia :	Mr. E. G. Betts
Bielorussia :	Mr. I. Jouk
Canada :	Mr. C. J. Acton
Chile :	Mr. A. Schwerter
China :	Mr. N. N. Chen
Cuba :	Mr. E. Tabio
Czechoslovakia :	Mr. Z. Svoboda
Denmark :	Mr. K. Svenningsen
Egypt :	Mr. J. Boctor
France :	Mr. M. Falgarone
French territories :	Mr. Lalung-Bonnaire
Iceland :	Mr. G. Briem
India:	Mr. N.V.S. Iyenger
Italy :	Mr. A. C. de Vincenti
Netherlands :	Mr. L.C.H.M. Bergman
New Zealand :	Mr. G. Searle
	Mr. A. L. Partelow
Poland :	Mr. S. Krasuski
11 💡	Mr. A. Archuch
Sweden :	Mr. G. Kruse
	Mr. T. Overgaard
Switzerland :	Mr. P. Senn
Union of South Africa :	Mr. G.A. Harvey
Union of Soviet Socialist	. , , , , , , , , , , , , , , , , , , ,
Republics :	Mr. A. Jarov
United Kingdom:	Mr. W. A. Duncan
n n n n n n n n n n n n n n n n n n n	Mr. H. A. Rowland
11 11	Mr. A. Fry
United States and Territories:	Mr, T. N. Gautier
n n 🤹 🕻	Mr. D. Mitchell
, 17 17 · 11	Mr. W. E. Weaver
97 PS 11 g	Mr. E. V. Shores
11 H H	Mr. E. L. White
AT 28 16 :	Mr. T. L. Bartlett
Yugoslavia :	Mr. S. Mitrovic
I.C.A.O. :/	Mr. P. J. Greven
I.F.R.B. :	Mr. R. Petit
I.A.T.A. :	Mr. L. M. Layzell



-2-(Aer-Doc.No. 38-E)

- 2 The Chairman moved the adoption of Aer-Doc.No. 16-E provided the Spanish speaking delegates agreed to this, as it was realized that the Spanish version had not as yet been distributed. The Spanish speaking delegates agreed. Amendments were proposed as follows:
 - 2.1 Mr. Bergman stated that the spelling of his name was incorrect, BERMAN to be corrected to BERGMAN.
 - I.C.A.O. representative raised the point with reference to the 2.2 ommission of "FOR AIRCRAFT STATIONS" after .02 per cent on page 2 first paragraph of recommendation. It was agreed that this be inserted.

The Chairman suggested that :

2.3 the numeral (1) after "recommends" bottom of page 2 be left out. Agreed.

The document was then adopted with the previous amendments .

- 3 The Chairman next invited comments on Doc. Aer-No. 24. The following typographical errors were noted :
 - 3.1 Mobile, spelt mobil in paragraph 3.
 - 3.2 Chairman, spelt chaiman in final paragraph.
 - 3.3 Bielorussian, spelt Byelorussian S.S.R.in various places.

with these amaidments, Doc. Aer No. 24 adopted after these changes had been made.

4 - The Chairman then introduced the next item on the Agenda, namely, "Aircraft loading" as found in paragraph 12(P.C. Doc. 25-E). The Chinese delegation had submitted a document (Aer-Doc.No. 2) bearing on this subject. The Chinese Delegate pointed out that this paper referred to domestic or regional services only and not to world air routes. After discussion of paragraph 12 by France & U.S.A., the Australian Delegate proposed that the figure of 12 be downgraded to 10. The United Kingdom supported Australia but proposed an amendment, namely, that 12 relate to a family of frequencies, and not more than 10 to a single frequency. This was supported by the U.S.A. The Chairman before proceeding further detailed factors influencing the magnitude of the "aircraft loading factor" for the benefit of the meeting. It was pointed out by the U.S.S.R. that the Aleutians were mentioned in subparagraph (c) paragraph (11) of Doc.P.C. 25, and requested that all reference to specific areas should be eliminated. The Chairman explained that they were only examples and asked whether the Committee agreed in principle to the text regarding meteorological broadcasts on operational channels.

(Pc-Aer-No.25-E) In connection with paragraph 12,/the \underline{U} ,S.A. gave statistics relating to channel loading. This will be found as Appendix A to these minutes.

- 3 -(Aer-Doc.No.38-E

- 5 The <u>Australian Delegate</u> proposed that a small drafting committee should be formed to prepare a draft proposal utilizing the information of 10 aircraft maximum for a single frequency and 12 aircraft for a family of frequencies, with the understanding that no meteorological information, ground-to-air, be passed over these channels.
- 6 The U.S.A. and South Africa seconded this proposal, which was unanimously adopted.

The Meeting rose at 12.40 p.m.

The Reporter :

The Chairman :

G. A. Harvey

0. J. Selis

APPENDIX A

(Appendix to Aer-Doc.No. 38-E)

25.1 Average number of flights/day 40 IJ 11 of contacts/day . 25.2 200 4 (62% handling traffic) Average contacts per aircraft per day 5 Average time station, in contact with 1 A/c 2.5 hours Average contacts per aircraft per hour 2./ hours -Average time per contact 1.4 minutes . . Hourly requirement per aircraft 2.8 minutes Maximum aircraft capacity/frequency 10.

(This allows 32 minutes in the hour for safety factors).

International Administrative Aeronautical Radio Conference G E N E V A, 1948 Aer-Document No 394E 594F 39-S

Conférence Administrativé internationale des Radiocommunications aéronautiques G E N E V E, 1948 Conferencia Administrativa Internacional de Radiocomunicaciones Aeronauticas G I N E B R A, 1948

	Schedule o	f Meetings	
	Hour	Room I	Room II
Wednesday, May 26, 1948	10 a.m. 2.30 p.m.	Committee 4 Committee 4	Working Group 5 A Committee 7
Thursday, May 27, 1948	10 a.m. 2.30 p.m.	Committee 4 Committee 5	Working Group 5 A Committee 7
Friday, May 28, 1948	10 a.m. 2.30 p.m. 5. p.m.	Committee 6 Committee 4 Committee 1	Committee 7 Working Group 5 A

	Horaire de	s séances	
	Heure	Salle I	Salle II
Mercredi,26 mai,1948	10 h. 14 h.30	Commission 4 Commission 4	Gr.de travail 5 A Commission 7
Jeudi, 27 mai, 1948	10 h. 14 h,30	Commission 4 Commission 6	Gr.de Travail 5 A Commission 7
Vendredi, 28 mai, 1948	10 h. 14 h.30 17 h.	Commission 6 Commission 4 Commission 1	Commission 7 Grade travail 5 A

	<u>Programa de</u>	Sesiones	``````````````````````````````````````
	Hora	Sala I	Sala II
Miercoles, 26 de Mayo de 1948	10 h. 14 h.30	Comision 4 Comision 4	Gr. de trabajo 5A Comision 7
Jueves, 27 de Mayo de 1948	10 h. 14 h.30	Comision 4 Comision 6	Gr,de trabajo 5 A Comision 7
Viernes,28 de Mayo de 1948	10 h 14.h.30 17 h.	Comision 6 Comision 4 Comision 1	Gr.de trabajo 5 A Gr.de trabajo 5 A

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

Aer-Document No. 40 - E 26 May, 1948 Submitted in : ENGLISH <u>Committee 6</u>.

Report

of the Committee on Allotment of R Frequencies. (Committee 6) 4th Meeting

25 May, 1948 at 2,35 p.m.

1. <u>CHAIRMAN</u> : <u>Mr. E.G. Betts</u> (Australia)

The following delegations and organizations were represented :

Argentina	Netherlands
Australia	Netherlands East Indies
Bielorussian S.S.R.	New Zealand
Canada	Norway
China	Poland
Colombia	Sweden
Cuba	Switzerland
Denmark	United Kingdom
Ecuador	Union of South Africa
Egypt	United States of America and
France	Territories
Morocco and Tunisia	Yugoslavia
Iceland	I.A.T.A
India	I.C.A.O.
Italy	3 I.F.R.B.

2. <u>Minutes of the second meeting (Aer-Doc.No 17)</u>. The Spanish and French texts were not yet available, <u>The English version</u> was adopted unanimously.

<u>Aer-Document No 18</u> (Suggested method of approach to the problem of World Allocation of Aeronautical Frequencies submitted by the Delegation of South Africa). The Spanish text not being available, the Spanishspeaking delegates agreed to consider the English text.

The Delegate of <u>South Africa</u> said that in his opinion the I.C.A.O. regions should be considered as no other division into regions existed.

It was necessary to make special provision for the tropical zone. After frequencies for the main world routes had been alloted, the regional frequencies could be alloted. In the high noise level regions an increase of powertshould be permitted.

The Chairman pointed out that there was general agreement on the proposals studied in connection with the necessity for determining the major world air route areas. With the papers now available, this might be done at the next meeting.

The Meeting rose at 3.15 p.m.

The Reporter :

Louis Bergman

The Chairman : E.G. Betts



4.

3.
Aer. Document N° 41-E 26 May, 1948 Submitted in: ENGLISH and FRENCH

Committee 2

REPORT OF THE CREDENTIALS COMMITTEE (<u>Committee 2</u>) First Meeting, May 25, 1948, 10: a. m.

1. The Chairman read the terms of reference as adopted at the First Plenary Session. The Committee next examined the pertinent articles of the Rules of Procedure (Chapter III, par.2, Annex 4, Telecommunications Convention, Atlantic City-1947).

2. The Committee agreed to accept credentials in the following forms:

- a) Letters from the Head of a Government or his Minister
- b) Notification through diplomatic channels
- c) Letters from an Administration

d) Telegrams from an Administration

3) The Committee examined all the credentials which had been received by the Secretariat as of this date. The credentials of the Delegations listed in Annex I of this document were found to be in order and were approved unanimously.

4) The Committee agreed that certain of the credentials of members examined required clarification, and that the Chairman should take necessary steps to obtain additional information regarding those credentials.

5) The Committee also examined the credentials of the representatives of UNO, ICAO and IATA, who are participating in the Conference as observers, and found them to be in order.

The Chairman:

SOUTO CRUZ

The Reporter:

F.A. TRAIL M. CHEF.

(12-26-5)



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A	NL.	INC	•	T	a

(Aer-Doct.41-E)

N° shown in Annex I Atlantic City	Member of the Union (English)	Name of National Member	Repre- sented by	Type of Creden- tials
		·		(See
(1)	(2)	(3)	(4)	(5)
2	People's Republic	Datas Vita		
. ,	OI Albania	Fetro Alto Fridio Lunoschi		a 7
4 5	Australia Commont	Egicio Luraschi		ŭ
¢	The Pielemanien	Lamuna G. Betts		. 8.
0	Soviet Socialist			
	Republic	Tvan Petrovitch Jouk		a
11	Brazil	Col. Helio Costa		
· · · · · · · · · · · · · · · · · · ·		(or) E. Martins da Silva	, ·	a
12	Bulgaria	Givko Krestev		a
13	Canada	C.J. Acton		đ
14	Chile	Alejandro Schwerter Gallardo		a
	•	(or) Renato Gonzales Allendes		
15	China	N.N. Cheng		đ
17	Colombia			
00	(Republic of)	S. Quijano Caballero		d
20	Colonies, Frotec-	•		
	torates and Uver-			l
	under French			
	Mandate	T Telung-Bonneire	-	a
23	Guba	Mariano Durland v Nieto		a
~	- Cuba	(or) E. Tabio v Palma		
24	Denmark	Gunnar Pedersen		c
,		(or) K. Svenningsen		
25	Dominican Republic	Cesar Rubirosa		đ
26	Egypt	John Boctor		c
		(or) Mohamed Tewfik		
28	Ecuador	Alexandre Castelu		đ
29	United States of			
	America	Arthur L. Lebel		a
32	France	Maurice Falgarone		C
		(or) Odt. Sarre		
0.5	401 4	(or) L. de V. de Calan	a.	
35	Haiti	Alired Addor		a
30	Honduras	Destite De Welennet		
12	(Republic of)	Basilio De letepnei		8
45		Anistido do Vinconti		a
50	L'aly Ni carama	Romia Lifephitz		h
	n roar agua	(or) Isidro Lifschitz		
51	Norway	Niclay Soeberg		a
52	New Zealand	George Searle	•	a
		(or) Alston Partelow	4	-
53	Pakistan	Sathar		đ
56	Netherlands, Curacao			
	and Surinam	0.J. Selis		d
59	Poland	Arciuch Anatol		a
12-26-5)			-	
	· ·			

(Aer-Doct. 41-E)

N° shown ir Annex I Atlantic Ci	Member of the Union (English) ty	Name of National Member	Repre- sented by	Type of Creden- tials(See Note I)
(1)	(2)	(3)	(4)	(5)
60 61	Portugal French Protectorates	Vitor Veres		C
62	of Morocco and Tunisia People's Federal	Maurice Chef		đ
63	The Ukrainian	Svetozar Mitrovitch		d
65	Republic Roumania	Melnik Prokofi Constantin Leontescu (or) Alexandru Bodeaga		d d
66	United Kingdom of Great Britain and	W A Duncon		A
68	Sweden	M.T. Oevergaard (or) M.G. Kruse		đ
69	Switzerland (Confederation)	C. Gillioz		đ
72	Territories of the United States of			
74	America Union of South Afri⇔ ca and the Mandated Territory of South	Arthur L. Lebel		đ
75	West Africa Union of Soviet	Glen Allen Harvey		a
75	ca and the Mandated Territory of South West Africa Union of Soviet Socialist Republics	Glen Allen Harvey Alexandre Jarov		a. a.

Note 1 : (a) - Letters from the Head of a Government or his Minister (b) - Notification through diplomatic channels (c) - Letters from an Administration (d) - Telegrams from an Administration

INTERNATIONAL ORGANIZATIONS

ORGANIZATION

REPRESENTATIVE

I.C.A,O. (International Civil Aviation Organization) I.A.T.A. (International Air Transport Association)

U.N. (United Nations)

Philip J. Greven (Goldsborough (Krejcik (J. Adam

Louis Delanney

(12 - 27 - 5)

International Administrative Aeronautical Radio Conference GENEVA, 1948

Aer-Document No. 42-E 26 Mai, 1948

Submitted in : English

Committee 7

<u>Report</u>

<u>of</u>

the Committee on Allotment of OR Frequencies

(Committee 7) Fifth Meeting 25 May, 1948

The Chairman, Mr. A. Fry (United Kingdom) opened the meeting at Those present included : 14:30.

Argentina	Netherlands East Indies
Australia	New Zealand
Bulgaria	Portugal
Canada	Sweden
Czechoslovakia	Switzerland
France	Ukraine S.S.R.
French Overseas Territories	United Kingdom
Honduras (Republic of)	U.S.S.R.

al rland e S.S.R. Kingdom R. U.S.A.

The Chairman reported that the Spanish translation facilities of the Secretariat had been improved which in turn should speed up consideration of documents in the three languages by the Committee,

Aer-Document No,22 was approved with the provision that after it had appeared in Spanish, it might be reopened for discussion if the Spanish-speaking delegates so desired. The delegate of France called attention to a typographical error on page three. The frequency "340 kc/s" should read "405 kc/s".

The Delegate of France, in continuing the discussion of Aer-Doc.No.19, stated that it could not be said that the aeronautical mobile bands allocated at Atlantic City were too narrow until all the requirements were known. Under the Cairo regulations, which allocated no bands, only one half the number of frequencies were allocated to the aeronautical mobile service as compared with the Atlantic City allocations. He further observed that the surface area of a country is only one coefficient to be considered. There are many others. He therefore must know the requirements with respect to these various coefficients.

The Chairman summarized the discussion as resolving itself into two mutually exclusive proposals, namely, that of Document No. 19 and that of the use of Form 2.

The Delegate of the U.S.S.R. desired to make some further clarification of Document No. 19 with respect to international flights by non-scheduled aircraft. The requirements of such flights depended only on the size of the territory and therefore it was not clear why small countries could have large



- 2 -(Aer-Doc.No.42-E)

requirements. He reiterated that geographical factors must be laid down as the basis for satisfying requirements. Form 2 does not take this fact into consideration and, therefore, the U.S.S.R. could not submit Form 2. However, the U.S.S.R. Would submit their requirements for each band.

The Delegate of the <u>United States of America</u> stated that OR frequencies were in use every day in his country and beyond its borders. The greatest need for OR frequencies is for the non-scheduled type of air operations and the frequencies they were considering here were to satisfy these operational needs. Those countries most concerned with aircraft, therefore, had the most need for OR frequencies. Frequencies could be considered as one of the tools of safe flying; national borders had nothing to do with flight safety or assignment of frequencies.

The Delegate of <u>Australia</u> cited instances of non-scheduled aircraft flying beyond his country's borders and using OR frequencies. The Delegate of the <u>United Kingdom</u> also cited examples of flights external to his country's borders and using OR frequencies.

After further discussion of the two proposals, the <u>Chairman</u> withdrew his statement as to the two proposals being mutually exclusive.

The delegate of the U.S.S.R. stated that the U.S.S.R. will submit its requirements not on Form 2 but by bands and with some technical information. He stated that this Committee should work out some allocation plan in order to satisfy the requirements of all countries.

The Chairman stated that Form 2 was the result of the decision at Atlantic City which called for an engineering method of allocation. Although a large number of countries had submitted Form 2, the form of the information did not matter if the necessary factors were given. He agreed that this Committee should decide on principle.

A vote was taken to decide whether or not paragraph 8 of Aer-Doc. No.19 was sufficient to form a basis of frequency allocation. The results of this vote were :

١	For proposal	Against proposal	:	Abstentions	8
		212		0	

Therefore, the proposal of paragraph 8 Aer-Doc.No.19 was rejected.

The Chairman adjourned the Meeting at 17.15.

The Reporter :

The Chairman :

W. B. Krause

A. Fry

International Administrative Aeronautical Radio Conference GENEVA, 1948

Aer-Document No. 43-E

26 May, 1948

Submitted in : English

Committee 4

Report

of the Technical and Operational Committee

(Committee 4) 7th Meeting 25 May, 1948, at 3.40 p.m.

CHAIRMAN : Mr. O. J. Selis (Netherlands)

1 - The following delegations and organizations were represented :

Argentina Australia Bielorussian S.S.R. Canada China Colombia Cuba Denmark Egypt France Iceland India Italy Netherlands Netherlands East Indies New Zealand Norway Poland Sweden Switzerland United Kingdom United Kingdom United States of America and Territories Yugoslavia I.C.A.O. I.F.R.B. I.A.T.A.

ENÈN

2 - The Chairman proposed the formation of a working group 4B to tabulate aeronautical frequencies, this group to be composed of delegates from I.C.A.O., Australia, United Kingdom and the U.S.A. The delegate from I.C.A.O. agreed to act as chairman.

The target date for the report of the group was fixed at Ehursday May 27th, 1948.

Terms of reference of Group 4B to be :

- 1) To establish frequency tables taking into consideration the channel separations adopted by Committee 4.
- 2) To consider in this connection the paragraphs 29 and 3° of the Preparatory Committee's final report (Coc. PC-Aer No. 25).

3 - With regard to the establishment of the aircraft loading factor a proposal was submitted by the delegate of the <u>United Kingdom</u>. The delegate of the <u>United Kingdom</u> seconded by the delegate of <u>China</u>, moved that this proposal be adopted as a recommendation of the Committee.

(Aer-Doc.No. 43-E)

2 -

The following recommendation was adopted by 17 votes to 0 with 6 abstentions.

"Based on the requirement for the temporary use of hand-speed telegraphy (A1) method of communication, the Committee recommends that the following loading factors, in aircraft per hour, should be used in calculating the number of frequencies or families of frequencies required to be alloted to the major world air route areas.

- 1 Per family of frequencies, 12 aircrafts.
- 2 Per frequency (when a family consists of a single frequency) 10 aircraft.

In adopting these figures the Committee took into account the fact that it will be necessary to organize the broadcast of meteorological information destined to aircraft in flight on separate frequencies in the regions in which meteorological conditions and density of air traffic make this necessary."

The delegate from the Bielorussian S.S.R. abstained from voting as his country had no experience in the matter of international intercontinental air routes.

4 - The U.S.A. delegate announced that additions to Document 5 would be completed and distributed that afternoon. There were charts, however, that would not be ready before the following week, but 10 volumes of Document CRPL-1-2-, 3-1 would be available for study by the Committee at the next meeting.

The Meeting rose at 4.45 p.m.

The Reporter :

The Chairman :

Louis Bergman

0. J. Selis

International Administrative Aeronautical Radio Conference Aer - Document N°. 44-E 3 June, 1948

GENEWA, 1948

COMMITTEE 5

REPORT

OF WORKING GROUP A OF COMMITTEE 5

The Working Group has completed its assigned task of compiling all available data regarding international and domestic air moutes and has revised the Flight Information Tables prepared by the Preparatory Committee (PC-Aer - Doc. N°. 19-E, Annex 4). The revised Flight Information Tables are being published as Aer - Doc. N°.71-E.

The Working Group carefully examined Annex 4 and attempted to correct all clerical and typographical errors found therein. In a few instances it was deemed advisable to eliminate certain international routes from Table I where one of the two countries involved definitely indicated that the route is not yet in operation.

Revised data on services as of June 1, 1948 have been received from the following delegations:

> Argentina Netherlands Indies Australia New Zealand Bulgaria Norway Chile Pakistan Denmark Sweden Egypt Switzerland Union of South Africa France United Kingdom India Italy United States of America

It is presumed that all other delegations feel that Annex 4 satisfactorily represented their current international and domestic services.

In the case of Pakistan the Working Group considered it advisable, for obvious reasons, to admit the inclusion of certain proposed services. These proposed services included only a few routes to neighboring countries and have been appropriately indicated in Table I.

Tables I and II of Aer - Doc. N°. 71-5 follow the same general pattern as the corresponding tables of Annex 4. Due to the numerous insertions and deletions of routes it was necessary to prepare a new set of index numbers, and the Master Index has been revised accordingly.

In Column 6 of Table I there have been listed the approximate number of non-scheduled flights made per week, together with the country responsible for the flights, over those route segments on which there was specific information concerning the non-scheduled services. In all other instances it is assumed that Committee 6 will add to Column 6 of Table I approximately one-third the number of scheduled services, or whatever other proportion is subsequently agreed to. The same procedure was followed in the case of domestic services in Table II.

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It has not been physically possible as yet to transfer all the additional pertinent information in Table I of Aer - Doc. N°. 71-E to the International Air Route Map. However, the Working Group has submitted the additional information to the cartographer and expects that the wall map will be completed by June 11. The map attached to PC-Aer - N°. 19 as Annex 5 is being reprinted as Aer - Doc. N°. 72-E and should also be ready by June 11.

W.J. CARNAHAN

Chairman

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

Aer-Document No 45 - E

27 May, 1948

Submitted in : ENGLISH Committee 4

Report of

the Technical and Operational Committee

(Committee 4) 9th Meeting 26 May,1948,p.m.

CHAIRMAN : Mr. Selis (Netherlands)

Present :

Australia Bielorussian S.S.R. Bulgaria Canada Chile Colombia Cuba Czechoslovakia Denmark France

Italy India Morocco and Tunisia Netherlands Netherlands East Indies New Zealand Poland

Sweden Switzerland United Kingdom

United States

Union of South Africa Union of Soviet Socialist Republics Yugoslavia I.C.A.O. I.A.T.A.

I.F.R.B.

Mr. E. G. Betts Mr. I. Jouk Mr. Givko Krestev Mr. C. J. Acton Mr. A. Schwerter Mr. S. Quijano Caballero Mr. E. Tabio Mr. Z. Svoboda Mr. K. Svenningsen Mr. M. Falgarone Mr. Beaufol Mr. A. C. de Vincenti Mr. N. U. S. Iyengar Mr. M. Chef Mr. L. C. H. M. Bergman Mr. A, de Haas Mr. G. Searle Mr. Krasuski Mr. A. Arciuch Mr. G. Kruse Mr. G. Bois Mr. W. A. Duncan Mr. H. A. Rowland Mr. D. Mitchell Mr. E. L. White Mr. E. V. Shores Mr. T. N. Gautier Mr. D. L. Givens Mr. G. A. Harvey Mr. A. Jarov Mr. S. Mitrovic Mr. P. J. Greven Mr. L. M. Layzell

Mr. J. G. Adam

Mr. R. Putit.



- 2 -(Aer-Doc.No 45-E)

<u>The Chairman</u> placed before the Committee for consideration Document PC-Aer No 5. Following discussion of Paragraph 2 of the first section of this Document the Committee accepted the proposals of the U.S. Delegation for amendment of the last sentence of Paragraph 2. The amendment reads as follows :

"Inasmuch as the required field intensities for reception of radio-telephone and radio-telegraph in the presence of local noise only, can usually be made less than 2.2 μ v/m and 0,3 μ v/m respectively, the minimum field intensity, in the presence of local noise only, required for reception at the ground station was not considered as a factor."

The following to be inserted as Paragraph 3, PC-Aer.Document 5 : The term Local Noise as used here refers to locally generated "Man Made" noise including static generated by motion of the aircraft through the atmosphere, but exclusive of atmospheric noise. The effect of atmospheric noise will be considered later.

The remaining paragraphs of this section were renumbered to 7 inclusive upon insertion of the new paragraph.

The Committee then considered the problem of aircraft noise level. During the ensuing discussion the Delegate of <u>France</u> proposed a figure of 10 μ v/m as a basis for determination of frequency orders rather than the figure of 1.7 utilized in preparing the propagation charts accompanying Document 5. This proposal was endorsed by the Delegate of <u>India</u>.

The Delegates of <u>I.A.T.A.</u> and the United Kingdom considered 2 μ v/m as a desirable figure. The U.K. Delegate said he was endeavouring to obtain more information on this matter.

The Delegate of <u>Poland</u> gave his information, based on the operation of DC-3 aircraft, indicated 5 μ v/m as the average noise level with a slightly lower level obtaining when AC power supplies were utilized on the aircraft.

<u>The U.S. Delegate</u> proposed a revision of charts 14 and 15 to indicate the maximum range to be obtained with a noise level of 10 μ v/m to provide a comparison with the information based on 1.7 μ v/m. The <u>Chairman</u> presented for consideration the preparation of the revised charts on 5 μ v/m as this appeared to be a figure agreable to all. This was accepted by the Committee.

The U.S.S.R. Delegate during the above discussion said that his Delegation was unable to present any information on aircraft noise levels pending an answer to the questions submitted earlier by his Delegation. The questions are included in the Minutes of the preceding session of Committee 4.

Consideration of the effect of varied bransmitting powers was then placed before the Committee by the <u>Chairman</u>. As a means of comparison the Committee requested the U.S. Delegation to provide information in chart form based on 10 kW power to be utilized in conjunction with the available 1 kW basis information.

Discussion then returned to the subject of aircraft noise levels with the <u>Bielorussian Delegate</u> proposing a revision of Paragraph 4 to take into consideration the accepted noise level of 5 μ v/m. After additional

- 3 -(Aet-Doc.No 45-E)

discussion the Chairman requested the Bielorussian and U.S. Delegations to jointly prepare an acceptable revision of this Paragraph.

The meeting was then adjourned with Paragraph 7 and several related items remaining for consideration at the next session.

The Reporter : W.L. Givens The Chairman : 0.J. Selis. International Administrative Aeronautical Radio Conference GENEVA, 1948 Aer-Document No. 46-E May 28, 1948

Submitted in : English

Interference Ranges for Given Service

Ranges and Protection Ratics for Transmission Paths

in Daylight

The attached charts, figures 109 - 132, are reprinted from report CRPL-1-2, 3-1, mentioned in paragraph 47, PC-Aer. No. 25. They are similar to the chart for night conditions given as Fig. 18 in PC-Aer. No. 5, and show distance (interference range) at which an interfering transmitter must be placed from a given receiving station in order to provide a given protection to the signals received from another station operating on the same frequency or on adjacent frequency under daylight conditions.

The protection ratio M is given by :

$$M = R - G_W + G_U - G_T + P_U - P_W$$

where R - basic protection ratio, involving type of service, channel width, fading ratio, etc.

 G_W = power gain of wanted transmitting antenna,

- Gu = power gain of unwanted transmitting antenna in direction of receiving station (= 0 unless beam covers receiver).
- $\underline{G}_r = \text{power gain of receiving antenna in direction of wanted transmitter}$ (20 if beam covers both wanted and unwanted transmitter).
- $P_W = power of wanted transmitting station (ratio to 1 kW).$
- $P_u \approx$ power of unwanted transmitting station (ratio to 1 kW).

All terms are logarithms of power ratios expressed in decibels.





PROTECTION RATIO IN DECIBELS

Fig: 109

INTERFERENCE AND SERVICE RANGES FOR A GIVEN PROTECTION RATIO AT SUNSPOT MINIMUM.

4 MC. TRANSMITTER AT THE SUBSOLAR POINT.



Fig. 110

INTERFERENCE AND SERVICE RANGES FOR A GIVEN PROTECTION RATIO AT SUNSPOT MINIMUM.

6 MC. TRANSMITTER AT THE SUBSOLAR POINT.



IDWG. TRANSMITTEN AT SUBSOLAR POINT.



FIG.112 INTERFERENCE AND SERVICE RANGES FOR A GIVEN PROTECTION RATIO AT SUNSPOT MINIMUM.

15 MC. TRANSMITTER AT THE SUBSOLAR POINT.



PROTECTION RATIO IN DECIBELS

Fig. 113

INTERFERENCE AND SERVICE RANGES FOR A GIVEN PROTECTION RATIO AT SUNSPOT MINIMUM.

20 MC. TRANSMITTER AT THE SUBSOLAR POINT.



TRANSMITTER AT SUBSOLAR POINT. 25MC

4



Fig. 115 INTERFERENCE AND SERVICE RANGES FOR A GIVEN PROTECTION RATIO AT SUNSPOT MINIMUM.

4 MC. TRANSMITTER 30° FROM THE DAY-NIGHT LINE TRANS-



Fig. 116

INTERFERENCE AND SERVICE RANGES FOR A GIVEN PROTECTION RATIO AT SUNSPOT MINIMUM.

6 MC TRANSMITTER 30° FROM THE DAY-NIGHT LINE TRANS-



IOMC. TRANSMITTER 30% FROM THE DAY-NIGHT LINE TRANS-



Fig. 118

INTERFERENCE AND SERVICE RANGES FOR A GIVEN PROTECTION RATIO AT SUNSPOT MINIMUM.

IS MC. TRANSMITTER 30° FROM THE DAY-NIGHT LINE TRANS-MITTING TOWARD IT.



INTERFERENCE AND SERVICE RANGES FOR A GIVEN PROTECTION RATIO AT SUNSPOT MINIMUM.

20 MC. TRANSMITTER 30° FROM THE DAY-NIGHT LINE TRANS-



Fig. 120

INTERFERENCE AND SERVICE RANGES FOR A GIVEN PROTECTION RATIO AT SUNSPOT MINIMUM.

25 MC. TRANSMITTER 30° FROM THE DAY-NIGHT LINE TRANS-MITTING TOWARD IT.



INTERFERENCE AND SERVICE RANGES FOR A GIVEN PROTECTION RATIO AT SUNSPOT MINIMUM.

4 MC. TRANSMITTER 30° FROM THE DAY - NIGHT LINE TRANS-MITTING PARALLEL TO IT.



Fig. 122

INTERFERENCE AND SERVICE RANGES FOR A GIVEN PROTECTION RATIO AT SUNSPOT MINIMUM.

6 MC. TRANSMITTER 30° FROM THE DAY-NIGHT LINE TRANS-MITTING PARALLEL TO IT.



IO MC. TRANSMITTER 30° FROM THE DAY - NIGHT LINE TRANS-MITTING PARALLEL TO IT.



INTERFERENCE AND SERVICE RANGES FOR A GIVEN PROTECTION RATIO AT SUNSPOT MINIMUM.

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INTERFERENCE AND SERVICE RANGES FOR A GIVEN PROTECTION R/TIO AT SUNSPOT MINIMUM.

20 MC. TRANSMITTER 30° FROM THE DAY - NIGHT LINE TRANS-



Fig. 126

INTERFERENCE AND SERVICE RANGES FOR A GIVEN PROTECTION. RATIO AT SUNSPOT MINIMUM.

25 MC. TRANSMITTER 30° FROM THE DAY - NIGHT LINE TRANS-MITTING PARALLEL TO IT.



Fig. 127.

INTERFERENCE AND SERVICE RANGES FOR A DIVEN PROTECTION RATIO AT SUNSPOT MINIMUM

4 MG TRANSMITTER AT THE DAY-NIGHT LINE TRANSMITTING TOWARD THE SUBSOLAR POINT.



FIG. 128 INTERFERENCE AND SERVICE RANGES FOR A GIVEN PROTECTION RATIO AT SUNSFOT MINIMUM.

6 MC. TRANSMITTER AT THE DAY-NIGHT LINE TRANSMITTING . TOWARD THE SUBSOLAR POINT.



IO MC. TRANSMITTER AT THE DAY-NIGHT LINE TRANSMITTING TOWARD THE SUBSOLAR POINT.



TOWARD THE SUBSOLAR POIN

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Fig. 131

INTERFERENCE AND SERVICE RANGES FOR A GIVEN PROTECTION

20 MC. TRANSMITTER AT THE DAY-NIGHT LINE TRANSMITTING TOWARD THE SUBSOLAR POINT.


NTERFERENCE AND SERVICE RANGES FOR A GIVEN PROTECTION RATIO AT SUNSPOT MINIMUM.

25 MC. TRANSMITTER AT THE DAY-NIGHT LINE TRANSMITTING

International Administrative Aeronautical Radio Conference GENEVA, 1948

<u>Aer-Document No 47-E</u> 27 May, 1948

Submitted in : English

Committee 7

<u>Report</u>

of

the Committee on Allotment of OR Frequencies

(Committee 7) Sixth Meeting 26 May, 1948

The Chairman, Mr. A. Fry (UK) opened the meeting at 14.30. Those present included :

Argentina Netherlands East Indies Australia New Zealand Bulgaria Norway Canada Portugal Chile Sweden Ecuador Switzerland France Ukraine S.S.R. Republic of Honduras U.S.S.R. Iceland U.S.A. and Territories

The Chairman deferred consideration of Aer-Document No. 27 until it had appeared in French and Spanish.

The Chairman opened discussion of the technical principles contained in paragraphs 45, 46 and 47 of PC-Aer-Document No. 25.

Considerable discussion ensued on the subject of assigning frequencies on the basis of day and night use. After numerous proposals and amendments thereto by the delegates, the following proposal by the delegate of <u>Australia</u> was given to the committee for their consideration at the next meeting :

"That Committee 7, while undertaking its study of methods of satisfying the world's requirements for Aer.M (OR) channels, recognizes that Administrations :

- 1 Will require a proportion of their requirements for continuous use, and.
- 2 Will require only daylight protection on a major proportion of their requirements, but will, in certain instances, desire to use such channels by night, even with the corresponding decrease in protection ratio thereby resulting."

The Chairman adjourned the meeting at 17:15,

The Reporter :

The Chairman :

W. B. Krause

A. Fry.

International Administrative Aeronautical Radio Conference GENEVA, 1948

Aer-Document No. 48-E 26 May, 1948

Submitted in : English

Committee 4

REPORT

of the Technical and Operational Committee

(Committee 4) 8th Meeting 26 May, 1948

1 - The meeting was opened by the Chairman, Mr. O. J. Selis, at 10:00 hours.

The following delegations were represented :

Australia Bielorussian S. S. R. Canada China Colombia Cuba Ozechoslovakia Denmark France Iceland India Italy Morocco and Tunisia Netherlands Netherlands Éast Indies New Zealand Pakistan Foland 99 a d parte l dtzerland Union of South Africa U.S.S.R. United Kingdom 11 U, S. A. and U.S.A. Territories 75 - tİ Ħ ¥? ** 11 11 Ħ 57 11 99 11 Ħ 71 11 Yougoslavia I.C.A.O. I.A.T.A I.F.R.B.

E. G. Betts I. Jouk C. J. Acton N. N. Chen S. Quijano Caballero E. Tabio Z. Svoboda K. Svenningsen M. Falgarone G. Briem N.V.S. Iyengar A. C. de Vincenti M. Chef L.C.H.M. Bergman O. J. Selis A. de Haas G. Searle S. A. Sathar A. Arciuch S. Krasuski T. Overgaard P. Senn G. A. Harvey A.Jarov W. A. Duncan H. A. Rowland T. N. Gautier D. L. Givens D. Mitchell E. V. Shores W. E. Weaver E. L. White S, Mitrovic P. J. Greven L. A. Layzell R. Petit



- 2 The <u>Chairman</u> of the Committee No. 5 stressed the urgency for delegations to submit amendments to be included in the flight tables.
- 3 The <u>Chairman</u> indicated that in reference to Document No. 32, the minutes of the fourth meeting of Committee No. 4, were only available in English and should be considered for adoption at a subsequent meeting.
- 4 -- It was then decided to consider the propagation charts contained in PC-Aer-Doc. No. 5. Mr. <u>White</u> of the U.S.A. delegation pointed out that the proposed additions to these charts were similar to Chart No. 20 and were not yet available due to duplication difficulties. It was anticipated that they would be available for distribution during the course of the meeting.
- 5 The <u>Chairman</u> drew the attention of the meeting to the necessity for such charts by which Committees 6 and 7 could determine the propagation possibilities. These possibilities are governed by such factors as :
 - 5.1 Length of transmission path,
 - 5.2 Time of day,
 - 5.3 Time of year,
 - 5.4 Sun spot cycle,
 - 5.5. Geographical location of transmission path.

To cover all the above conditions, it would in almost all cases be necessary to provide more than one frequency per circuit (i.e. a family of frequencies).

- 6 The attention of the meeting was drawn to the fact that the charts contained in PC Aer-Document No, 5 were based on opinion contained in a U.S.A. propagation document of which ten copies would be available for use of the committee. It was explained that Mr. Gautier of the U.S.A. delegation had led the team of scientists which prepared this data and he would be available for any further explanation or clarification, if necessary.
- 7 The <u>Chairman</u> referred to the following observations made by the Preparatory Committee when considering these charts :
 - 7.1 Provision be made to include calculations for A-l emission.
 - 7.2 Charts are only applicable for one ground transmitter power. (See paragraphs 43 and 44 of the Preparatory Committee's Final Report).
 - 7.3 Charts for daytime conditions would be becessary for considering frequency repetition possibilities. (See Paragraphs 45, 46, 47 of Preparatory Committee's Final Report).
 - 7.4 Suggestions to be considered in connection with protection ratio.
- 8 Mr. <u>White</u> of the U.S.A. delegation explained that the substitution of A-1 for A-3 emission would result in an increase in range, and therefore it would be better to consider a plan in which it would be possible to accommodate either type of emission.

- 3 - (Aer-Dic. No. 48-E)

- 9 Considerable discussion followed on the basic information employed in preparing these charts. Mr. <u>Gautier</u> explained that the reference to noise in Paragraph 2 in this document referred to man-made noise at the receiver location and in the case of aircraft it included precipitation static but atmospheric noise was not taken into account. Mr. <u>Gautier</u> agreed to supply the revised text for Paragraph 2 to clarify this point.
- 10 Mr. <u>Petit</u> of I.F.R.B. pointed out the translation difficulties in the French text of Document No. 5 and agreed to submit a revised text to the Secreteriat.
- 11 The question of minimum signal strengths was discussed at considerable length by the Soviet delegation. Mr. Jarov indicated that consideration should be given to the possibility of assigning a different minimum field intensity factor for each band of the frequency spectrum.
- 12 In answer to Mr. Jarov's question concerning the variations of the effective height of aircraft antennae for different frequency bands, Mr. <u>Gautier</u> explained that the variation between the different types of aircraft would be greater than the variation between the respective bands.
- 13 Mr. Jarov stated that he was not completely satisfied with these explanations and submitted the following text for further consideration at a later meeting,
 - 13.1 "The Soviet Delegation considers that the figure of 10 microvolts per meter for minimum field intensity for aircraft reception could readily be accepted for the whole range of frequencies. It is essential to take into account the limits in which this figure can be changed in the band due to change of sensitivity of the meceiver and effect of length of antenna. Only after this will it be possible to express a definite opinion concerning the use of the figure of 10 microvolts per meter proposed in Document No. 5.
 - 13.2 The figure of 1.4 microvolts per meter for A-1 working must naturally also be revised since it depends on the level of local noise and must not, in our opinion, be below that level.
 - 13.3 For this reason, it is essential to know on what data the U.S.A. delegation based its proposals for Document No. 5 with respect to the following points :
 - 13.3.1 The variation of sensitivity of the receiver in the whole of the frequency spectrum from 3 to 23 mc/s.
 - 13.3.2 The variation of the effective length of aircraft antenna over the same frequency range.

13.3.3 The level of local noise at the aircraft."

14 - Mr. <u>White</u> pointed out that all source of material was not available and went on to explain that these figures of minimum field intensity only affected Chart No. 15. The effect of any considerable change in the figure of 10 microvolts per meter would cause the curves to be altered by a constant factor; but if a different figure was used for each band of the spectrum, then the variations of the curves would not be constant.

(Aer-Doc.No.48-E)

in 4 m

- 15 Further discussions took place on minimum field intensity of 1.4 microvolts per meter for A-1 emission. The <u>Chairman</u> asked Mr. Jarov if he would be prepared to indicate an alternative figure but after some discussion it was found appropriate to await the answers to his previous questions to the U.S.A. delegation. He stated that the ratio appeared to be too great and that the minimum figure depended upon the noise level.
- 16 The Bielorussian delegate, Mr. Jouk, suggested that the noise voltage at the aircraft would possibly be greater than 1.4 microvolts. The <u>Chairman</u> suggested that it would perhaps be possible to consider a higher figure than 1.4 microvolts per meter. This suggestion was supported by the French delegate.
- 17 Mr. Gautier explained that the figure of 1.4 microvolts per meter was based on modern aircraft acceptance tests which demand that a receiver installed therein could receive a signal of 5 microvolts. A safety factor of 2 was applied to this figure to account for aging : this brings the figure to 10 microvolts and assuming the antenna has an effective length of one meter, the minimum full intensity would have to be 10 microvolts per meter. In practice, it has been found that for A-1 emission it would be possible to tolerate 17 db more noise than for A-3 emission. This results in the figure of 1.4 microvolts per meter for A-1 emission being 17 db lower than 10 microvolts per meter recommended for A-3.
- 18 Mr. <u>White</u> pointed out that these figures allow for an aircraft noise level of 1.7 microvolts being 15 db below 10 microvolts. This means that there would be a signal of noise ratio slightly less than 1.
- 19 The delegate from India pointed out that a more logical approach to the problem would be to obtain practical data on the relative noise intensities prevailing in the different types of aircraft.
- 20 Mr. <u>Falgarone</u> of the French delegation reaffirmed his earlier statement and quoted figures from tests carried out in 1942 and 1946 in which noise voltages in the order of 20 to 30 microvolts were recorded. He recommended that a figure of 10 microvolts be taken as the noise intensity factor. To this, a figure of 15 db should be applied for A-3 emission and perhaps in the case of A-1 emission this could be revised to 2 db.
- 21 It was agreed at the close of the meeting that Working Group No. 4B should be given time to commence its work and the meeting was adjourned at 12:30 to meet again at 15:00.

The Reporter :

The Chairman :

L. M. Layzell

0. J. Selis

International Administrative Aeronautical Radio Conference GENEVA, 1948 Aer - <u>Document No. 49-E</u> 28 May. 1948

Submitted in: English

<u>C A N A D A</u>

Recommendation Relative to the Communication Made by the Secretary-General of the I.T.U. to the Chairman of the Conference (Aer - Document No. 9)

The attention of delegates is invited to the following:

Atlantic City Radio Regulations

Chapter III, Art. 20, Publication of Service Documents.

- 452 List of Aeronautical and Aircraft Stations. Only stations on board aircraft making international flights are included.
- 473 The List of Aeronautical and Aircraft Stations shall be re-published every six months without supplements between editions.
- 463 Maps of land stations open to public correspondence with aircraft.
- 464 Maps of radionavigation land stations.

Administrative Council Resolution (second session), concerning the publication of Service Documents in 1948.

"That the Secretary General shall be authorized, after consultation with the I.F.R.B., to effect a certain selection during 1948 in respect to the publication of the new editions and supplements prescribed by the Radio Regulations of Cairo in cases where it seems apparent that the prospect of the application on Jan. 1, 1949, of the Radio Regulations of Atlantic City would seriously diminish the value or usefulness, in the view of the Members of the Union, of the publication of such documents or supplements."

Comments:

The latest edition (18th) of the List of Aeronautical Stations and Aircraft Stations was published February 1948 and contains much obsolete information, particularly Part C which contains particulars of aircraft stations,

(7-27-5)

- 2 -(Aer-Doc.49-E)

The maps referred to must be published by the Secretary General in accordance with the Atlantic City Radio Regulations.

No directive is contained in the Regulations with respect to the projection and scale to be used or what areas should be included in each sectional map.

In the case of the maps of radionavigation land stations no directive is given whether locations of maritime radionavigation stations and aeronautical radionavigation stations should be shown on separate maps. Furthermore there is the question of the inclusion, or exclusion, of stations providing a purely domestic service.

When considering the questions asked by the Secretary General and the general subject of I.T.U. service documents and maps, for use by the Acronautical Mobile Service, this Conference should take into account the various manuals and charts published by I.C.A.O.

It is very desirable that the Secretary General be informed by June 15th at the latest, of the opinion of this Conference to enable provision to be made for the expenditures involved in the draft budget, which the Secretary General is required to submit to Members of the Administrative Council July 1, 1948.

Recommendation:

- 1. That an ad hoc group be set-up at the next Plenary meeting of this Conference to study the points raised in the communication from the Secretary General (Aer-Document No. 9), and associated matters, and prepare a report containing recommendations for consideration by the following Plenary meeting.
- 2. That the suggested ad hoc group include:
 - a) Three delegates to the Aeronautical Radio Conference.
 - b) Mr. R. Petit, I.F.R.B.
 - c) Mr, Voutaz, member of the I.T.U. Socretariat (Official responsible for preparation of radio service documents and maps).
 - d) Mr. P.J. Greven, I.C.A.O.
 - e) One of the two I.A.T.A. representatives

International Administrativo Aeronautical Radio Conference GENEVA, 1948.

Aer-Document Nº 50-E 28 May, 1948.

Submitted in: ENGLISH

U.I.T Genèn

REPORT

OF THE COMMITTEE ON THE ALLOTMENT OF R FREQUENCIES. (Committee 6) 5th Meeting 27 May, 1948.

1) The <u>Chairman</u>, Mr. Betts (Australia) opened the meeting at 14,30. The undermentioned delegates and Organizations were present:

> Albaria, Australia, Cuba, Chile, China, Bielorussia, Denmark, Egypt, France, French Territories, Iceland, Italy, Netherlands, North East Indies, New Zealand, Poland, Roumania, Sweden, Switzerland, Union of South Africa, United Kingdom, United States and Territories, Yugoslavia, ICAO, IATA.

2) The <u>Chairman</u> submitted the report of the 3rd Meeting (Åer. Doc.N⁹ 36) for approval.

<u>Mr.de Beaufol</u> (French Territories) pointed out that the French text of this document was incorrect and differs from the original text in French he handed in himself as reporter of the 3rd meeting. .Mr.de Beaufol handed in the necessary corrections. <u>Document Aer-36</u>, although no Spanish text had yet appeared, was then unanimously adopted.

3) <u>Mr.Falgarone</u> (France) wanted to discontinue the new procedure of mentioning the language in which a document had been submitted.

The Chairman promised to take the matter up with the Secretariat.

The Chairman announced that paragraphs G and H as appearing on page 4 of Document PC. Aer N° 25, would be considered by Committee 6 in due course.

4) <u>Proposal for the Utilization of Exclusive Frequency Bands</u> assigned to mobile aeronautical "R" Services between 3 and 25 Mc/s. (Aer-Document Nº 30).

5) Mr. <u>Falgarone</u> (France) explaining the document, made some corrections to the text and drew attention to the fact that the proposal had some points of resemblance to the method of operating in use for ship and coastal stations.

The initial contact having been established on a "calling frequency", subsequent contacts were to be made on a "working" frequency.

(12-28-5)

- 2 -(Aer-Doc.50-E)

Actually, the French proposal was a combination of different systems.

The French delegate then drew attention to Para. 7 of Document Aer-30, where a division of the needs of communication into a) Regional and b) World Wide networks is pointed out.

The Chairman asked the Delegates to express themselves on the French proposal.

<u>Mr. Senn (Switze</u>), pointed out that the proposal for limiting the allocation of H.F. bands to regional A.T.C. areas of at least 1,000 Km, might be impossible for Switzerland to accept.

<u>Mr. Harvey (Union of South Africa</u>), asked whether a more efficient use of the available spectrum might be attained if the first contact was made on a "calling frequency" and subsequent contacts were carried on different "working frequencies",

<u>Mr. Falgarone</u> was of the opinion that the principle of introducing a calling frequency would cut out a bet of interference. Mr. Falgarone then demonstrated the proposed system on the blackboard. In answer to a question put by Mr. de Vincenti (Italy), taking the case of the aerodrome at ROME as an example, Mr. <u>Falgarone</u> stated that <u>one</u> call frequency plus <u>three</u> working frequencies would be adequate to deal with even the greatest density of traffic. The maximum number of transmitters would not exceed 6 for the largest centres.

The meeting was adjourned at 16.20.

Reporter:

Chairman:

E. G. Betts -

A. De Haas

INTERNATIONAL ADMINISTRATIVE AERONAUTICAL BADIO CONFERENCE

GENEVA, 1948

Aer-Document No. 51-E 28 May, 1948 Submitted in: French

Committee 1

Report of the Steering Committee

(Committee 1)

lst and 2nd Meetings.

15 and 19 May, 1948

FIRST MEETING, 15 MAY, 1948

Chairman: Mr. A. LEBEL

Present:

Mr. JAROV (Vice-Chairman of Conference), Mr. Souto CRUZ (Committee 2), Mr. FALGARONE (Committee B), Mr. SELIS (Committee 4), Mr. DUNCAN (Committee 5), Mr. BETTS (Committee 6), Mr. FRY (Committee 7), Miss Florence TRAIL (United States).

Time Table of Meetings:

A time-table of meetings was drawn up for Tuesday and Wednesday, 18 and 19 May (see Aer-Document No. 3).

It was agreed that morning meetings would begin at 10:00 A. M., and afternoon meetings at 2:30 P. M.; there would be no meeting on Monday, 17 May, 1948, this being a legal holiday in Switzerland.

For the time being, meetings would take place in Rooms I and II, and Room 103 in the Palais Wilson would be available for use by a working group of the Conference .

Consideration of the Final Report of the Preparatory Committee (PC-Doc. No. 25):

Mr. JAROV (Vice-Chairman of the Conference) moved that the Final Report of the Preparatory Committee be considered as a whole by a Plenary Meeting of the Conference, before the committees began their work.

This proposal was discussed at some length, and <u>it was eventually</u> agreed that the first meetings of the Committees should be devoted to questions of organization. The Committees would then indicate to a Plenary Meeting those paragraphs of the Final Report of the Preparatory Committee which in their opinion came within their individual terms of reference. The Plenary Meeting would then study these proposals in the light of the Report as a whole, and would allocate paragraphs to each Committee.

It was agreed that the mext Plenary Meeting should be held on Wednesday, 19 May.

The Meeting rose at 6:00 P. M.



(15-28-5)

SECOND MEETING, 19 MAY, 1948 at 5:15 P. M.

Chairman: Mr. A. LEBEL

<u>Present</u>: Mr. Souto CRUZ (Committee 2), Mr. CHEF (for Mr. FALGARONE, Committee 3), Mr. SELIS(Committee 4), Mr. DUNCAN (Committee 5), Mr. BETTS (Committee 6), Mr. FRY (Committee 7), Miss Florence TRAIL (United States).

Enlargement of the Steering Committee:

The CHAIRMAN proposed that vice-chairmen of committees should also sit on the Steering Committee, if Chairmen of Committees so desired.

It was agreed to adopt this proposal.

Working Procedure of the Conference:

The Committee then discussed a document which had been drawn up by the Secretariat with a view to clarifying the procedure which should be adopted to facilitate the work of the Conference, with particular reference to the preparation of proposals and reports.

A discussion followed in the course of which some of the provisions of this document were compared with the Rules of Procedure of the Conference. The document was finally adopted by the Committee and will be published in the form of Recommendations made by the Steering Committee (Aer-Document No..'14).

Time-Table of Meetings:

A time-table of meetings was then drawn up for Thursday and Friday, 20 and 21 May. (Aer-Document No. 12)

Reporter:

Chairman:

A. LEBEL

G. CORBAZ

(15 - 28 - 5)

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COMMITTEE I.

REPORT OF THE STEERING COMMITTEE

(COMMITTEE I)

<u>4th Meeting</u>

25 May, 1948, at 5.15 p.m.

CHAIRMAN': Mr. A. LEBEL.

Present: Mr. Souto CRUZ (Committee 2), Mr. FALGARONE (Committee 3), Mr. SELIS (Committee 4), Mr. DUNCAN (Committee 5), Mr. BETTS (Committee 6), Mr. FRY (Committee 7); Mr. ACTON (Canada), Mr. RAFUSE (Canada), Miss Florence TRAIL (United States).

ALLOCATION OF ITEMS OF THE AGENDA OF THE CONFERENCE TO COMMITTEES.

The CHAIRMAN asked the Committee to study the various items of the agenda (PC-Aer - Document N°.25, page 4), in order to make sure that all these points came within the terms of reference of the Committees. Items G, H, and I should be particularly studied.

After some discussion, it was decided that:

- 1) <u>Committee 4 should study item I of the agenda (public correspondence on</u> <u>aeronautical frequencies (Atlantic City Radio Regulations, Ch. III, Article</u> <u>9, Section II, N°, 255). The date by which this Committee was expected to</u> have completed its work would be further postponed.
- 2) Item H of the agenda (Study of recommendations to be made to the P.F.B. on the application of the plan drawn up by the Aeronautical Conference) would be studied by Committees 6 and 7. it being understood that a single text would, if possible, be prepared containing recommendations for both R and OR bands.
- 3) <u>Committees 6 and 7 would both consider item G (Study of means of satisfying</u> <u>additional future requirements in the aeronautical mobile bands</u>).

CONSIDERATION OF THE REQUEST MADE BY THE SECRETARY-GENERAL OF THE UNION.

The CHAIRMAN referred to the letter sent to him by the Secretary-General of the Union (Aer-Document N°, 9), in which the Conference was requested to give its opinion on how charts for stations of the aeronautical service should be drawn up, as envisaged by the Atlantic City Radio Communications.

In view of the difficulty experienced in keeping these charts up to date, there was some discussion on whether or not they should be published.

It was eventually decided that at the next Plenary Meeting. Mr. ACTON (Canada) would move the creation of a working group, composed of representatives of ICAO and IATA, together with Mr. VOUTAZ (Secretariat of the Union), who had

> ARCHIVES U.I.T. GENEVE

expressed a wish to take part in the discussions on this point.

VOTE BY PROXY.

In reply to a question by Mr. FRY (Committee 7), it was agreed that according to the rules of procedure, a vote by proxy was equally valid in the meetings of Committees, but within the limits of Chapter III of the General Regulations, page 61, first part of the Final Acts of Atlantic City.

CREDENTIALS.

Mr. Soute CRUZ (Committee 2) outlined the procedure which the Credentials Committee would adopt.

After some discussion, it was agreed that the Report would give the names of heads of delegations, when known, and that the Credentials Committee, in doubtful cases, would undertake such investigations as might be necessary.

TIME-TABLE OF MEETINGS.

The Committee then drew up a time-table of meetings for the 26, 27 and 28 May (Aer-Document N° $_{\circ}$ 39).

The Meeting rose at 6.15 p.m.

The Reporter:

The Chairman:

G. Corbaz

A. Lebel

(6-28-5)

International Administrative Acronautical Radio Conference GENEVA, 1948 Aer - Document No 53-E 27 May, 1948

COMMITTEE 7

REPORT

OF THE COMMITTEE ON THE ALLOCATION OF "OR" FREQUENCIES

(COMMITTEE 7) 7th Meeting 27 May, 1948

The Chairman, Mr. A. Fry (U.K.) opened the meeting at 14:30. Those present included :

Argentina	Netherlands East Indies
Australia	New Zealand
Canada	Portugal
Chile	Sweden
Louador	Switzerland
France	Ukrainian S.S.R.
Honduras (Republic of)	U.S.S.R.
Iceland	U.S.A.

1. The Committee approved the following amendment to p. 2 of Aer-Document No 27-E requested by the delegate of France : after the words : " ... so that concrete recommendations might be placed before the forthcoming Copenhagen Conference", delete the following sentence, and read as follows : "As experts of the aeronautical services of different countries would be in Copenhagen to study the question of broadcasting stations operating by special assignment in the aeronautical bands, they might well proceed to allocate frequencies in the bands mentioned above".

2. The Committee also approved the following change : in the paragraph referring to the remarks of the Chairman immediatly after the paragraph referred to above, strike out "intimately" and insert "urgently".

With these changes, Aer Document 27 was adopted by the Committee.

3. The Chairman opened the discussion of the Australian proposal submitted at the sixth meeting. The question of night use of the OR frequencies and the protection ratio required was discussed at length.

The following amendment to the Australian proposal was submitted by the delegate of New Zealand.

"3. Will require a proposition of their requirements for night use only and will require the normal protection ratio for these frequencies".

This amendment was adopted. The Australian proposal as amended was unanismously adopted by the Committee.

The Chairman adjourned the meeting at 17:00.

A. FRY Chairman.

CHIVES

U.I.T. Genèn



International Administrative <u>Aeronautical Radio Conference</u> GENEVA, 1948.

Aer - Document No.54-E 28 May, 1948.

Submitted in : ENGLISH COMMITTEE 4.

Report

of the Technical and Operational Committee.

(Committee 4)

10th Meeting 27 May, 1948 a.m.

Chairman : Mr. 0.J. Selis (Netherlands)

1.

The following delegations and organisations were represented:

Albania Argentina	Italy Netherlands
Australia	Netherlands East Indies
Bielorussian S.S.R.	New Zealand
Canada	Poland
Chile	Protectorates of Morocco and Tunisia
China	Roumania
Colombia	Switzerland
Cuba	Union of South Africa
Denmark	Union of Soviet Socialist Republics
Egypt	United Kingdom
France	United States of America and Territories
Iceland	Yugoslavia
India	I.C.A.O.

2. The <u>Chairman</u> opened the meeting at 10.13 a.m. and referred to the fact that minutes of the 4th, 5th and 6th meetings were not yet confirmed. As translations of the respective documents were incomplete discussion on them was deferred at the request of the delegates of <u>France</u> and <u>Cuba</u>.

The delegate of <u>Cuba</u> requested that the Secretariat be urged to expedite translations.

The delegate of $\underline{U_sS_sA_s}$ referred to a discussion he had with the Conference Chairman on the embarrassing situation caused by the slowness with which translations of documents appeared.

3. The <u>Chairman</u> referred to document PC-Aer 5 page, one and stated that certain questions raised by the delegate for <u>U.S.S.R.</u> would appear in the report of the 8th meeting and an answer would then be given by the <u>U.S.A.</u> delegation, if possible.

4. The <u>Chairman</u> drew attention to the fact that in the 9th meeting it was arranged that the delegates of <u>Bielorussia</u> and <u>U.S.A.</u> would confer with a view to the substitution of a paragraph (No.4) in order to cover questions of signal-noise ratio.



(5-28-5)

The delegation of the U.S.A. tabled the information required. Amendments were made at the suggestions of the delegates of <u>Colombia</u> and <u>France</u>.

The final text agreed upon appears in Appendix A of this report.

5. With discussion on the introduction of Document PC Aer.5 being concluded the Chairman passed to consideration of "minimum Range Charts". It was decided to omit the word "summer" in 4th line paragraph 8.

The delegate of the U.S.S.R. drew attention to the presence of inconsistencies in the general data contained in the document and made special reference to the I zone. He stated that certain predicted figures varied as much as 100% from the values obtained in practice, and recommended that the work of the Committee should be co-ordinated with the working group of the P.F.B. He stated that climatic conditions in the Soviet Union required a different means of solution.

The delegate of <u>Canada</u> drew attention to paragraphs 2a and 2b appearing in P.F.B. document No.238 dated 24th May 1948, and recommended that delegates should obtain a copy of this paper.

The delegate of the $\underline{U_{c}S_{.}S_{.}R_{.}}$ agreed that some use could be made of the data.

The delegate of Colombia made reference to the same paper.

6. In reference to paragraph 8, the delegate of the $\underline{U}_{.}S_{.}A_{.}$ described fully, figures 2 and 3.

7. The delegate for the <u>U.S.A.</u> proposed that the sentence on page 4, second paragraph "minimum ranges at ... are presented in figures 24 to 32 of this report" should be transferred to page 2 in the second chapter. This was agreed.

The delegate for the U.S.A. then described these figures.

It was noted especially that distances in these last mentioned graphs are given in statute miles.

At the suggestion of the delegate for <u>Cuba</u>, it was agreed that more appropriate units would be kilometers. Final documents should use this measure. This was agreed.

8. In considering paragraph 10, the delegate for the <u>U.S.A.</u> gave illustrations at the request of the delegate for <u>U.S.S.R</u>,

9. After no further discussion on paragraph 10, there being no discussion desired on paragraph 11, the meeting adjourned at 12.29 p.m.

Reporter :

Chairman :

G. SEARLE

0.J. SELIS

Appendices : A and B

(9-28-5)

<u>APPENDIX A</u>:

-3 - (54 - E)

For substitution in lieu of paragraph 4 Document PC-Aer 5

Unless specifically indicated on the following curves, the required field intensity for radiotelephone was taken as 15 db above noise which should provide 90% intelligibility with 100% modulation on peaks of speech. The field intensity for radiotelegraph was taken as 17 db less than that required for radiotelephone. These figures are in accordance with reference 1. It should be appreciated that the use of less power or the operation of aircraft with a higher local noise level than that assumed (1.7 uv/m) will result in the degradation of the quality of the expected service at the maximum service range. For example, an increase in local noise to 5 uv/m will reduce the radiotelephone signal to noise ratio mentioned above to 6 db if the same level for the minimum useful signal is maintained with a consequent loss of intelligibility and ability to handle messages rapidly due to the necessity for repetition.



APPENDIX B

Index to figures appearing in Document PC-Aer. No5

Fig. No

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(9-2-6)

International Administrative Aeronautical Radio Conference GENEVA, 1948.

Aer-Document N⁰55-E. 8 June, 1948.

COMMITTEE 6

Working Group B.

REPORT

of WORKING GROUP B of COMMITTEE 6

2nd Meeting

7 June, 1948.

Chairman : Mr.G.A.Harvey (Union of South Africa).

1. - The Chairman opened the meeting at 3 p.m.

The following States and International Organisations were represented :

Albania Argentina Australia Cuba France French Protectorates of Moroceo and Tunisia India Ireland Netherlands Nicaragua Norway South Africa Switzerland United Kingdom United States and Territories Yugoslavia I.A.T.A. I.C.A.O.

- 2. The Chairman stated that the minutes of the first meeting had not yet been reproduced and therefore would be discussed at a later date.
- 3. The <u>Chairman</u> stated however that a draft recommendation had been prepared in accordance with the decision taken at the first meeting, and circulated copies of this document amongst. delegates present for comment. A copy of this draft recommendation is issued as an Annex to Aer-Document N⁰83.



--2 -(Aer-Doc, 55-E)

- 4. The Delegate for Australia, seconded by the Delegate for the Netherlands, proposed that, in para 3 of the draft recommendation, after the words "long distance route", the words "made up of one or more segments" be inserted. This amendment was agreed by the Committee.
- 5. Considerable discussion took place on the definition of a Major World Air Route Area. The U.S. Delegate, supported by the <u>Chairman</u>, however pointed out that, after Working Group N°60 had considered the World Air Routes and examined the possibilities of grouping certain air routes, the formulation of a satisfactory definition would then be simplified.
- 6. The Delegate for <u>Australia</u> supported by the <u>Chairman</u> proposed in para 4 the insertion of the words "for further processing by Committee N⁰6A" after the word "necessary" contained in the last line of the paragraph. This amendment was accepted by the Committee.
- 7. In the absence of further comment, the <u>Chairman</u> stated that the draft recommendation, as amended, would be adopted.
- 8. The meeting adjourned at 4:05 p.m.

Reporter :

Chairman :

Mr.J.G.Adam

Mr.G.A.Harvey

(19 - 9 - 6)

Aer-Document No. 56-E Aer-Document No. 56-F Documento-Aer No. 56-S

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	Schedule of M	<u>leetings</u>	
	Hour	Ruom 1	<u>RCom 11</u>
Monday, May 31, 1948	10 a.m.	Committee 4 : W	Jorking Group 5 a
	1.30 p.m. 2.30 p.m.	Committee 6:0	Committee 2 Committee 7
Tuesday, June 1, 1948	10. a.m. 2.30 p.m. 5 p.m.	: Committee 4 : Plenary	Working Group 5 a Meeting Committee I
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Lundi, ji mai, 1940	10 h. 13 h.30 14 h.30	Commission 4 : : Commission 6 :	Groupe de travail 5e Commission 2 Commission 7
Mardi, 1 Juin, 1948	10 h. 14 h.30 5 h.	Commission 4 : Assembl	Groupe de travail 5a ée Plénière Commission I
	Programa de Ses		

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ANNEX to Aer-Doc. No 56 - EANNEXE au Aér-Doc. n° 56 - FANEXO al Aer-Doc. n° 56 - S

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ANNEX to Aer-Doc No 56 - E ANNEXE au Aér-Doc.n^o 56 - F ANEXO al Aer-Doc. n^o 56 - S

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		B = 5/80 - 5680 kc/c			
		$0E 5680 = 5730 \ln 2\pi$			
		01700 = 3750 kc/s			
•	5480				
	5485.0	Matal(R)(Rannal(R))			
	5492.5	IOTAL (R) UNANNE_S 20			
	5500.0	" (UR) " 6			
	5507.5	Total des voies (R) 26			
	5515.0	" " (OB) 6		16. -	
	5522.5				
	5530.0	Total canales (R) 26			
	5537.5	χ " (OR) 6			
	5515.0			•	
	5552.5				
	5560	Channal iddth 7 5 kg/g			
	5567 5	Toppour de moio 75 los /s			
	5507+5 EEDE A	Largeur de voie 7,5 kc/s			
	5515+0	Anche de canal 7,5 kC/s		-	
	2202.02 5500:0				
	5590.0	tolerance existing at lower end of band		0.0365	%
	5597.5	upper " " "	•	0.0349	%
,	5605.0				
	5612.5	tolérance existant à l'extrémité inférieu	e de	0.0365	%
	5620.0	la bande	ŧ	2 C - 1	
	5627.5	" " " supérieu	re "	0.0349	%
	5635.0	1			
	5642.5	tolowonate entetante en al estuant fullant		0.0265	đ
	5650.0		or de	0.0305	70
	5657.5	La banda	1		~
R	5665.0	" " " superio	r de	0.0349	%
4	5672.5	la banda	L		
>	5680.0	<pre> {Junction-jonction - empalme} </pre>			
	5687.5				
OR	5695.0	Ň			
	5702.5				
	5710 0				
	5777 6				
	5725 0				
	122.0				
	5730				

- 4 -

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ANNEX	\mathbf{t}_{0}	Aer-Doc.	No	56	-	E
ANNEXT	5 to	Aér-Doc.	n,	56	ň	F
ANEXO	al	AER-Doc.	n	56	812	S

	Bands		•
R ·	8815 - 8965	kc/s	
OR	8965 - 9040	kc/s	
	Bandes		
R	8815 - 8965	kc/s	
OR	8965 - 9040	kc/s	
	Bandas		
R	8815 - 8965	kc/s	
OR	8965 - 9040	kc/s	•
	, •.		

х.

\$\$1 5		
8821 \	$T_{otol}(P)$ observed a 17	
8820 5	Total (A) channels	
8838.0	Totar(OR) chamers	
8816.5	Total der voies (B) 17	
8855.0	Total dos voies (OR)	
8863.5		
8872.0	Total de los canales (R) 17	
8880.5	(R) Total de los canales (OR) 8	
8889.0		
8897.5	Channel width 8.5 kc/s	
8906.0	Largeur de voie 8.5 kc/s	
8914.5	Ancho de los canales 8.5 kc/s	
8923.0		· .
8931.5		
8940.0		
8948.5		
8957.0		
والمراجع	(8965 junction - jonction - empalme)	
8965 .5	(OR)	
8974.0		
8982.5	tolerance existing at lower end of band 0.	034 %
8991.0	$\mathbf{u} = \mathbf{u} \mathbf{p} \mathbf{p} \mathbf{r} \mathbf{u} \mathbf{u} \mathbf{r} \mathbf{u} \mathbf{u} \mathbf{u} \mathbf{r} \mathbf{u} \mathbf{u} \mathbf{u} \mathbf{r} \mathbf{u} \mathbf{u} \mathbf{u} \mathbf{u} \mathbf{u} \mathbf{u} \mathbf{u} u$	38.7 %
8999.5		
9008.0	tolérance existar à l'extrémité inférieure de 0.	034 %
9016.5	la bande	adm d
9025.0	supérieure 0.0	387. %
9033.5		
9040.0	tolerencia existente al extreme inferior de 06	034 %
	la banda	
. •	" " " superior " 0.0	387. %
	* · · · · · · · · · · · · · · · · · · ·	

		-	6 -		ANNEX ANNEXE ANEXO	to to al	Aer-Doc. Aér-Doc. Aer-Doc.	No n n°	56 56 56	e F S	
		Bar	<u>nds</u>				· .				
,	R	6625 -	6685	kq/	S						
	OR	6685 -	6765	kç/	S .						
		Bar	ndes								
	R	6625 -	6685	kc/	s						
	OR	6685 -	6765	kc/	s .					٠	
		Bar	ndas								
	R	6625 -	6685	kc/	s						
	OR	6685 -	6765	20	," S						
	•••	0000	0,00		-			·			
						`					
		· * •									
		Total ((R) d	chor	nels		20	0			

	" (OR) "	10
	Total des voies (R) " " " (OR)	20 10
· · · · ·	Total de los canales (R) """" (OR)	20 10
· · · · ·	Channel width Largeur de voie Ancho de canal	7,5 kc/s 7,5 kc/s 7,5 kc/s

6630.0 6637.5 6645.0 6652.5 (R) 6660.0 6667.5 66675.0

6525 6532.5 6540.0

6547.5 6555.0 6562.5

6570.0

6577.5 6585.0 6592.5 6600.0

6607.5 6615.0 6622.5

6682.5

6690.0

(6685 junction - jonction - empalme)

(OR)	6697.5 6705.0 6712.5 6720.0 6727.5	tolerarce "	existing a "	t lower end " upper "	of band ""		0.069 0.0664	8/2 8/2
۰.	6735.0	tolérance	existant à	l'extrémit	é inférieure la bande	de	0.069	%
	6750.0 6757.5	11	1 1 11	ţţ	cupérieure	tt - J	0.0654	%
	6765.0	tolerencia	existente	al extremo	inferior de la banda		0.069	%
÷		11 .	11	1 7 11	superior "		0.0864	%

A INEL	to Aer-Doc	• No	56	tin.	E	
AMNEX	E au jér-Do	c. n	56		F	
VEEXO	al Aer-Doc	• n ^o	56	-	S	

Band (R) 10005 - 10100 kc/s Bande (R) 10005 - 10100 kg/s Bandas (R) 10005 - 10100 kc/s

7 -

10005 10012 10021 10030		To To To	tal channe tal des ve tal de los	els Dies s can	ales		10 10 10		,	
10039 10048 10057 10066	. ·	Che Lai And	annel wid rgeur de cho de cas	th voie nal			9 kc/s 9 kc/s 9 kc/s		1	
10075 10084 10093		tolerance "	existing	at 1 " u	ower en pper "	nd of ""	band "		0.0398 0.0396	% %
10100		tolérance	existant	àl'	extrémi	.t é ir	nférieure la bande	đe	0.0398	%
		tt -	tt	11	11	รเ	périeure	It	0.0396	%
·	,	tolerenci	a existen	te en	a el ext	rene	inferior la banda	de.	0.0398	%

11

11

11

superior " 0.0396 %

Band

. 11

11

11175 11183 11192.5 11202.0 11211.5 11221.0 11230.5 11240.0 11249.5 11259.0

(OR) $11175 - 11275$ (R) $11275 - 11400$	
Bande	
$\begin{array}{c} (0R) 11175 - 11275 \\ (R) 11275 - 11400 \end{array}$	
Banda (OR) 11175 - 11275 (R) 11275 - 11400	•
Total (OR) channels " (R) "	11 12
Total des voies (OR) """(R)	11 12
Total de los canales (OR) " " " " (R)	11 12

(11275 junction - jonction - empalme) 11268.5_ 11278.0

4

11287.5		
11297.0		. •
11306.5	tolerance existing at lower end ~ band	0-04/8 %
11316.0		0.0446 %
11325.5		
11335.0	tolerance existant à l'extrémité inférieure de	0.0448 %
11344.5	la bande	
11354.0	" " " supérieure "	0.0446 %
11363.5	tolerencia existente al extreme inferior de	0.0/18 %
11373.0	la handa	0.0440 %
11382.5		0.0116 %
11392.0	54001101	0.0440 10
11400.0		

ANNEX to Aer-Doc. No 56 = EANNEXE au Aér-Doc. no 56 = FANEXO al Aer-Doc. no 56 = S

	Band (OR) 13200 - 13260 (R) 13260 - 13360 Bande (OR) 13200 - 13260 (R) 13260 - 13360 Banda Channel width (OR)13200 - 13260 Largeur de voie (R) 13260 - 13360 Ancho de canal	10 kc/s 10 kc/s 10 kc/s
13200 13210	Total (OR) channels 5 " (R) " 8	• • • •
13220 13230 13240	Total des voies (OR) 5 """(R) 8	,
13250 13260	Total de los canales (OR) 5 junction """" (R) 8	
13270 13280 13290	Jonstion	
13300 13310	tolerance existing at lower end of band """"upper """	0.053 % 0.0524 %
13320	tolérance existant à l'extrémité inférieure de la bande	0.053 %
13350	" " " supérieure "	0.0524 %
	tolerencia existente al extreme inferior de la banda	0.053 %
	" " " superior "	0.0524 %
	(<u>OR) Band</u> 15010-15100 Bande OB	

- 8 -

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15010-15100
Bande OR
15010-15100
Banda OR
15010-15100

15010 15020 15030 15040		Total Total Total	channels des voies de los cana	8 8 ales 8	
15050 15060 15070		Channe Largeu Ancho	l width r de voie de los cana	10 kc/s 10 kc/s ales 10 kc/s	
15090 15100	tolerance (existing "	at lower er " upper '	nd of band 1 11 11	0.0466 %
•	tolérance	existant	à l'extrémi	té inférieure de	0.0466 %
	Ħ	17	tī 11	supérieure "	0.0463 %
·	tolerencia	existent	e al extrem	ne inferior de le bende	0.0466 %
	11	11	n n	superior "	0.0463%

	ANNEXE au Aér-Doc. n° 56 - F ANEXO al Aer-Doc. n° 56 - S	•
·	Band	~
	(R) 17900-17970	
	(OR) 17970-18030	
•.	Bande	
	(R) 17900-17970	
	(OR) 17970-18030	
	Banda	
· · ·	(R)17900-17970 (DB)17970-18030	
· .	(0.117)10-10030	
17900	Total (R) channels 6	4
17910	Total (OR) channels 5	
17920	Total des voies (R) 6	
179/.0	Total des voies (OR) 5	
17950	Total de los canales (R) 6	•
17960	Total de los canales (OR) 5	1
17970 (junction	n-jonction-empalme)	
17980		
17990	Channel width 10 kc/s	3
18000	Largeur de voie 10 kc/s	5.
14000	Ancho de los canales 10 kc/s	5.
10020		-
10020		

	II II IIICE I	II.	" ų	pper "		0,0389	%
•	tolérance (existant "	à l' "	extrémité "	inférieure de la bande supérieure " " "	0,0391 0,0389	% %
	tolerencia n	existent	e al "	extremo "	inferior de la banda superior ""	0,0391 0,0389	% %

Aer-Document No 57-E revised Aér-Document No 57-F revisé Documento-Aer No 57-S revised

THIRD PLENARY MEETING 1 June, 1948

Agenda

- 1 Approval of minutes of 1st and 2nd Plenary Meetings. (Aer-Doc. 4 & 21)
- 2 Consideration of Report of Credentials Committee. (Aer-Doc.41)
- 3 Communication from the Secretary-General (Acr-Doc. 9 & 49.)

4 - Consideration of action to be taken with regard to Regional Conferences. 5.- Reports of Committee 4, if available.

- 6 Consideration of the resolution submitted by the Soviet delegation at the 2nd Plenary Meeting (Aer-Document 21)
- 7 Closing date of the Conference.

TROISIEME SEANCE PLENIERE ler Juin, 1948 Ordre du Jour

1.- Approbation des procès-verbaux des lère et 2ème séances plénières. (Doc-Aér. 4 & 21)

2 - Examen du rapport de la Commission de vérification des pouvoirs. (Doc-Aér. 41)

- 3 Communication du Secrétaire général (Doc-Aér. 9 & 49)
- 4 Examen de la position à prendre en ce qui concerne les conférences régionales.
- 5 Approbation des rapports disponibles de la Commission 4 . (Commission des
- principes techniques et d'exploitation).
- 6 Examen de la Résolution présentée par la délégation de l'U.R.S.S. lors de la 2ème séance plénière. (Aér-Doc. 21)
- 7 Fixation de la date de la fin de la Conférence.

TERCERA SESION PLENARIA

l de junio de 1948 Orden del Dia

1 - Aprobación de las actas de las Sesiones Plenarias I y II(Aer-Doc.4 y 21).

2 - Examen del Informe de la Comision de Verificación de Credenciales

(Aer-Doc.41)

- 3 Comunicación del Secretario General (Aer-Doc.9)
- 4 Estudio de la gestión que ha de emprenderse respecto a las Conferencias Regionales.
- 5 Informes de la Comisión 4, si están disponibles.
- 6 Estudio de la resolución presentada por la Delegación Soviética en la segunda Sesión Plenaria (Doc-Aer 21)
- 7 Fijación de la fecha de clausura de la Conferencia.



Aer-Document No. 57-E Aér-Document No. 57-F Documento-Aer No.57.S

THIRD PLENARY MEETING

l June, 1948 Agenda

- 1 Approval of minutes of 1st and 2nd Plenary Meetings.
- 2 Consideration of Report of Gredentials Committee.
- 3 Communication from the Secretary-General (Aer-Document No. 9).
- 4 Regional problems presented by the use of medium frequency bands.
- 5 Progress reports of Committee 5 and of Committee 4, if available.
- 6 Final date of the Conference.

TROISIEME SEANCE PLENIERE

1 Juin, 1948 Ordre du Jour

- 1 Approbation des procès-verbaux des lère et 2ème séances plénières.
- 2 Examen du rapport de la Commission de vérification des pouvoirs.

3 - Communication du Secrétaire Général (Doc. Aér. No. 9).

- 4 Problèmes régionaux d'utilisation des bandes de moyennes fréquences.
- 5 Rapport sur l'état des travaux des Commissions 5 et 4, si disponibles.
- 6 Fixation de la date de la fin de la Conférence.

<u>TERCERA SESION PLENARIA</u> l de junio de 1948 <u>Orden del Dia</u>

- 1 Aprobación de las actas de las Sesiones Plenarias I y II.
- 2 Examen del Informe de la Comisión de Verificación de Credenciales.
- 3 Comunicación del Secretario General (Doc. Aer. 9).
- 4 Problemas regionales de la utilización de las bandas de frecuencias medias. 5 - Informe respecto al progreso de la labor de la Comisión 5 y de la Comisión
 - 4, si se dispone de él.
- 6 Fijación de la fecha de clausura de la Conferencia.



International Administrative	
Aeronautical Radio Conference	
G E N E V A, 1948	
Conférence internationale administrative	
des Radiocommunications aéronautiques	
GENEVE, 1948	
Conferencia Administrativa Internacional	
de Radiocomunicaciones Aeronauticas	
GINEBRA, 1948	

<u>Aer-Document No 58 - E</u> <u>Aér-Document n 58 - F</u> <u>Aer-Documento n 58 - S</u> 31 May , 1948 31 Mai , 1948 31 de Mayo de 1948 Working Group 4 B Groupe de travail 4 B Grupo de trabajo 4 B

Report of the Working Group 4 B Rapport du Groupe de travail 4 B Informe del Grupo de trabajo 4 B

REPORT OF WORKING GROUP 4-B

1. The Working Group considered the channeling of the aeronautical mobile bands and the results are annexed hereto.

It was considered cutside the terms of reference of this Working group to decide the specific frequencies which would be applied to common use by the (R) and (OR) services.

RAPPORT DU GROUPE DE TRAVAIL 4 B

1. Le Groupe de travail a étudié l'espacement entre les voies des bandes mobiles aéronautiques. Les résultats figurent à l'Annexe ci-jointe.

2.

2.

2.

Le Groupe de travail a considéré qu'il n'était pas dans sa compétence de spécifier quelles seraient les fréquences pour l'usage commun des services (R) et (OR).

INFORME DEL GRUPO DE TRABAJO 4 B

1. El Grupo de Trabajo estudió lo relativo a canales en las bandas moviles aeronauticas. Los resultados de este estudio constan en el anexo.

El Grupo . de Trabajo consideró que estaba fuera de sus atribuciones decidir las frecuencias específicas que se aplicarián regularmente a servicios (R) y (OR).



International Administrative Aeronautical Radio Conference GENEVA,1948 Aer.Document Nº 31 May, 1948 Committee 6

REPORT OF THE COMMITTEE ON THE ALLOTMENT OF

R FREQUENCIES (Committee 6) 28 May, 1948, at 10 a.m.

Chairman : Mr. E.G. Betts.

1. Present : Albania

Argentina Australia Bielorussian(S.S.R.) Canada Chile China Colombia Cuba Denmark Egypt France French Protectorates of Morocco and Tunisia I.C.A.O. Iceland India Italy

Netherlands Netherlands East Indies New Zealand Poland Switzerland United Kingdom United States of America United States of America United States of America and Territories Union of Soviet Socialist Republics Yugoslavia I.C.A.O. I.A.T.A. I.F.R.B.

<u>The Chairman</u> called the meeting to order at 10.8 a.m. and stated that the Steering Committee had requested Committee 6 to study paragraphs G and H on Page 4, Doc.D.C. Aer. N° 25, in conjunction with Committee 7.

2. The Chairman asked that consideration be given to Aer. Document N° 40.

As the Spanish translation had not been prepared, the delegate for <u>Colombia</u> could not agree to the consideration of this report. He would insist in future that the Spanish versions be prepared before reports were considered.

This view was also supported by the delegate for France, insofar as French texts were concerned.

The delegate for <u>France</u> was agreeable to the minutes of the second meeting being adopted insofar as the French version was concerned.(Document Aer.40)

The delegate for <u>South Africa</u> drew attention to the fact that the word "not" should be inserted in paragraph (3) third sub-paragraph, first line after "was".

(3-31-5)



Further discussion on this document was postponed.

3. <u>The Chairman</u> indicated that special consideration now had to be given to the question of meteorological broadcasting, as Committee 4 had determined aircraft loading factors on the basis that meteorological data would not be handed on traffic channels.

The U.S.A. delegation would make available a meteorological expert for consultation if necessary.

4. <u>The Chairman</u> referred to Document Aer.30. The delegate for <u>France</u> requested that the following amendments be made to the English text :

4.1 - Page 6, Paragraph 19a, between "own" and "frequency", insert "individual".

> Replace the words "so that" by the word "by" Delete" may be used for passing the communication".

4.2 - Page 7, Paragraph 22, replace the words "aircraft in distress" by the words "Aircraft in difficulty".

Change "urgent message or distress call"to "urgency message or distress call".

5. During discussion on the paper, it was agreed that on page 3, section 12, paragraph 2, the word "contact" be replaced by the phrase "initial contacts in the calling zone".

6. The meeting adjourned at 12.40 p.m.

Reporter: G. SEARLE

(3-31-5)

Chairman: E.G.BETTS

International Administrative Aeronautical Radio Conference GENEVA, 1948 Aer-Document No. 60-E 31 May, 1948

> RCHIVES U.I.T. GENENE

Committee 1

Report

of the Steering Committee

(Committee I) 5th Meeting May 28,1948

CHAIRMAN : Mr. A. Lebel

Present :

Mr. Souto CRUZ (Committee 2) Mr. FALGARONE (Committee 3) Mr. SELIS (Committee 4) Mr. DUNCAN (Committee 5) Committee 6) Mr. EETTS Mr. FRY (Committee 7) Mr. ACTON (Canada) Mr. TABIO (Cuba) Miss Florence TRAIL (United States)

REPORT OF THE THIRD MEETING (Aer-Document No. 26).

This document was adopted with the provision that the name of Mr. FURZE (Australia) should be added to the list of those present, and that in the speech attributed to Mr. ACTON, on page 1, the first sentence should read : "should the Conference adopt a recommendation on this point, all the frequency allocation areas dealt with in the Atlantic City plan should be considered."

END OF CONFERENCE.

It was agreed the 30 June, 1948 should be recommended to the Plenary Meeting as a tentative date for the end of the Conference.

SIGNING OF FINAL ACTS OF CONFERENCE.

Mr. FALGARONE (Committee 3) thought that the final acts should be signed by all the delegations, as had been the practice with other administrative conferences, notably the European Broadcasting Conferences at Lucerne and Montreux.

The CHAIRMAN pointed out that the documents adopted by those conferences had the character of final results, whereas the documents to be adopted by this Conference would, in reality, trepresent only the first of three steps towards the ultimate goal - the frequencylist. The present Conference would forward recommendations to the P.F.B. The plans prepared by the P.F.B. would be submitted to the 1949 administrative conference for final approval.
(Aer-Doc.No. 60-E)

He suggested that the report be signed by the Chairman in his capacity as Chairman of the Conference; the effect of this signature would be to attest the fact that the Final Report was, in fact, that of the Conference.

It was agreed that the question should be raised at a Plenary Meeting.

PRESS RELEASES.

It was agreed that in principle, the press should be provided with all information on the work of the Conference as it proceeded. Such information, if requested, would be pravided by the Chairman, in accordance with Rule 26, Chapter 6, of the General Regulations,

SCHEDULE OF MEETINGS.

The Committee drew up a schedule of meetings for Monday, May 31, and Tuesday, June 1, 1948.

INDICATION OF ORIGINAL LANGUAGE OF DOCUMENTS.

Mr. FALGARONE (Committee 3) suggested that a less conspicuous way of indicating the original language of documents should be found. The fact that most reporters used English as their mother tongue might lead to false conclusions being drawn.

It was agreed that the present method of indicating the original language of a document should be discontinued.

SIMULTANEOUS ISSUE OF DOCUMENTS IN DIFFERENT LANGUAGES.

The CHAIRMAN said that the position with regard to documents in Spanish was likely to show some improvement as a result of the steps he had taken; he appreciated the concessions that had already been made by Spanishspeaking members.

In the P.F.B. it was the practice to withhold the issue of documents until they could appear in all three languages simultaneously. Personally, he thought that stencils of documents in one language should not be held up, unless by doing so it was possible to hasten the publication of those documents in the other languages.

PROVISION OF INTERPRETERS.

It was agreed that the Secretariat should be requested to provide interpreters for two simultaneous meetings, morning and afternoon. for the rest of the Conference, and that in cases of emergency, special requests would be made for additional interpreters.

The meeting rose at 7 p.m.

Reporter :

Chairman :

N. Langford

A. LEBEL

International Administrative Aeronautical Radio Conference GENEVA, 1948 Aer-Document No.61-E 31 May, 1948

Committee 4

Report

of	the	Tech	nical	and	Opera	tional	L Committee
		the second se			the second se	the lot of the second se	

(Committee 4) 11th Meeting 28 May, 1948 p.m.

CHAIRMAN : Mr. Selis (Netherlands)

Present :

Mr. P. Kito Albania : Argentina : Mr. O. E. Vidal Mr. E. G. Betts Australia : Bielorussian S.S.R. : Mr. I. Jouk Canada : Mr. C. J. Acton China : Mr. N. N. Chen Colombia : Mr. S. Quijano Caballero Mr. E. Tabio Cuba : Czechoslovakia : Mr. Z. Svoboda Dermark : Mr. K. Svenningsen Egypt : Mr. J. Boctor Mr. M. Falgarone France : France overseas : Mr. Lalung-Bonnaire Iceland : Mr. G. Eriem India : Mr. N.V.S. Iyengar Italy : Mr. A. C. de Vincenti Netherlands : Mr. A. de Haas New Zealond : Morecec and Tunisia Pakistan : Mr. G. Searle Mr. M. Chef Mr: S: A. Sathar Poland : Mr. A. Arciuch Mr. A. Bodeaga Rumania : Switzerland : Mr. G. Bois ' 11 Mr. P. Senn Union of South Africa : Mr. G. A. Harvey U. S. S. R. Mr. A. Jarov United Kingdom : Mr. N. A. Duncan 11 11 Mr. H. A. Rowland United States and Territories : Mr. E. L. White. 11 11 ff • Mr. W. E. Weaver ft Ħ 11 Mr. D. L. Givens 11 11 11 Mr. T. N. Gautier 11 11 11 Mr. E. V. Shores Yugoslavia Mr. S. Mitrovic I. A. T. A. : Mr. L. M. Layzell . I. C. A. O. : Mr. P. J. Greven



– E –

- 2 - (Aer-Doc.No.61-E)

- It was agreed that Aer-Document No. 32 and subsequent reports should be considered at a later date, the French and Spanish translation not being available for the moment.
- 2 The Chairman said that another item had to be included in the agenda of Committee 4 : Point I, Chapter II of Doc. PC-Aer No. 25 which read as follows :

"Handling of public correspondence on aeronautical frequencies (see Article 225, page 63-E, Chapter III of the Atlantic City Radio Regulations)."

- 3 It was announced that Working Group 4-B, the terms of reference of which were contained in Aer-Doc.No.43 had finished its work. The Chairman, Mr. <u>Greven</u>, pointed out that this Working Group combined the 2 bands (R and OR) if they were adjacent. The tolerance at the outer limits of the band was in the order of .05%. A definite decision on the common channels and on establishing a mid-point should perhaps be left to Committee 6, 7 and 4. The report will be published as a three-language edition; it would be studied by Committee 4 on June 1st.
- 4 It was announced that a new document Aer-No. 29, containing new tables, had been distributed.

Study of document PC-Aer-No.5, Chapter III, Maximum Range Charts.

add. Par. 13: The Chairman concluded as the result of the discussion that an average figure of 13 db was sufficiently near to the practice; the corresponding tables could be taken as a base for further work.

add. Par. 14 : The application of Figure 17 was pointed out.

add. Par. 15 : No observation.

add. Par. 16 : An example was given with Figure 17.

- add. Par. 17 : The first sentence had to be moved to Par. 9. The paragraph should now read "Figures 33, 34 and 35 present maximum ranges at the hours 2000, 0000 and 0400 for radio-telephone".
- add. Par. 18: The expression "winter" shall be replaced by a positive designation of months.

Chapter IV, Selection of frequencies for individual routes.

add. Par. 19 : Explanation of Figure 20 was given by Mr. <u>Gautier</u>. He showed for a maximum distance of 3000 km at 55° N that up to 800 km 4.75 Mc could be employed, then up to 2300 km 9 Mc and above this distance about 16 Mc would be the right value. In any case a frequency chosen between the two curves designated "Min.Range sunspot 0" and Max. Range sunspot 125" would always be suitable. - 3 -(Aer-Doc.No.61-E)

The figures 29, 30, 31 and 32 served to designate the order of frequencies for routes and zones.

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Aer-Document No 62 - E

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

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31 May, 1948

Proposal

Submitted by Mr. PETIT (I.F.R.B.)

The International Administrative Aeronautical Radio Conference considers that the whole problem of aeronautical frequency requirements should be settled as expeditiously as possible. The Conference therefore recommends that regional conferences be convened without delay to prepare frequency assignment plans for the bands alloted to the aeronautical mobile service on the regional level. A special Administrative Conference will be convened in 1949 to approve the new frequency list ; hence these plans should be ready in time for the Conference to study them.

From a study of the frequency allocation table contained in the Atlantic City Radio Regulations, and by comparing it with the Atlantic City Resolution relative to the P.F.B., it appears that no I.T.U. agency has been specifically charged with assigning frequencies in :

- the 315 - 325 kc/s band, allocated in Region I to aeronautical radionavigation, and,

- the 325 - 405 band, shared throughout the world between the aeronautical mobile service and aeronautical radionavigation.

As regards Region I, it is probable that a special aeronautical conference will be convened by the Administrative Council of the I.T.U., and will meet in September, 1948.

However, it may be noted that :

a) The European Zone is the cause of the problem for Region I.

b) Expert representatives of aeronautical radio services in the European Zone will be in Copenhagen from the 25 June, 1948, to consider the question of broadcasting stations operating by special arrangement in the bands reserved for aeronautical mobile frequencies.(frequency allocation table, note 19). In doing so, they would be bound to study the assignment of frequencies to aeronautical stations in the 325-405 kc/s band.

c) If a special conference were to be held, its scope would be limited in practice to the 315-325 kc/s band, 10 kc/s wide.

In these circumstances, it would seem that the delay and expense occasioned by a special conference would be out of all proportion to the ends to be attained.

Hence the Danish Government might well be requested to profit by the presence of these experts by convening a meeting, in order that they might forward to the P.F.B.any proposals on frequency assignment in the above bands. These proposals, on approval by the special administrative Conference, would then be incorporated in the new frequency list. The Danish Government would of course inform the countries concerned about this meeting. Should the Danish Government accept this proposal, requests submitted on forms 2 for the corresponding bands would be forwarded to it, together with those relative to the mobile maritime service. International Administrative Aeronautical Radio Conference GENEVA, 1948 Aer-Document No 63-E 31 May, 1948

COMMITTEE 2

REPORT

of the Credentials Committee

(Committee 2) 2nd meeting 31 May, 1948, `at 1:30 p.m.

1. The Committee reviewed again the credentials of certain members which required clarification (Par. 4, Aer. Document 41-E). The Committee also examined further credentials received by the Secretariat since the Committee's first meeting. The Committee found to be in order and approved unanimously the credentials of the members listed in Annex I, Section A of this document.

2. The Committee examined also the documents received from accredited members in attendance which authorize other accredited members to act as temporary proxy in the absence of the National Member concerned. These proxies appear to be in order. They are also listed in Annex I, Section B.

The Reporters:

The Chairman :

ENENE

SOUTO CRUZ

F.A. TRAIL M. CHEF



- 2 -(63=E)

ANNEX I

SECTION A

(Supplement to Annex I, Aer, Doc, No 41-E)

No. shown in Annex I Atlantic City (1)	Member of the Union (English) (2)	Name of the National Member (3)	Represented by : (4)	Type of credentials (see Note I) (5)
18	Portuguese Colonies		Portugal	đ
39	Netherlands East Indies	B.H.F. Vanlent (or) A. Dehaas		đ
70	Syria		Egypt	b
71	Czechoslovakia	Zdenek Svoboda	•	C

Note I : (a) Letters from the Head of a Government or his Minister

(b) Notification through diplomatic channels
(c) Letters from an Administration
(d) Telegrams from an Administration

SECTION B

No shown in Annex I Atlantic City (1)	Member of the Union (English) (2)	Name of the National Member (3)	Temporary represented by (4)
12	Bulgaria	Givko Krestev	The Ukrainian Soviet Socialist Republic
71	Czechoslov aki s	a Zdenek Svoboda	Poland

(9-1-6)

International Administrative Aeronautical Radio Conference GENEVA, 1948 Aer-Document No. 64-E 1 June 1948

Committee 7

REPORT

of the Committee on the Allotment of "OR" Frequencies

(Committee 7) 8th Meeting 28 May, 1948

1 - The Chairman, Mr. <u>A. Fry</u> (United Kingdom) opened the meeting at 10 a.m. Those present included :

> Australia Canada Chile France Honduras (Republic of) Netherlands East Indies

New Zealand Pakistan Portugal Sweden Ukrainian S. S. R. U. S. S. R. U. S. A. and Territories

2 - The following changes were made in Aer-Document No, 37;

Page 2, line 2; delete "Governments' view was at" and insert in its place "country represented almost".

Page 2, line 11; insert "British" between "some" the word "Colonial".

Page 2; the statement attributed to the delegate of France should read as follows: "The delegate of <u>France</u> said that contrary to the assertion of Document No. 19, the bands allocated to the aeronautical mobile service by the Atlantic City Regulations were double those allocated to this service by the Cairo Regulations. In addition, provision had been made for OR bands to be assigned to this service. The requirements of OR services were the same at sea as on land. If, in calculating the area of a country, the extent of sea separating that country from its overseas territories were included, France might be able to accept the Soviet proposal."

Page 3; the speech attributed to the delegate of the Ukraine should read as follows; "The <u>delegate from the Ukraine</u> stated that the U.S.S.R. meant in its proposal to find a way to establishing the best possible plan for frequency allotment. Paragraph 8 of Document 19 took into account such factors as the economic and cultural level of a source at **its** geographical situation, and for that reason paragraph 8 might be accepted as one of the methods of approach to establishing a frequency allotment plan. Form 2 gave neither correct requirements in frequencies nor recommendations relating to the distribution of frequencies between different countries. For this reason, Form 2 could not be taken as the basis for frequency allotment between different regions and countries."

With the changes as noted above, Aer-Document 37 was approved by the Committee.



1200 <u>B</u> 1950

- 2 -(Aer-Doc.64-E)

3. The Chairman summarized the position of the Committee as to work done thus far and the tasks which still remain to be done as follows:

- a. Assembly of information on which to base the establishment of requirements of countries
- b. Agreement on rules for assignment of frequencies based on ~ operational considerations
- c. Agreement on rules for assignment of frequencies based on technical considerations
- d. Agreement on rules for the actual assignment of frequencies
- e. Miscellaneous points not falling within the above.

The Chairman then took up the question of bands allocated to OR on a shared basis. (See Para 38 - 42 of PC-Aer-Doc. 25 and PC-Aer-Doc 15, Appendix C.) After much discussion, the following proposal was adopted by the Committee:

(add; as Para 42d, to PC-Aer-Doc. 25)

"42d. Requirements in the shared bands should be satisfied equitably between all countries."

The Chairman adjourned the meeting at 1250.

Reporter:

Chairman:

Mr. C. W. Janes

Mr. A. Fry

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

Aer-Document No 65 - E

L June, 1948

REPUBLIC OF POLAND

PROPOSAL FOR THE ADOPTION OF MINIMUM FIELD INTENSITY FIGURES REQUIRED FOR THE SATISFACTORY RECEPTION BY AIRCRAFT OF Al and A3 COMMERCIAL TELEPHONY.

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2.

It was agreed in Committee 4 that 5 µv/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).

The figure of 5 µv/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 uv/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 uv.

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 Al 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 Al 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 /uv/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 ncise Minimum	db above noise level
Al - Normal aural reception	5 .av/m	1 : 1	-12
A3 - Commercial telephony	20 .av/m	4 : 1 -	

The Polish Delegation proposes that these figures shall be taken as a working basis for further discussion.

The Polish Dlegation :

A. Arciuch

International Administrat Aeronautical Radio Confer G E N E V A, 1948	Aer-Document Aér-Document Aer-Documento	No 66 - E No 66 - F No 66 - S	
Conference internationale	administrative		
GENEVE 19/8	eronautrques	·	
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GINEBRA, 1948	Schedule of Meetings	~	
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Wednesday, 2 June, 1948	<u>Hour</u> 10 a.m. 2.30 p.m. 5.30 p.m.	<u>Room I</u> 4 6 3	<u>Room II</u> 5 a 7
Thursday,3 June, 1948	10 a.m. 2.30 p.m.	4 6	5 a 7
Friday, 4 June, 1948	10 a.m. 2.30 p.m. 5.30 p.m.	6 4 1	7 5

Members are advised that with effect from Monday, 7 June, 1948, morning, meetings will begin at 9.30 a.m.

	<u>Horaire des séan</u> c	265	
	Heure	<u>Salle I</u>	<u>Salle II</u>
Mercredi, 2 juin, 1948	10 h. 14 h.30 17 h.30	4 6 3	5 a 7
Jeudi, 3 juin, 1948	10 h. 14 h.30	4	5 a 7
Vendredî, 4 juin, 1948	10 h. 14 h.30 17 h.30	6 4 1	7 5

MM. les délégués sont informés qu'à partir de lundi, 7 juin, 1948, les séances du matin débuteront à 9 h.30

	Programa de Sesio	nes	•
	Hore	Sala I	SalaII
Miercoles, 2 de junio, 1948	10 h. 14 h.30 17 h.30	4 6 3	5 a 7
Jueves, 3 de junio,1948	10 h. 14 h.30	4 6	5 a 7
Viernes, 4 de junio, 1948	l0 h. 14 h.30 17 h.30	6 4 1	7 5

Los Senores delegados son informados que desde lunes el siete de junio 1948, las sesiones de la manana empezavan a las nueve y media.



Aer-Document No 67 - E

2 June, 1948

International Administrative Aeronautical Radio Conference G E N E V A, 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 thes 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.

- 2 -(Aer-Doc.No 67-E)

After having alloted 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 wold 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 organisations.
- 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".

International Administrative Aeronautical Radio Conference GENEVA 1948

Aer-Document No. 68-E 1 June 1948

COMMITTEE 7

Report of

The Committee on Allotment of OR Frequencies

(Committee 7) Ninth Meeting 31 May 1948

The <u>Chairman</u>, Mr. A. Fry (United Kingdom) opened the meeting at 14:30. Those present included delegates from:

ArgentinaNetherlands East IndiesAustraliaPortugalCanadaSwedenChileUkraine SSR.EgyptUnited KingdomFranceUSSR.Honduras (Republic of)USA.

The <u>Chairman</u> asked that Aer-Document No. 42 be considered, as it was available in all three languages.

The delegate of <u>France</u> requested that the record of his statement shown on page 1 of Aer-document 42 be amended to read:

"In the continuation of discussion of Aer-document No. 19, the delegate of France pointed out in answer to the statement of the USSR delegate that it was impossible to know if the bands assigned by the Atlantic City Conference to the Aeronautical Mobile Services are too narrow, until we know all the requirements of the different countries. He further observed that the surface area of a country is only one coefficient to be considered. There are many others. If, consequently, you wish to satisfy in an equitable manner the requirements of all countries it is necessary to take into account all these different factors."

The delegate of the <u>USSR</u> requested that the record of his statement shown on page 1 of Aer-document 42 be amended as follows:

After the words "The requirements of such flights depended" Delete the word: "only".

There being no objection to these changes, and no other objections to the document it was adopted as an accurate record of the fifth meeting of Committee 7. Mr. <u>Rafuse</u> (Canada) was appointed reporter for the week 31 May to 6 June.

- 2 -(Aer-Doc. 68-E)

The <u>Chairman</u> asked for comments on the statement contained in document PC-Aer No.25, para 37 (b). After discussion (in which the delegates from <u>France</u>, <u>Ukraine SSR</u> and the <u>USA</u> took part) the following was agreed:

"Countries having overseas territories may wish to have all or some of the same frequencies for such overseas territories as for their home country. The committee recommends the satisfaction of such requests on condition that maximum economy in the use of frequencies is achieved and the possibilities of geographical duplication are taken into account."

The <u>Chairman</u> then asked the USSR delegate to comment on the Soviet proposal regarding the division of each of the Aeronautical Mobile bands into separate portions reserved for A3 simplex, Al air to ground and Al ground to air transmissions (refer Aer-Document No. 19, page 3, para 3).

The delegate of the <u>USSR</u> then introduced his proposal with the statements summarized below.

PC-Aer document No. 25 presupposes A3 bandwidth and simplex operation for Aeronautical Mobile communication, but many administrations use Al emission duplex operation due to the difference between Aircraft and Aeronautical stations' transmitters both in power and frequency stability.

Splitting an A3 width channel to accommodate more than one A1 emission may cause harmful interference in many instances.

Interference between two similar types of emission is much less dangerous than interference between two different types of emission, due to the inability in the latter instance always to take best advantage of highly selective receiver circuits.

A powerful aeronautical station can obliterate the signal of a relatively weak aircraft station operating on the same frequency,

Simplex operation excludes the assurance that a powerful aeronautical station will not prevent reception of urgent aircraft station messages transmitted on the same frequency at the same time as the aeronautical station is transmitting. - 3 -(Aer-Doc. 68-E)

With this introduction the <u>USSR</u> delegate then referred the committee members to his proposal. The <u>Soviet</u> delegate then amplified the contents of this proposal as shown in the summary below:

Aircraft station transmitters are usually 10 to 20 times less powerful than the transmitters of aeronautical stations.

Aircraft stations will have better service if their channels are not occupied by high power aeronautical station transmitters.

Increases in the power output of both aeronautical and aircraft station transmitters to counteract the interference experienced from transmitters in other countries or regions is a short term means of protection only.

We should achieve the maximum use of our frequency bands by assigning only the necessary bandwidth to an emission.

When we consider that the number of stations occupying the aeronautical mobile bands is constantly increasing, and that Al emission due to its narrow band width permits more assignments in a band, as well as the fact that its use with the "Q" Code overcomes language difficulties it is the opinion of the Soviet delegate that telephony will not replace telegraphy in all instances for either domestic or international air route mobile communication,

The <u>Soviet Delegate</u> stated that considering these factors his proposal was most advantageous because it provided for duplex and simplex telegraphy as well as simplex telephony. Also it permitted the use of both old and new equipments in appropriate portions of each band. The <u>USSR</u> delegate concluded by listing the merits and faults of A3 transmissions as follows:

Advantages

- 1. Simple to operate.
- 2. Comparatively high capacity.

Disadvantages

- 1. Comparatively small resistance to interference.
- 2. Small service range for a given power input.
- 3. Large band of emission.
- 4. Poor ratio of service to interference range.
- 5. Language difficulties.
- 6. More complicated equipment is required.

In reply to a question made by the delegate of Australia the USSR delegate stated that each of the divisions of the bands into which the various emissions would be placed would be stable, but that these dividing points could not be decided until we had assessed all frequency requirements. - 4 -(Aer-Doc. 68-E)

The delegate from the <u>USA</u> stated that while he agreed with many of the technical principles stated by the USSR he could not accept the principle of inflexible divisions in each band, as, in his opinion, this would impede the implementation of technical advances in the field of radio communication.

The <u>USSR</u> delegate in reply warned against the consequences which might befall us if we did not establish firm portions in each band for each type of emission.

The delegate of <u>Canada</u> stated that not all administrations preferred duplex, as while recognizing the advantages put forward by the USSR there were disadvantages which outweighed these in the opinion of some administrations, eg. the necessity for dual receivers in aircraft, or alternatively tuning to the aircraft channel to ensure it was free before transmitting, and then retuning to the frequency of the aeronautical station.

The delegate from <u>Australia</u> supported this statement and asked the Soviet delegate where, in view of his proposal, he intended to place simplex telegraphy and what tolerances would apply in each division of the bands proposed by the USSR.

The <u>Soviet</u> delegate stated that the disadvantages of duplex outlined by the delegates of Canada and Australia could be overcome by good organization. The USSR delegate asked for more time to study the questions raised by the Australian delegate before replying.

The delegate from the <u>USA</u> also asked for more time to study the Soviet proposal in view of the many points contained in the statement made by the USSR delegate at today's meeting.

The Chairman agreed.

The <u>Chairman</u> then advised that discussion would continue at our next meeting. At that meeting he hoped to obtain a progress report from the Chairman of working group 7-1.

The meeting adjourned at 17:15.

The Reporter:

The Chairman:

B.R. Rafuse

A. Fry

International Administrative Aeronautical Radio Conference Aer-Document No.69 - E

G'E N E V A, 1948

2 June, 1948 Committee I

REPORT OF

THE STEERING COMMITTEE

(Committue 1)

6th Meeting :

1 June, 1948, at 6.30 p.m.

CHAIRMAN : Mr. A.LEBEL (Chairman of the Conference)

Present :

Mr. Souto (Cruz (Committee 2) (Mr. F	'algarone (Committee	3)
Mr. Selis	(Conmittee 4	.) – Mr. D	uncan (Committee	5)
Mr. Betts	(Committee 6) Mr.F	ry (Committee	7) and
Mr. Furze ((Austrolia)	Mr. T	labio (Cuba)	
Miss F. Tra	ail (United Stat	es) Mr. P	etit (IFRB)	. *

REPORTS OF PREVIOUS MEETINGS.

The CHAIRMAN said that reports of previous meetings would be submitted for approval at the next meeting.

STATUS OF DOCUMENTS SUBMITTED BY INTERNATIONAL ORGANIZATIONS.

Mr. FALGARONE (Committee 3) said that according to the rules of procedure adopted by the Conference, a private organization could submit a document in the form of a proposal only if that document was sponsored by a delegation. Failing that, such a document might be endorsed by the Chairman of the Committee concerned.

The CHAIFMAN sold that this procedure had been followed at previous conferences in Cairo and Madrid. For present purposes, documents submitted by private organizations, if sponsored by the Chairman of the appropriate Committee, might be taken as a working basis for discussions in that Committee. It was always open to a delegation to move that such a document be considered as a formal proposal.

SCHEDULE OF MEETINGS.

The Committee drew up a schedule of meetings for Wednesday, 2 June, Thursday, 3 June and Friday, 4 June, 1948.

ACTION TO BE TAKEN ON AER-DOCUMENT Nº 62 (RECOMMENDATION WITH REGARD TO THE COPENHAGEN CONFERENCE).

Mr. FALGARONE (Committee 3) doubted whether the Danish Government would take any action on the recommendation as it stood.

Mr. PETIT (IFRB) suggested that the Chairman send the text, with one very small drafting amendment, to the Secretary-General of the Union, together with a covering letter. The Secretary-General would then forward both text and letter to the Danish Government.

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- 2 -(Aer-Doc.No 69-E)

Mr. FRY (Committee 7) wish to make some drafting changes in the English text, to bring it more into line with the French.

It was agreed that a covering letter written by Mr.PETIT (I.F.R.B.) together with the text of the recommendation, would be signed by the Chairman and forwarded to the Secretary-General without further reference to the Committee.

5.

6.

WORKING GROUP FORMED TO STUDY AER-DOCUMENT Nº 49.

Mr. FALGARONE (France) offered the assistance of the French delegation to the small ad noc group formed to study the material contained in Acr-Document No. 49. He could not, however, engage to take the Chair in it.

Mr. PETIT (I.F.R.B.) pointed out that there could be no objection if the representative of I.C.A.O. were requested to act as Chairman.

EXTENSION OF WORKING HOURS.

Mr. BETTS (Coumittee 6) suggested that in view of the pressure of work facing the Conference, the working hours of Committees should be extended.

It was agreed that as from Monday. 7 June, 1948, Committees should meet at 9.30 a.m. and adjourn promptly at 12.30, Hours of work in the afternoon would be from 2.30 to 5.30 p.m.

The Meeting rose at 7.30 p.m.

Reporter : N. Langford. Chairman : A. Lebel.

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

Aer-Document No. 70 - E

2 June, 1948 Committee 4

Report

of the Technical and Operational Committee

(Committee 4) 12th Meeting 31 May, 1948

1.

The <u>Chairman</u> (Mr. O. J. Selis) opened the meeting at 10.a.m. The following countries and organizations were represented :

> Albania Argentina Australia Bielorussia Canada Chile China Columbia French Overseas Territories Denmark United States of America and Territories

France India Norway New-Zealand Netherlands Poland French Protectorates of Morocco and Tunisia United Kingdom

Sweden Switzerland Union of South Africa U.S.S.R. Yugoslavia I.F.R.B. I.A.T.A. I.C.A.O.

Mr. P. Kito Mr. O. E. Vidal Mr. E. G. Betts Mr. I. Jouk Mr. C. J. Acton Mr. A. Schwerter Mr. N. N. Chen Mr. S. Quijano Caballero Mr. Lalung-Bonnaire Mr. K. Svenningsen Mr. E. L. White Mr. E. V. Shores Mr. T. N. Gautier Mr. D. L. Givens Mr. D. Mitchell Mr. W. E. Weaver Mr. M. Falgarone Mr. N. V. S. Iyengar Mr. N. J. Soeberg Mr. G. Searle Mrl L.C.H.M. Bergman Mr. A. Arciuch Mr. M. Chef Mr. W. A. Duncan Mr. A. Fry Mr. H. A. Rowland Mr. T. Overgaard Mr. G. Bois Mr. G. A. Harvey

Mr. A. Jarov

Mr. R. Petit

Mr. S. Mitrovic

Mr. L. M. Layzell

Mr. P. J. Greven

U.I.T. GENÈVE

(Aer-Doc.No 70-E)

After several slight corrections to which no objections were raised, Doc.Aer-43 (report of the 7th meeting) was adopted. The corrections concerned the following items :

a) add to the list of delegations present the delegation of the French Overseas Territories, which had been omitted.

b) page I,8 2, last sentence, read "30" instead of "3".

c) page II, last sentence, read "was adjourned" instead of "rose".

d) page II, second sentence, read "hand-speed" instead of "high-speed".

The last three corrections concerned the English text.

The <u>Chairman</u> stated that since the reports of the 8th and 9th meetings had not yet been distributed in the three official languages, their adoption would be postponed until a later meeting.

The <u>Chairman</u> then asked for the report of Working Group 4 B, whose terms of reference were included in Doc.Aer.No 43.

Mr. <u>Greven</u>, chairman of this group, declared that there had been some technical difficulties in the reproduction and that the report would probably be distributed that afternoon. It would be numbered and considered as an annex to a report of a meeting of Committee 4.

The <u>Ghairman</u> then proposed to take up the study of Doc.No 5 (Preparatory Com. AER.) particularly paragraphs 19, 20 and 21.

a) \$19 - Mr. <u>Gautier</u> (U.S.A.) demonstrated at the blackboard the form of a graph based on that found in No 7 of Doc.No 29, but which employed the figure of 5 uv/m to indicate HF noise level aboard aircraft. He stated also that the curves had been established at 60° Latitude since that was the least favorable position.

In response to a question by Mr. <u>Falgarone</u>, Mr. <u>White</u> indicated that these two curves concerning noise levels of 5 uv/m , are complementary to those in fig. 7 of Doc.No 29.

- b) § 20 concerned a rough estimate which would help determine supplementary frequencies, in order to cover all necessary distances.
- c) § 21 this factor had an approximate value of 1.5 according to the foregoing examples. A discussion followed on whether this factor was empirically applicable to all cases. In conclusion, the text of paragraph 21 was replaced by the following :

"If, as a result of `an examination in accordance with the method suggested above, the ratio of two successive frequencies is found to equal or exceed 2, it is preferable to provide an intermediate frequency approximately mid-way between the two frequencies under consideration."

The <u>Chairman</u> then asked if the United States delegation was prepared to answer the Soviet delegation's questions which had been left pending in the 8th meeting of Committee 4 and which were mentioned in Doc.Aer-48 of May 26th.

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Mr. White answered in the affirmative and stated that :

- a) the sensibility of aircraft receivers varies according to the various types used and according to the aircraft.
- b) the effective antenna height varies from one aircraft to another.
- c) there are differences in the efficiency of transmitters when the arrangement aboard requires a keying line.
- d) the arrangement of aircraft transmitters is different for each type of aircraft.

Mr. <u>White</u> said it was impossible to take all the variables into account and that the graphs had been studied on the basis of a desired signal intensity of 10 /uv/m, then of 30 /uv/m to make allowance for the figures accepted in committee as local noise.

Mr. <u>Jarov</u> of the Soviet delegation then wished to know which figures would be proposed in place of those indicated in Doc.5.

Mr. <u>White</u> explained that it was a matter of explanation, not a proposal.

Mr. Jarov asked, therefore, that the figures previously proposed, notably by the Polish delegate, be accepted.

Mr. <u>White</u>, referring to Doc. 35 of the High Frequency Broadcasting Conference, cited the values of the input level for a signal/noise ratio of 30 db accepted by that conference :

For	4	Mc/s	at	56	microvolts
	6	Mc/s	, tt	46,5	11
	.10	Mc/s	19	30	ŧz
	15	Mc/s	11	28,5	17
	20	Mc/s	11	38	11

The <u>Chairman</u> stated that the figures used by the <u>United States</u> delegation and those presented by the <u>Polish</u> delegate were not too dissimilar, but it would be preferable to eliminate the difference.

In fact, when using type Al emission the figures cited are the same : 5 uv/m; on the other hand, when using type A3 emission the figures are respectively 15 and 30 uv/m for the intensity of the desired signal.

Mr. <u>White</u> noted that the trials were made with new equipment. The difference arising in the curves would not change anything concerning the choice of frequencies. This difference would affect only the possibilities of repetition on one or two frequencies for certain routes.

The <u>Polish</u> delegate stated that he was preparing a proposal which would be ready the next day.

Then he cited the figures accepted in 1934 by the C.C.I.R. at Lisbon for the minimum field intensity necessary for reception aboard aircraft. These figures are included in the following table :

7.

- 4 -(Aer-Doc.No 70-E)

Signal/noise ratio

	intellig- ibility	good reception	
earphone reception of type Al emission	1-1	2 - 1	•
reception of Al emission at high speed	2 - 1	5 - 1	
facsimile	2 - 1	5-1	
deception of A3 commercial broadcasts	4 - 1	30 - 1	
reception of A3 broadcasts (Public Adress)	7 - 1	100 - 1	

the ratio of 7/1 corresponds to 17 db. the ratio of 4/1 corresponds to 11 db.

The <u>Polish</u> delegate added that it was quite evident that only the equipment could be improved, not the human ear; that was why these figures should retain their full value.

The delegate of the <u>United Kingdom</u> stated that he had not yet received the most recent results of the experimental measurements taken in the British laboratories.

He felt that the values which the C.C.I.R. had established for intelligibility were sufficient, and he proposed the adoption of :

a) 20 uv/m as the field intensity for A3 emissions with a noise level of 5 uv/m.

b) 5 µv/m as the field intensity for Al emissions with a noise level of 5 µv/m.

The <u>Chairman</u> noted that the figures cited in this meeting were extremes and that it would be better to examine them in relation to data which might be available later. Nevertheless, he hoped that a recommendation would be made during the next meeting.

Before the meeting adjourned, the delegate of <u>Great Britain</u> declared that he had prepared a draft resolution on the subject previously discussed and that he would present it at the next meeting.

The meeting was adjourned at 1 p.m.

Reporter : Mr. M. Chef

Chairman : Mr. O.J. Selis

9.

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

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

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

<u>Committee 5 (Working Group)</u>

Addendum to Flight Information Tables

The following additions, deletions and amendments should be made to Aer-Document No. 71.

Commission 5 (Groupe de travail)

Addendum aux tableaux de renseignements de vols

Les additions, suppressions, et modifications suivantes devront être apportées au document-Aér. No. 71

Comisión 5 (Grupo de Trabajo)

Adiciones a los cuadros de información de vuelos

Deberan efectuarse las adiciones, supresiones, y modificaciones siguientes al documento Aer. No. 71

Addendum to Aer-Document No.71 Addendum au Aér-Document No.71 Adición al Documento-Aer No.71



- 2 -(Aer-Doc.No.71)

MASTER INDEX INDEX PRINCIPAL INDICE PRINCIPAL

PagePlace Name and Index NumberNom de localité et chiffre de référencePaginaNombre del lugar y numero del indice

ADDITIONS - ADICIONES

5

Palerno - 898 A

DELETIONS - SUPPRESSIONS - SUPRESIONES

Posados - 667,921

<u>AMENDMENTS TO LISTED ITEMS</u> : Items should now read as follows : <u>AMENDEMENTS AUX RENSEIGNEMENTS INDIQUES</u> : lire comme suit : <u>ENMIENDAS A LOS PUNTOS ENUMERADOS</u> : léanse como sigue :

1	Addis Ababa - 16,17 A			
1 2 No. 1	Cairo - 5, 17 A, 39, 56, 69, 129, 138, 142, 153, 213, 231, 315, 358, 370 A			
3	Igaussu Falls - 124, 480			
5	Resistencia - 126, 938			
6	Tehran - 151, 370 A, 715, 794, 934, 948			
6	Tunis - 31, 53, 86, 284. 330, 372, 587, 702, 813, 879, 898 A, 906, 945, 978			

- 3 -(Addendum to Aer-Doc.No71)

		TABLE I	TABLEAU I	CUADRO I					
Page	Index Number	Route Segments	Miles	Airlines and Number of Sched- uled Flights	Total Sched- uled Flights	Number of Non- Sched- uled			
	Nombre Indice	Tronçons de Route	Milles	Lignes aériennes de Vols Régu- liers	Total de Vols Régu- liers	Nombre s de Vols Non-ré- guliers			
	Número en el Indico	Secciones de Ruta	Millas	Compañias de Aviación y Nú- mero de Vuelos Regulares	Total de Vuelos Regu- lares	Numero de Vue- los no Regula- res			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)		
	ADDITION	AL ROUTES* - ROUTES S	UPPLEMENTA	IRES*- RUTAS ADIC	ONALES*				
2	17 A	Addis Ababa-Cairo	1600	Ethiopian-Air-	2				
17	370 A	Cairo - Tehran	1200	Iran Airways-l	1	• •			
38	898 A	Palermo - Tunis	20 <u>0</u>	Sicula - 2	2				
	 * These routes do not appear on the International Air Route Map (Aer-Doc.No.72) * Ces routes ne sont pas indiquées sur la carte des routes aériennes internationales (Aér-Doc.No.72) 								
	* Estas rutas no figuran en el mapa de las rutas aereas internacionales (Aer-Doc.No. 72)								
	DELETION	S - SUPPRESSIONS - SI	UPRESIONES						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)		
30	667	Igaussu Falls(Braz. Posados)- 157	ALFA-4	4				
39	902	Parana(Arg)-Resister	ncia 308	ALFA-4	4				
39	921	Posados (Arg.)-Resister	ncia 192	ALFA-4	4				
	<u>AMENDMENTS TO LISTED ROUTES</u> : Listings should now read as follows: <u>AMENDEMENTS AUX ROUTES INDIQUEES</u> : lire comme suit : <u>ENMIENDAS A LOS PUNTOS ENUMERADOS</u> : léanse como sigue :								
3	(1) 41	(∠) Algiers -Bidon W	(<i>3)</i> 1000	(4) Transsaharienne-1	(5) T	(D)](Fr.)	(7)		
~	18	Algiers - Margeille		Air France - 1/	٦.	-()			

(Addendum to Aer-Doc.No.71)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
5	100	Antofagasta - Lima	899	PIA-4,Panagra-8, BSAA-2,Skyways-2	16		
5	102	Antofagasta-Santiago (Chile)	696	PIA-4, Panagra-3 BSAA-2, Skyways-2	16		•
6	134	Athens - Rome	650	BEA-20, BOAC-2, CSA-6, Iranair-2, MEA-2, TWA-20, KLM-20,Air France- ALI - 2	60 2		
6	142	Baghdad(Iraq)-Cairo	807	KLM-4, Iraq-3	7		
7	170	Bamako - Bidon V	937	Transsaharionne-1	1	· l(Fr.)	
7	171	Bamako-Bobo Dioulasso	217	Air France - 2	2	1 (Fr.)
7	172	Bamako - Dakar	625	Air France - 4	4	l (Fr.)
11	231	Beirut - Cairo	362	CGT-6,Iranair-2, MEA-4, Misr-48, Lebanon - 3	63	6 (Eg.)
12	275	Bobo Diculasso-Quaga- dougou (Fr.W.Af.) (Fr.W.Af.	204	Air France - 2		1 (Fr.)
15	340	Buenos-Aires -Parana (Arg)	230	ALFA-6	6.		
15	342	Duenos-Aires-Rio de Janeiro	1238 '	ESAA-4,Croziero-4 FAMA-10, ALI-1	19		
16	358	Cairo - Damascus	375	Misr-8,Syrian-3	11		
16	362	Cairo - Jidda	776	Saudi-Arabian - 4 Seoudian - 1	5		
17	370	Cairo - Rome	1324	KLM-4, PAB-2, SABENA-1,TWA-4, Air France-1,ALI-2	14	l (Nor	.)
18	406	Casablanca - Dakar	1526	Air France - 10 KLM-4, ALI-1	15	3 (Fr.))

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	(1)	(2)	(3)	(4)	(5)	(6)	(7)
18	409	Casablanca-Marseille	963	Air France - 6	6	1(Fr.)	
18	413	Casablanca - Rome	1260	KLM-4, ALI-1	5		
21	459	Copenhagen-Reykjavik	1335	AOA-4	· 4	2(Ice.)	
22	438	Dakar - Recife	1993	Air France - 4 FAMA-2, PAB-6, SAS-4, ALI-1	17		
26	569	Gand er - Reykjavik	1579	A0A-6	6	15(Ice.)	
26	574	Gao(Fr.W.Af.) Niamey	241	Air France-2	2	1(Fr.)	
26	575	Gao – Ouagadougou	283	Air France-2	2	1(Fr.)	
2 6	585	Geneva - Rome	447	KLM-6,TWA-18, SAS-1,Avioline-1	26	l(Nor.)	
27	607	Guam - Shanghai	1945	CNAC-3,PAA-2	5		
29	653	Hong Kong- Kunming	756	CNAC-4,CATC-4	8		
29	656	Hong Kong- Shanghai	757	CNAC-18,PAL-2, Air France-1,CATC-8 HA-6, PAA-2	37 ,		۲
30	675	Istanbul - Rome	860	KLM-2, SISA-1	3	·	
33	76 3	Lisbon - Rome	1156	PAB-2, LAI-1	3		
35	798	Madrid - Rome	847	FAMA-2,Iberia-2 TWA-6, LAI-1	11		
35	806	Manila - Shanghai	1153	Northwest-6,CNAC-6 PAA-2, PAL-4	18		
38	876	Niamey - Zinder	45 7	Air France - 2	2	1(Fr.)	
38	894	Oslo - Reykjavik	1110	AOA - 2	2	2(1ce.)	
3 9	922	Prague - Rome	5 69	CSA-6,Aviolinee-1	7		
40	928	Prestwick- Reykjavik	845	Icelandic Airways-	22	11(Ice.)	
41	961	Shanghai - Tokyo	1099	Northwest-8, CNAC- BOAC-2	4 , 14		

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- 6 -(Addendum to Aer-Doc.71)

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	TAB	LE II TA	ABLEAU II	CUADRO II				
Page	Region	Country	Sche	duled Miles	Non-Scheduled Miles			
	Région Region	Pays Pais	Millerégu	es services liers	Milles services non réguliers			
	• •		Milleregu	as servicios lares	Millas servicios no regulares			
	DELETIONS - SUP	PRESSIONS - SUI	PRESIONES					
6	Middle America	Martinique	•					
	AMENDMENTS TO LISTED MILEAGES : Listings should now read as follows :							
	AMENDEMENTS AU TABLEAU DES DISTANCES EN MILLES PARCOURUES : lire comme suit :							
	ENMIENDAS A LOS	KILOMETRAJES H	ENUMERADOS : 1a 1a	a lista de kil eerse ahora co	ometrajes debe mo sigue :			
1	Africa	French Equ	atorial Ifrica	2.410	2.777			
l	Africa	French Wes	t Africa	6.236	5.449			
2	Africa	Morocco		7.396	72.896			
3	Asia	China	78	32.540				
3	Asia	French Ind	ochina	9.750				
3	Asia	Hong Kong	2	25.000	2.500			
3	Asia	Syria		8.000				
4	Europe	Iceland	נ	.9.060	9.000			
4	Europe	Italy	6	5.000	20.000			
5	Europe	United Kin	gdom 24	.5.000	120.000			
5	Middle America	Guadeloupe Mariti	and nique	695	· · ·			
6	Oceania	New Caledo	nia	1.710	·			

REPORTER : FLORENCE TRAIL CHAIRMAN : W3A. DUNCAN International Administrative Aeronautical Radio Conference Aer-Document No. 71-E

Committee 5

GENEVA, 1948

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.

<u>Table I</u> 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 segment 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.

<u>Table II</u> 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.



Conférence internationale administrative des Radiocommunications aéronautiques GENEVE, 1948

Aér-Document No.72 F/F/S 7 juin 1948

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.

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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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Pointe à Pitre - 546 Pointe Noire - 303, 353, 750 Ponta Pora - 125, 391 Port-au-Prince - 290, 422, 651, 728 Port Bell - 721, 916 Port Etienne-265, 547 Port Gentil - 751 Port Moresby - 356, 538, 741, 787 849, 867, 917 Porto Alegre - 341, 841, 911, 920 Port-of-Spain - 193, 199, 240, 405, 423, 478, 548, 590, 600, 818, 832, 863, 900, 918, 975 Port Sudan - 121, 680 Posados - 667, 921 Praha - 82, 247, 300, 327, 332, 335, 457, 559, 775, 903, 922 Prestwick - 83, 458, 568, 776, 893, 928 Puerto Suarez - 392, 932

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Rabat - 412, 543, 889, 935 Rangoon - 34, 182, 379, 740, 936 Rawalpindi - 744, 912 Recife - 488, 937 Reconquista - 901, 938 Rennes - 678 Resistencia - 126, 902, 921, 938 Reunion Island - 819, 939 Reykjavik - 459, 569, 894, 928 Rio de Janeiro - 95, 241, 342, 842, 864, 937, 940 Riyadh - 514, 646, 681, 941 Robertsfield - 9, 445, 563 Robore - 932, 942 Rockhampton - 308, 943 Rome - 84; 134, 305, 328, 370, 413, 416, 585, 675, 763, 777, 79**3**, 798, 811, 862, 878, 904, 922, 944

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Upington - 713, 724 Usumbura - 35, 473, 672, 697, 808 Uyuni - 892, 950

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Yaounde - 190, 224, 520 Yarmouth - 632, 966

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<u>TABLE I</u>

SEGMENTS OF INTERNATIONAL ROUTES AND TRAFFIC DENSITY EXPRESSED IN NUMBER OF FLIGHTS PER WEEK (as of June 1,1948)

TRONÇONS DE ROUTES INTERNATIONALES ET DENSITE DU TRAFIC EXPRIMES EN NOMBRE DE VOLS PAR SEMAINE (au ler 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
Inde Numb	x ; er : : :	Route Segments	: : Miles : :	: :Airlines & :number of :scheduled :flights	: :Total sched- :uled flights :	Number of non-sched- uled flights	
Nomb indi	re : .ce :	Tronçons de route	Milles	Lignes aé- riennes de vols régu- liers.	:Total de :vols régu- :liers :	Nombre de vols non- réguliers	
Nume en indi	ro : el : ce :	Secciones de ruta	: Millas : : :	Companias de aviación y número de vue- los regulares	: :Total de :vuelos re- :gulares ;	Número de vuelos no regulares	: : :
1	Aalborg	Goteborg	: : 86	: :SAS-14, KIM 6	: : 20		
2	(Den)	Kristiansand	; : 108 .	: :SAS-14	: : 14		:
3		Oslo	: 206	:SAS-14	14		:
4	Abadan (Iran)	Basra	. 75	BOAC2	2		:
5	· .	Cairo	575	:BOAC-2	: 2		:
6	Abercori (N.Rhod	n) Kasana	92	CAAC-2	: 2		: : .
7	Abidjan (Fr. W.	Accra	26 0	: :Air France-8 :	: : :		:
8	AI,)	Bobo Dioulasso	424	: :Air France-4	; 4	•	, ,
9		Robertsfield	446	: :Air France-8	8	9 9.	;
10	Accra	(Lib.) Dakar	1338	: :PAA-4	4		; ·
11	(Go.Ust.)	Lagos	253	: ;BOAC-12	12		
12		Leopoldville	1271	: • :PAA-4 :	4		

1		2	3	4	5	6	7
13	Accra (Contid)	Libreville	754	TAP-1	2.		
14		Lome (Fr.Togo)	10 9	Air France-8	8		
15		Takoradi (Go.Ost)	118	BOAC-2, TAP-1	3		
16	Addis Ababa (Eth.)	Aden	489	EAL-1, BOAO-2	3		
17		Asmara	432	EAL-4, BOAC-2	6		
18		Dire Dava	213	EAL-12	12		
19		Djibouti	337	Air Francenl, 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	Ajaccio(Cors.)	Marseille	193	Air France-16	16		
31		Tunis (Tun.)	355	Air France-4	4	ų	
32	Akyab(Burma)	Oalcutta	330	Urient-14	14		
33		Chittagong	170	Orient-14	14		
24 25	Albomtwill.	nangoon Haumburgo	222) 7775	Viient-14	14		
22	(Bel.Congo)	(Ru.Ur.)	113	ATL COURS-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	·	

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1		2	3 4	5	6 7
41	Algiers (Alg.)	Bidon V (Fr.W.Af.)	1000 Transsaharienne-1	1	
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	
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 Hamiata-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 CNAC4	4	
63		Shanghai	600 CNAC-4	4	
64		Swatow (China)	119 CNAC-2	2	
65	Amsterdam (Neth)Aalborg	355 KIM-6	6	
66		Antwerp (Belg.)	85 KIM-12	12	
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1		2	3	4	5	6
67	Amsterdam	Basel	355	KLM-6, Swissair-10	16	*****
68	(Cont'd)	Brussels	101	SAS-6 KIM-26, SABENA-J4	46	
69		Cairo	2032	KIM-12	12	
70		Copenhagen	394	SAS-14, BEA-2,KIM-1	4 30	<u>.</u>
71		Eindhoven	69	KIM-12	12	
72		Frankfort	229	A0A-18, CSA-2	20	- ()
73		Geneva	4.29	KLM-12	12	1 (Nor.)
74		Hamburg	232	KLM6	6	
75		Kristiansand	425	SAS-6, KIM-6	12	
76		Lisbon	1135	KLM4	4	
77		London	232	BEA-14, KIM-98	112	
78	· · · ·	Manchester	303	ALT-4, KIM-6	10	
79		Marseille	627	KIM-2	2	
80		Oslo	568	KLM-6	6	1 (Nor.)
81		Paris	264	Air France-12, KLM-2	8 40	
82		Praha	436	CSA-12, KIM-14	26	
83		Prestwick	443	KLM-24 .	24	· · ·
84		Rome	800	KIM18	18	
85	•	Shannon	578	ACA18	18	
86	•	Tunis	1099	KLM-4	4	
87		Zurich (Switz.)	380	KIM-14, Swissair-14	28	
88	Anchorage (Alsk.)	Minneapolis (US)	2515	Northwest-6	6	
89		Seattle	1448	Northwest-14	14	
90		Tckyo (Jap.)	3476	Northwest-6	6	
91	Ankara (Turk.)	Beirub	441	MEA-2	2	
9 2		Istanbul	214	SAS-2, Air France-2, BEA-2, BOAC-2, CSA-2 MEA-2.	2, 12	
93		Niccsia	330	BOAC-4	4	
94	Annapolis	Carolina (Braz.)	620	Aerovias Brasil-4	4	

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(Braz.) (9-3-6)

1		2	3	4	5	6	7
95	Annapolis (Cont'd)	Rio de Janeiro	584	Aerovias Brasil-4	4		
96	Antigua (Leeward Is.)	Barbados	309	BIA- 4	4		
97		St. Kitts	63	BIA-6	6		
98		St. Lucia	226	BIA-2	2		
99	Antofagasta (Chile)	(Windward Is.) Arica	344	PANAGRA-4	4		•
100	· · · ·	Lima	899	PIA-4, PANAGRA-8, BSAA-2	14		
101	• •	Salta	330	PANAGRA-2, ZONDA-12, LAN-12	26		
102		Santiago (Chile)	696	PIA-4, PANAGRA-8, BSAA-2	14		
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	KLM6	6		,
111		Caracas	240	KIM4	4		· .
112		Curacao	77	KIM-66	66		
113		Habana	1100	KIM-4	4		
114		Kingston	587	KLM-10	10	· .	
115		Las Piedras	55	LAV-4	4		
116		Maracaibo (Venez.)	168	KIM14	14		
117	Asmara (Erit.)	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 (F	r.)
121		Port-Sudan (A-E. Sud.)	318	BOAC4.	4		
122	Asuncion (Parag	.) Buenos Aires	651	AIFA-2	2		
123		Formosa (Arg.)	74	ALFA4	4		

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1.	2	3	4	5	é	5	7
124 Asuncion (Contid)	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,	4			
128	Brindisi	358	SAS-8, Air	12			
129	Cairo	695	Air France-1, CSA-2, TWA-18,	25	1.	(Nor.)
130	Geneva	1057	KIM-4 Swissair-2	2			
131	Istenbul	345	SAS-6, Air France-2, BEA-4, OSA-2,	20			
132	Lydda	753	DHY-2, Swissai CSA-2, TWA-2	r∸2 4			
133	Nicosia	569	Air France-2, BCAC-2, SAS-2	6			· · <u>-</u>
134	Rome	650	BEA-20, BOAC-2, CSA-6, IRANAIR-2, MEA- 2, TWA-20, KLM-4	58 ,	1	(N6¥,)
135 Auckland (N.Z.)	Norfolk Island	610	Air France-2 NZNAC-2	2	1	(NZ)	
136	Suva	1329	BCPA-1,PAA-2, NZNA-6	9	4	(US)	
137	Sydney (Austr.))1340	TEA-14, BORA 2	16			
138 Augusta(Sic.)	Cairo	1047	BOAG-12	12			
139	Marseille	729	BOA0-10	10			
140	Southampton	1300	BOAC-8	8	•		
141 Baghdad(Iraq)	Beirut	504	CGT⊲2,	10			
			IRANAIR-4,				
142	Cairo	807	KLM-4	4			
143	Damascus	469	Iraci-2,	9			
144	Dhahran	586	Syrian-JoMisron Syrian-1	1			·
145	H.3(33 ⁹ N.,40 ⁹ E	.)265	Arab Airways-2	2			
146	Istenbul	1400	KIM-2	2			
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1	2	3	4	5	6 7
147 Baghdad(Contid)	Karachi	1493	KIM-4	4	
148	Kermanshah	175	Iranian State-4	4	
149	Lydda	561	BOAC-2 IRANAIR-2, Iraq1-4, Misr-4,	14	
150 151	Nicosia Tehran(Iran.	625 423	Alr ³ France-2 BOAC-2 Air France-2, BOAC-2. IRANAIR-6, Iraqi-2, KIM-2 Migrad	2 18	•
152 Bahrein Island	Basra	347	BOAC-6	6	
153	Cairo	1210	BOAC-4	4	56 (UK)
154	Karachi	10 42	BOAC-6	6	50 (UK)
155	Kuwait	275	BOAC-4	4	
156 Balboa (C _o Z.)	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	РАА-14	14	
164	Medellin(Col)	332	AVIANCA-4,	18	
165	Miami	1166	umca-14 PAA-14	14	
166	San Jose(C.R.)	318	РАА-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	Transsaha- rienne-1	1	
171	Bobo Dioulasso	217	Air France-2	2	
172	Dakar	625	Air France -4	4	

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174	Bamako(Contid)	Kayes		an a		ىرىغۇمىلارىرىلى مۇرىيۇرىيۇر		
175	Bangka (Neth.Indies	(Fr.W.Af.) Singapore	256 377	Air France-2 KLM-2	2 2			
176	Bangkok(Sian)	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-% POA Siam-4,	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-	82,		· .	•
184	Bangor (U.S.)	Moncton(Can.)	221	Northeast-14	14			
185	Bangui (Fr.Equat.Af.)	Berberati (Fr.Equat.Af.)	19 7	Air France-2	2		ı	•
186	•	Coquilhatville	302	Air Francy-2	2	I	(Fr)	
187	· .	Fort Archambau	1 1 t329	9 Air France-2	2	I	(Fr)	
188		Libenge	52	SABENA-2	2			
189		Stanleyville	536	SABENA-2	2		· .	
190		(Bel.Congo) Yaounde	475	Air France-2	2			. *
191	Barbados	Georgetown	45 5	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,	10			
196		Madrid	308	Swissair-4 Iberia-6,	8			

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1	2		3	« 4	5	6	7
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	l		
200	Barquisimeto (Venez.)	Caracas	162	LAV-4	4		
201		Coro	95	LAV-4	4		
202	Barranquilla (Col.)Bogota	428	AVIANCA-2	2		
203	. · · ·	Kingston	503	BSAA-2, PAA-14	16		
204		Lima	1.598	BSAA2	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 Fran ce-12	12		
212		Zurich (Switz.	.) 49	Swissair-20	20		

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1		2	3		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	t) 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	KI.M-12	12		
219	Bathurst(Gam.)	Dakar	101	BOAC-4, Air France-2	6		
220		Freetown	416	BOAC-4, TAP-1	5		
221		Villa Cisneros (Rio de Oro)	743	TAF-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	176	PAB-2	2		•
227	Beira (Moz.)	Inhambane	279	DETA-2	2		
228		Lourenco Margues	444	Air France-1	l		
229		Quelimane(Moz.	1191	Air France-1	1		
230		Salisbury (S.Rhod.)	281	CAAC=2, DETA2	4		1

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1		2	3	4		5 6 7
231	Beirut (Leb.)	Cairo	362	CGT-6, IRANAIR-2,MEA-8, Misr-48	6	4 6(Egy.)
232		Damascus	51	Iraqi-2,MEA-28, Syrian-4	3	4
233		El Adem	730	BOAC-2	:	2
234		Haifa	81	MEA-10	10	0
235		Lydda	138	BOAC-2, MEA-10	1	2
236	•	Ntcosia	150	MEA-10, Misr-6	l	6
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	1:	2
241		Rio de Janeiro	1524	PAA-32	3	2
242		San Juan	1823	PAA-14	1,	4
243	Belfast (N.Ire.)	Dublin	84	ALT-24	2.	4
244	Belgrade	Bucharest	280	JUSTA-2, TARS-2		4
245	(2000)	Budapest	350	LOT-2		2
246		Podgorica	171	JAT-6	(5
247		Praha	460	CSA-4, JAT-4	. 8	3
248		Sofia	175	JUSTA-2, BVS-2		4 2(Bulg.)
2 49	Belize (Brit.Hond.)	Chetumal.	. 68	TAMSA-4		4
250	· .	El Cayo (Brit.Hond.)	60	TACA de Honduras	-4 4	4
251		Guatemala	248	TACA El Salvador	-8 8	3
252		Habana	530	TACA El Salvador	-8 8	3

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- 12 -(71-E/F/S-A)

1	an a su a	2	3	44 64	5	6	7
253	Belize (Cont'd)	Kingston	741	BIA-2	2		
254		San Pedro Sula (Hond.)	138	TACA de Hon- duras-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)	Jamnagar	66	ASI-14	14		
264		Karachi	192	ASI-14	14		
265	Biscarosse (Fr.)Port Etienne (Fr. W.Af.)	1897	Air France-1	1		
266	Bissao				(2)	•	
267	(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.)	Peris	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		
276	Bogota (Col,)	Cali	200	AVIANCA-4	4		
277		Maracaibo	443	TACA de Venezuela-6	6		
278		Medellin	170	AVIANCA-4	4		

- 13 -(71-E/F/S-A)

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	30 0	TAI-1	· Ì		
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	РАА5	5		
296		Shannon	2897	AOA-2	2		·
297	Bowen (Austr.)	Darwin	1273	BOAC-6	6		
298		Sydney	1062	BOAC-6	6	• .	
299	Brat islava (Czech.)	Budapest	98	CSA-6; MASZOVLET-4	10	•	
300	:	Praha	183	CSA-10,JAT-4, MASZOVLET-4	18		
301		Zagreb (Yugos,)	168	CSA-4, JAT-4	8		

		(71 – F	14 - /F/S	- A)

1		2	3	4	5	6	7
302	Brazzaville (Fr.Equat.Af.)	Coquilhatville	364	Air France-3	.3	l(Fr)	
303	· .	Lagos	1109	Air France-2	2		
304		Pointe Noire	235	Air France-4	4		
805	Brindisi (It.)	Rome	293	SAS-8, Air France-4	12		
306	Brisbane (Austro)	Darwin	1750	QEA6	6		
807		Noumea	950	QEA-6	6		
808		Rockhampton	330	QJA-6	6		
109		Sydney	454	QEA-3	3		
10	Broken Hill (N.Rhod.)	Lusaka	65	CAA3-6	6		
311		Ndola (N.Rhod.)	100	CAAC-6	6		
12	Brownsville (U.S.)	Corpus Christi	129	РАА14	14		
313		Mexico	460	PAA14	14		
814	•	Tampico (Mex.)	251	РАА-14	14		
15 _.	Brussels (Belg.)	Cairo	1983	SABENA-3	3		
816		Copenhagen	488	SABENA-6, SAS-14	20		
717		Dublin	484	ALT-4, SABENA4	8		
18	•	Frankfort	192	РАА-14, ВЕА-10	24		
19		Geneva	331	SABENA-12	12		
20		Hamburg	295	SABENA-4	. 4		
21		Liége	50	SABENA-14	14		
22		London	218	BEA-42, SABENA-77, PAA-14	133		

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]	2	3	4	5	6	.7	,
323 Brussels(cont'd) Luxembourg	116	SABENA-36	36	an - Talan Managaran yang Pangabhan ang palan an at in ang pa	,	
324	Milan	436	SABENA-6	6			
325	Nice	51.1	SABENA-12	12			
326	Paris	159	Air France-14, SABENA-38	52			
327	Praha	435	BEA-12, CSA-4, SALENA-6	22			
328	Rome	727	SABENA1, AVIOLINEE -4	5			
329	Shannon	58 7	PAA-8, SABENA-4	12			
330	Tunis	1009	SABENA-10	10			
331	Zurich	309	SABEHA-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	MASZOVLET2	2			
336	Warsaw	342	L01'2	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- BSAA-4, KLM-4, CAUSA-18 Iberia-4, SAS-4, PAA-32	4, 90			
340	Parana	230	ALFA-10	10			
341	Porto Alegre	542	Cruzeiro-6, FAMA-6	12			
342	Rio de Janeiro	1238	BSAA-4, Cruzeiro-4, FAMA-10	18			

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1	2	3	4	5	6 7
343 Buenos Aires (cont'd)	Santiago (Chile)	699	BSAA-2, FAMA-14, LAN-14, PANAGRA-14	44	
344	Sao Paulo	1051	BSAA-2	2	
345 Buffalo (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.)	2 33	DTA-2	2	
353	Pointe Noire	56	DTA-2	2	
354 Cabo Jubi (Rio de O ro)	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.)	177	qea-6	6	
358 Cairo (Egy.)	Dam ascus	375	Misr-8, Syrian-7	15	
359	Dhahran	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	4	
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	· _

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1	5. 	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, Iraqi-4, MEA-8, Misr-38, Swiss- air-2, TWA-11	68		
368		Nicosia	366	BOAC-4, Misr-4	8		
369	•	Paris	2007	Air France-4	4	1(Fr.)	
370		Rome	1324	KL14-4PAB-2, SAEENA-1, TWA-4, Air France-1	12	l(Nor)	
371	·*	Tripoli	1086	BOA(-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(Indie)	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		
3 7 9		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.)	28 7	AVIANCA-8, PANAGRA-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"-A	4		
387		Kingston	247	PAA-28	28		
388		Miami	336	РАЛ-60	60		
389 (5-3	-6)	Montego Bay (Jam.)	206	PAA-6	6		

1		2	3	4	5	6	7
390	Camaguey (Contid)	Port-au-Prince (Haïti)	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		
40 0	•	Coro	183	РАА-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, IACA de Venezuela Air France-1	35 -6,		
405		Port-of-Spain	389	Air France-1, BSAA-2, PAA-2	5		
406	Casablanca (Mor.)	Dakar	1526	Air France-10, KLM-4	14	2(Fr.)	
407		Lisbon	372	Air France-2, TAI	-1 3		
408		Lyon	1100	Air France-4, TAI	-1 5		
409		Marseille	963	Air France-6	6		
410		Oran	421	Air France-6	6		
411		Paris	1176	Air France-24,	26	10(Fr.)	
412		Rabat	60	TAI-2 Air Atlas-12	12	2(Fr.)	
413		Rome	1260	KLM-4	4		`
111		Tangier	176	Aero Portuguesa-	2 2	i.	

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-19 -(71 - E/F/S - A)

1		2	3.	4	5	6	7
415	Casablanca	Villa Cisneros	874	TAP-1	1	a Lanna, Algani an I. A Gurringana ya Arraniz Yikiyi Ara da	19 CE 2 C. 17 CE 2 C. 2
416	(cont'd) 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	Cd. Trujillo (Dom.Rep.)	Curacao	442	кім—4, Рад—29	33		
420		Kingston	447	BIA-2	22		
421		Miami	83 6 -	Aerovias Brasil PAA-2	46		
422		Port-au-Prince	160	KLM-4, PAA-14	18		
423		Port-of-Spain	782	Aerovias Brasil-4,BIA-2	6		
424		San Juan	249	PAA-29	29		
425	Changuinola (Pan.)	Limon	56	TACA de Costa Rica-2	2		
426		Sixaola (C.R.)	1 6	TACA de Costa	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(Peri)	Lima	415	PANAGRA-14	14		
431		Talara (Peru)	182	PANAGRA-14	14		
432	Chittagong (E.Pak.)	Бчеса	140	Orient-14	14		
433	Chunya (Tan.)	Mbeya (Tan.)	26	EAAC-2	2		
434		So. Highlands (Tan)	125	EAAC-2	2		

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لل 			3	4	2	• 0	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	Oruro (Bol.)	78	PANAGRA-10	10		
439	(BOT*)	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	Dakar	434	Air France-6	6		
443	(fr.W.Al.)	Freetown	92	Air France-6	6		
444	•	Kankan	275	Air France-2	3		
445		Robertsfield	275	Air France-2	2		
446		San Ignacio de	78	PANAGRA-4	4		
447	(DO1 of	Santa Cruz (Bol	.)129	PANAGRA-4	4		
448	Copenhagen	Frankfort	418	SAS-30	30		
449	(2611.)	Geneva	709	SAS-4	4		•
450		Glasgow (U.K.)	674	BEA-6	6		8
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	e	Oslo	322	CSA-2,SAS-28	30		
456		Paris	656	SAS-20	20		
457		Praha	394	05A-8, SAS-14	22		
458		Prestwick	674	AOA-2,Iceland Airways-2.SAS-8	12		

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1		2	3	4	5	6	. 7
459	Copenhagen(cont'd)Reykjavik	1335	AOA-4	4		<u>, and a granter theory of the constants of the co</u>
460		Stockholm	325	AOA-6, BEA-14, CSA-4, KLM-14, SAS-78, Swissain	120 4	·	
7. 4 5		7	rod	Contenation	-		
AOL		Zurich	597	Swissair-4	4		. •
462	(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	Ccstermansville (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		

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	(71	- E/.	$\tilde{F}/S - A$)			
1	2	3	4	5	6	7
475 Cotonou(cont'd) .	Lome	80	Air France-4	4		
476 Cuenca(Ec.)	Guayaquil	79	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	72	Western-14	14		
483 Dacca (E.lak.)	(Can.) Delhi	870	Orient-14	14		
482 Delar (Fr.W.Af.)	Kayes	398	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	,16		
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 1	Nairobi	415	BOAC-2, Air France-2	4		

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1	ana anis anti-ani pista ta dala dan ang pang ang pinatisy sy tito a Calles i Sirping	2	3	4	5	6	7
497	Dar es Salaam (Cont'd)	Tananarive (Mad.)	98 0	Air France-2	[•] 2	in an	1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 -
498	、	Tanga	117	EAAC-10	10		
499		Zanzibar (Zanz.)	48	EAAC-22	22		
500	Darwin(Austr,)	Manila	2100	qea-4	4		
501		Morotai I.(Neth. Indies)	1032	Cathay Pacific	2		,
502		Singapore	2091	QDA=6	6		
503		Soerabaya(Neth. Indies)	1294	BOAC==6	6		
504		Sydney	1965	Q724=6	6		
505	David (Pan)	San Jose	1,59	PAA-14	14		
506	Deir ez Zor (Syr.)	Hassetche	87	Syrian-1	1		
507	Delhi (India)	Karachi	675	BOAC-S, FAA-4	12		
503		Lahore	201	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		Karachî	1079	BCAC-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	45	EAAC-2	2		·
517		Tabora (Tan)	216	EAAC-2	2		4
518	Douala(Cam)	Lagos	476	Air France-4	4		
519		Libreville	256	Air France 2	2		
520		Yaounde	128	Air France-2	2		

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1	nen an	2	3	4	5	6 7
521	Dublin (Ire)	Glasgow	197	ALT-36	36	
522	•	Liverpool (U.K.)	142	ALT-48	48	
523		London	231	ALT-100	100	
524		Manchester	166	ALT-4, KLM-6	10	
525		Paris	497	ALT-4	4	
526 527	Duluth(U.S.) Eindhoven (Neth.)	Fort William Frankfort	172 175	TCA-12 KLM-6	12 6	
528		London	241	KLM-12	12	
529		Zurich	325	KLM-6	6	
530	El Adem (Libya)	Lydda	642	BOAG-6	6	
531		Valetta (Malta)	603	BOAC-18	18	
532	Elissbethville (Bel.Congo)	Leopoldville	964	SABENA-2	2	
533		Luluabourg(Bel. Congo)	520	SABENA-2, TAP-1	3	
534		Manono	31.9	SABENA-2	2	
535		Salisbury	477	TAP-1	1	
536	El Paso (U.S.)	Monterrey	555	American-14	14	
537	Entebbe (Ugan)	Kisumu	157	EAAC6	6	
538	Espiritu Santo	Pt.Moresby	100	QEA-1	I	
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)	Ouුර්ත (Mor.)	184	Air Atlas-12	12	
543		Rabat	100	Air Atlas-12	12	
544	Foochow(China)	Shanghai	385	CNAC4	4	
345	Fort Archambault (Fr.Equat.Af.)	Fort Lamy	305	Air France-2	2	1 (Fr.)

-24-(71 - E/F/S - A)

-25-(71- E/F/S - A)

1		2	3	4	5	6	7	
546	Fort de France (Mart.)	Pointe à Pitre (Guad.)	118	Air-France-2	2			
547		Port Etienne (Fr.W.Af.)	2929	Air Franco-1	1			
548		Port-of-Spain	270	Air France-2	2			
549	Fort Jameson (N.Rhod.)	Lilongwe	78	CAAG-2	2		·	
550	Fort Lamy (Fr.Equat.Af.)	Kano	439	Air France-2	2	1(Fr.)		
551	Fort William (Can)	Sault Ste Marie (U.S.)	257	T0A-28	28			
552		Winnipeg(Can.)	375	TOA-21.	21			
553	Francistown (Bech)	Maun (Bech)	276	CAAC-2	2			
554	Frankfort(Ger.)	Geneva	294	SAS-16	16			
555		Hamburg	244	SAS-14, BEA-4	18			
556		London	409	BEA1.6	16			
557		Manich	300	KIM-4	4	•		
558		Paris	293	Air France-6	6			
559		Praha	252	USA2, BE A10 , PAA 14	26			
560		Shannon	778	A042	2			
561		Vienna(Aust.)	359	BEA-14	14			
562		Zurich	192	BEA-10, SAS-28	38			
563	Freetcwn(S.L.)	Robertsfield	235	Air France-2	2			
564		Takoradi	798	BOAC-2, TAP-1	3			
565	Galena(Alsk.)	Nome (Alsk.)	250	РАл-4	4			
(2)	36)		1/25					

	(71-E/F/S-A)											
1		2	3	4	5	6	7					
566	Gander (Nfd.)	Mont real	923	BOAC8	8							
567	· •	New York	1100	AOA-42 Air France-12, BOAC-12,KIM-18, PAA-41,Swissair SABENA-4, SAS-14,TWA-28	1, 172	• •	·					
568		Prestwick	2121	BOAC-10								
•••				KLM-18, SAS-14	42							
569	ч	Reykjavik	1579	AOA-6	6							
570		Santa Maria	1691	TWA-8	8							
571		Shannon	1982	Air France-14, ACA-42,BOAC-6; PAA-47,SABENA-4 TWA-32,Swissair	-1 146	·						
572	· .	St.John's (Nfd.)	107	TCA14	14							
573		Sydney (Card)	327	TCA-14	14							
574	Gao(Fr.W.Afr.)	Niamey	241	Air France-2	2							
575		Ouagadougou	283	Air France-2	2							
576	Gatwick (U.K.)	Paris	211	Ş⇔IAT	2							
577	Geita (Tan.)	Mwanza (Tan.) 57	EAAC-2	2							
578	• • • • • •	Shinyanga	105	EAAC-2	2							
579	Geneva(Switz.)	Lisbon	925	SAE-4	4							
580		London	462	BEA-16, Swissair-14	30							
561		Lydda	1804	Swissair-2	2							
582		Madrid	629	KIM-6, Swissair-4	10							
583		Nice	180	SAS-14, Air France-4	18							
564		Paris	245	Air France-14, Swissair-14, TWA-16	44							
565		Rome	447	KLM-6, WWA-16 SAS-1	25	1(Nor.)						
586 587 588		Shannon Tunis Zurich	** N.O. 7977	TWA-2, Swissair- Swissair-1 Swissair-8	1 3 1 8							

(19-4-6)

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589	Georgetown (Brit Cui)	Paramoriho	999		19	N FE DELET CONTRACTOR AND CONTRACTOR AND CONTRACTOR
500	(DIT 0°Gar °)	Port-of-Spein	252	PAA. 6	с ЦС	
501	Gibroltor	Nedrid	308	BEA-10	10	
502	GIUIALUAL	Tangiar	42	CAT-56	56	
50%	Golfito	San Taidro/() R		LACSA-A	00	
000	(C.R.)	Den TRICIO(O*U*	1 02	TUCOV-3	4	
594	Goteborg	Karlstad (Swed.) 160	SAS-14	14	
595	(riners)	London	6 46	BEA-6	6	
596		0 sl o	162	SAS-28	28	
597	Gracias (Hond.)	La Esperanza	26	TACA de Hondura s- 4	4	
598		Santa Rosa(Hond) 22	TACA de Hondurs	a s- 4 4	
599	Grand Forks	Winnipeg (Can.)	135	Northwest-28	25	
600	(US) Grenada (Windward	Port-of-Spain	99	BIA-8	ម	
6 01	1001	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 (UC)
606		Okinawa	1419	PAA-2	2	
607		Shanghai	1945	CNAC-2	2	5(US)
608		Wake Island	1500	PAA-12, CNAC-2	14	14(US)
609	Guatémala (Guat.)	Merida	43 7	PAA-20	2 0	
610		Mexico	658	PAA-28,TACA El Salvador-14	42	
611		San Salwador	115	PAA-49, TACA El Salvador-22	77	
672		Tanachuls (May) 118	P44_14	י <u>ה</u> ק	
612	ດິນອກອດນາໃ	I and a maxe	716	PANLOR L-8	ي ج	
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(19-4-6)

			(71-E/	28 - F/S-A)			
1		2	3	4	5	6	7
614	Guayaquil (Contd.)	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,Expreso -26,National-14, TACA El Salvador-4, PAA-104, KLM-4	194	•	
621		Nabbeu	300	BSAA-2	2		
622		New Orleans	685	C& S-1 4	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.)	(U.S.) Lydda	55	Arab Airways-2,Misr	• 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.)Londo n	445	BEA-18	18		
634	Hami (China)	Tihwa	306	Hamiąta-2	2		
63 5	Hamilton	Eingston	1202	BSAA-2	2		
636	(Ber.)	Montreal	1200	TCA-8	8		
637		Na ssa u	912	BSAA-4	4		
636		New York	773	Colonial-14, PAA-20,BOAC-8	42		

(19-4-6)

-29 -(71 - E/F/S - A)

].		2	3	k. L.	5	6	7
639	Hamilton(corta)	Santa Maria	2256	BSAA-4	4		
640		Washington	827	Colonial-2	2		
641	Hankow (China)	Kweilin	446	CNAC2	2		
642		Nanking	288	CNAC-2	2		
643	Hanol	Kunming	400	CNAC-2	2		,
644		Saigon	750	Air France-7	7		
645	Hargeisa (Brit.Somind.)	Mogadiscio	529	Clairways-2, BOAC-2	4	•	
646	Hasa (Saudi Arab.)	Riyadh	182	Saudi Arabian-2	2	·	
647	Hassetche (Syr.)	Kamechlie(Syr.)	42	Syrian-1	1		
648	Helsink i (Fin)	Stockholm	255	Aero (/2-24, AOA-6, BEA-2, SAS-18	50		
649	Hermosillo(Mex.)	Mazatlan	497	CMA-14	14		
650	7.2.C	Mexicali (Mex.)	359	CMA14	14		
651	Holguin (Cubs)	Port-au-Prince (Haiti)	302	Aerovias "Q"-4	Ŀ,	-	
652	Hong Kong	Iwakuni	2212	BOAC2	2		
653		Kunming	756	CNAC-4	4		
654		Manila	701	Cathay Pacific-8,	14		
655		Saigon	944	Air France-2, CNAC-2	4		
656		Shanghai	757	CNAUS, PALez, Air France-1	.9	•	
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	231.6	PAL-4	4		
661		Los Angeles	2558	PAA=-22	22	54(US)	
662	:	Midway Island	1310	PAA-12, CNAC-2	14	14(US)	
663	• •	San Francisco	2400	BCPA-4, PAA-40, PAL-4,United-14, CNAC-2	64	162 (US)

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1		2	3	4	5	6	7	
664	Honolulu (Contd)	Vancouver	3000	TCA-4	4	an Carinet States and		
665	$Houston(U_S_{*})$	Mexico	746	PAA-14	14			
666	Hyderabad (India)Madras	324	Air India-14	14			
667	Iguassu Falls	Posados	157	ALFA-4	4			
668	innambane (Moz.)	Lourenco Marques	231	DETA-2	2			
669	Ipoh (Mal.U.)	Kuala Lumpur	r 109	Malayan-14	14			
670		Penang(Mal.	J.)78	Malayan-14	14			
671	Irumu (Bel.Comgo)Stanleyville	ə 332	SATUNA-4	4			
672	· .	(Bel Congo) Usumburago)	340	SABENA-2	2	,		
673	<pre>istanbul(Turk.)</pre>	Karachi	2462	PAA-4	4			
674		London	1567	PAA-5	5			
675		Rome	860	KLM-2	2			
676	Jamnagar (India)Junagadh	68	ASI-14	14	•		
677	Jersey (Chan. Is.)Par is	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 Arabian-2	2			
682		Taif	76	Saudi Arabian-2	2	٠		
683	Johannesburg	Kimberley	274	SAA-4	4			
684 ⁽¹	J.of S.Af.)	Kisumu (Kenya)	1838	SAA-4	4			
685		Leopoldville	1732	KLM-4,PAA-4, SAA-2,Swissair	11		. •	
686		Lourenco Marques	276	DETA-4, SAA-4	8			
687		Nairobi	1825	BOAC-8	8	(Nor.)		

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	2	3	4	5	. 6	7
688 Johannesburg(cont)Salisbury	602	BOAC-6, SAA-4	10		
689 Juba (AE. Sud.)	Khartoum	737	SABENA- 1	1		
690	Kisumu	401	BOAC-4	4	• •	
691	Malakal(AE.Su	1 dB 24	BOAC-4	4		
692	Stanleyville	5 3 9	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.Pal	,) 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, SABENA-10, SWISSAIR-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		
770 Koggolo (A-E Sud)	Khartoum	259	SUDAN-2	2		

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(15-4-6)

	enter al tracta de la construcción				
1	2	3	4	5	6 7
713 Keetmanshoop(S.W.Af)	Upington(Ulof S Af)	233	SAA-6	6	
714	Windhoek(S.W.Af.)	272	SAA-12	12	
715 Kermanshah(Iran)	Tehran	249	IRANIAN STATE-2	4 4	•
716 Ketchikan(Alsk.)	Seattle	6 56	PAA-19	19	
717 Khartoum(A+E.Sud.)	Luxor	800	BOAC-1	1	
718	Malakal	415	BOAC-4	4	
719	Mombasa	1475	B04C+2	2	
720	Nairobi	1 192	BOAC-14, AIR FRANCE-2	16	29(28-UK, 1-Nor.)
721	Port Bell	1100	BOAC-4	4	
722	Tripoli	1693	SAR-4	4	•
723	Wadi Halfa	441	BOAC-2	2	
724 Kimberley(0.ofS.Af.)	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	BSA A-12	12	
728	Port-au-PrinceHaiti) 295	KLM-4, PAA-2	6	
729	St. Kitts	919	BIA-2	2	
730 Kismayo (It.Somlnd)	Mogadiscio(It.Somln	d255	CLATRIAYS-4	4	
731	Nairobi	39 8	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	

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(15-4-5)

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	Kumming	Rangoon	700	CNAC-2	2	•	
741	Lae (N.G.)	Port Moresby	188	QEA-6	6		
742	La Esperanza (Hond.)	Tegucigalpar (Hond.)	75	TACA de Honduras-4	4		
743	Lahore (W.Pak.)	Quetta	454	Orient-6	6		
744		Rawalpindi (W.Pak.)	162	Orient-10	10		
745	La Paz (Bol.)	Oruro	124	PANAGRA-14	14		•
746	Las Palmas (Can.Is.)	Santa Cruz (Can.Is.)	71	IBERIA-2	2		
747	Leopoldville (Bel.Congo)	Luanda	392	DTA-2, TAP-1	3		
748	·*	Luluabourg	495	SABENA-4, TAP 1	5		
749	Libreville (Fr. Equat. Af.)	Luanda	685	TAP-1	1		
750	-	Pointe Noire	400	Air France-2	2		
751		Port Gentil	94	Air -France-2	2		
753)	Liége (Bel.)	Paris	193	SABENA-14	14		
75	Lille (Fr.)	London	149	Air Transport-12	12		
754		Manchester	295	Air Transport-4	4	•	
755	Lilongwe (Nyaka.)	Zomba	130	CAAC-4	4		
756	Lima (Peru)	Panama	1488	PIA-4	4		
757		Santiago	1535	BSAA-2, PANAGRA-6	8		
75 8	Limon (C.R.)	San José	74	TACA de Co sta 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, KIM-6, BEA-2, Swissair-4 TAP-6, TWA-8	32		
762		Paris	904	SAS-2, Air France-4 PAB-4	, 10		
763		Rome	1156	PAB-2	2		

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(12-7-6)

-34 -(71 - E/F/S - A)

1	2	3	4	5	6	7
764 Lisbon (Cont'd)	Santa Maria	885	TWA-20	20		
765	Tangler	277	Aero Portuguesa-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	» 2 9 :		
776	Prestwick	328	BOAC-6	6		
77 7	Reme	890	Aviolinee-8	8		
778	Santa Maria	1569	BSAA-4	4		
779	Shannon	370	AET-6, AOA-28, BOAC-6, PAA-38, TCA-2	so 2		
780	Stavanger	560	BEA-6. SAS-20	26		
781	Sydney (Can.)	2722	TCA-12	12		
782	Tripoli	1449	BOAC-28, SAA4 4	32	84	(U.K.)
783	Zurich	482	Swissair-14, BEA-1	4 28		
784 Los Angeles (US)	Mexicali	191	CMA-14	14		
785	Mexico	1541	CMA-14	14		
786 Lourence Marques (Moz.)	a Salisbury	163	TAP-1	1		
787 Lulagi	Port Meresby	900	QEA-1	1		
788 Lusaka (N.Rhod.)	Ndola	163	CAÁC -4	4		
789	Salisbury	239	CAAC-12	12		•

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		- 3 (71 - 1	5 – E/F/S – A)	-		
1	2	3	4	5	6	7
790 Luxor (Egy.)	Wadi Halfa	271	BOAC-4	4		
791 Lydda (Pal.)	Nicoàia	238	BOAC-2, MEA-6, Misr -4	12		
792	Paris	2050	Air France-4	4		
793	Rome	1375	KIM-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	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, TÁCA de Costa Rica-14	28		
804 Manchester (UK)	Paris	376	Air France-4	4		
805 Manila (Phil.)	Morotai I.	989	Cathay Pacific-2	2		
806	Shanghai	1153	Northwest-6, CNAC-2, PAA-2	10		
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		
,\[8]	Valetta	710	BOAC-18	18		
815	Zurich	318	SAS-6	6		
816 Massena (U.S.)	Ottawa	49	Colonial-28	28		
(9-7-6)						
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817	Massena (Contid)	Plattsburg	67	Colonial-14	14		
818	Maturin (Venez.)	Port-of-Spain	1,38	LAV-14, PAA-14	28		
819	Mauritius	Reunion Island	144	Air France-2	2		
820	Medan (Neth.Indie	es) Penang · (Malay U.)	246	KIM-4	4		• •
821		Singapore	50 8	KIM-4	4		
822	Melbourne (Austr	.) Sydney	520	BCPA=6	6		
823	Mendoza (Arg)	Santiago	121	ZONDA-12, LIPA-12	24		
824	Merida (Mex.)	Mexico	617	CMA-4	4		•
825		New Orleans	635	PAA-14	14		
826	Mexico (Mex.)	Monterrey	452	American-28	28		•
827		San Antonio	700	American-7	7		
\$2\$		Tampico	213	ΡΔΔ-14	1/.		
0~0 ¢20		Tangahula	~~> 5/0	PAA_ 1	1/		
067		Nagachula	747		20		· .
830 \$31	Miami (U.S.)	Nassau New York	1210	PAA-14, BSAA-0 FAMA-2	2		
632 432		Port-of-Snain	1600		2	•	
833		San Juan	1040	Eastern-14. PAA-14	28		
834	Miduay Island	Wake Island	1186	PAA-8. CNAC-2	10	14	(US)
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, KIM-4, PAA-14, SAS-4	30		
843		Santiago	99 0	KIM-4	4		
844 845 846	Montreal (Can.)	Sao Paulo Nassau New York	1100 1800 325	BSA4-2 TCA-7 Colonial-67	2 7 67		

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- 37 - (71-E/F/S-A)								
1		2	3	4	5	6	7	
847	Montreal	Ottawa	94	Colonial 62	62			
848	(Cont'd)	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	EAA2-2	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	STSA-14	14			
863	Natal (Braz.)	Port-of-Spain	2150	FAMA-2	2			
864		Rio de Janeiro	12.96	BSAA-7, FAMA-4, KIM-	4 15			
865		Sao Paulo	1439	BSAA-2	2	·		
866	• • •	Villa Cisne- ros	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 Sąlvador	1107	TACA El Salvador-4	4			
870 ¢71	New York (U.S.)	Philadelphia San Juan (P R	95)1612	AUA-7, TWA-5 PAA-58	58 58			
872		Santa Maria	2605	PAA-7	7			
873		Shannon	3081	AOA-8	8			

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1		2		4	· 5	6	7
874	New York(Contid)Toronto	351	TCA56	56		
875		Washington	215	PAA-2, PIA-4, TWA-6	12		
876	Niamey(Fr.W.Af.)	Zinder	457	Air France-2	2		
877	Nice (Fr.)	Paris	424	Air France-4	4		
878		Rome	294	Air France-4	12		
879		Tunis	562	Aigle-Azur-7	7		
880	Norfolk Island	Nouméa	425	NZNAC-3	3		
881	Noumea(New Cal.)	Suva	788	РАА-4, QEA-2	6		
882		Sydney	1232	РАА-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	РАА-2	2		
886	Oran(Alg.)	Oujda	102	Air Atlas-12	12		
887		Paris	931	Air France-8, TAI-I	9		
888		Perpignan	531	Air Atlas-2	2		
889		Rabat	363	Air France-14	14		
890		Tangier	295	Air Atlas-22	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		
895		Stavanger	203	BEA-6, SAS-28	34		
896	· .	Stockholm	247	AOA-4,	24		
897	Ottawa (Gan.)	Syracuse (U.S.)	159	Colonial-14	14		
89 8	Palembang	Singapore	393	KI_M-6	6	•	
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		

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1		2	3	4	5	6 7
901	Parana(Arg.)	Reconquista	186	ALFA-2	2	4.944 ⁹⁷⁶ 9 ⁷⁶ 977 976 977 977 977 977 977 977 977 977
902		Resistencia	308	ALFA-4	4	
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	91 4	Air France-6, TAI-2	8	2(Fr.)
907		Warsaw	849	LOT-4	4	
908		Zarich	297	Air France-6. Swissair-14	20	
909	Parrita(C _o R _*)	San Isidro	53	LAUSA-4	4	
910		San Jose	34	LACSA-4	4	4
911	Pelotas (Braz,)Porto Alegre	141	VARIG-6	6	• .
912	Peshawar (W.Pak,)	Rawalpindi	195	ORIENT-10	10	
913	Philadelphia	Washington	120	AOA-7, TWA-1	8	
914	(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 Alegro (Braz.)	Sao Paulo	523	Cruzeiro-6, FAMA-6,PAA-18, VARIG-6	36	
921	Posados(Arg.)	Resistencia	192	ALFA-4	4	
922	Praha(Czech.)	Rome	569	CSA-6	6	

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1		2	3	4	5	6	7
923	Praha (cont'd)	Shannon	1014	PAA-1	1		
924		Sofia	635	CSA-2, BVS-2	4	2(Bulg.)	
925		Vienna	149	9 PAA-14	14		
926		Warsaw	317	' CSA-2, LOT-6, Swissair-2	10		
927		Zurich	324	, CSA-12, LOT-4, Swissair-8	24		
928	Prestwick (U.K.)	Reykjavik	845	5 Icelandi c Air- ways-4	4		
929		Shannon	262	AOA-4	4		
930		Stavanger	438	SAS-8	8	·	
931		Sydney (Can.)	2473	TCA-12	12		
932	Puerto Suarez (Bol.)	Robore	134	PANAGRA-4	4		
933		Santa Cruz	363	PANAGRA-4	4		
93	4 Quetta (W.Pak.)	Tehran	1000	Orient-6	6 *		
935	Rabat (Mor.)	Tangier	134	Air Atlas-14	14		
936	Rangoon(Burma)	Singapore	1201	BOAC-6	6	30(U.K.)	
9 3 7	Recife(Braz.)	Rio de Jane iro	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		
5-7-6) * ^P roposed						

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-41 - (71 - E/F/S - A)							
1	2	3	4	5	6	7	
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	РАА-28	28			
954 San Salvador (El Salvador)	Tegucigalpa	131	PAA-14, TACA de Gosta Rica-14	28			
955 Sault Ste.Marie (U.S.)	Toronto	303	T' A28	28			
956 Seattle(U.S.)	Vancouver	122	United-42	42			
957	Victoria(Can.)	75	TC A-28	28			
958	Whitehorse	1046	РЛА-4	4			
959 Seville (Sp.)	Tangier	112	Iberia-12	12			
960 Shanghai(China)	Taipeh (Formosa)	433	CNAC-10	10			
961	Tokyo	1099	Northwest-6	6			
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	KLM-2	2			
966 St. John (Can.)	Yarmouth	10 0	TCA-14	14			
967 St. John's (Leeward Is.)	St. Lucia	239	РЛА-6	6			
968	St. Thomas	226	ΡΛΑ-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	Togatatu	510	NZNA-2	2			

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						······
1		2	3	4	5	6 7
973	Tanga (Tan.)	Zanzibar	6 9	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 (US)
977	Toronto (Can.)	Windsor	200	TCA-14	14	
978	Tripoli (Libya)	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	12 3	CSA-4, JAT-4	8	

TABLE II

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 l juin, 1943)

DISTANCIAS EN MILLAS RECORRIDAS SEMANALMENTE EN LOS SERVICIOS INTERIORES

(hasta el 1 de Junio de 1948)

Region Région Región	Country Pays Pais	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	igating same, and its same	
	Egypt	25.670	
	Eritrea	tar i dan alikiy raji	
	Ethiopia	2.448	
	Fernando Po	(pair) anns a ann	· ·
	French Equatorial Africa	470	· · ·
	French Somaliland	Barres res alle Barg	
•	French Togoland	र को फ्रांच केल रूपके 	. ,
	French West Africa	3.118	
	Gambia		
	Gold Coast	4.000	1.000
	Ifni	• • PRIMI	
(2-3-6)	Kenya	17,378	4.500

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Region Région Región	Country Pays País	Scheduled Miles Millès services réguliers Millas Servicios régulares	Non-Scheduled Miles Milles services non réguliers Millas servicios no regulares
Africa	Liberia		an laif gan sai dal Balago ato azo no son an singlin pila produ gap da ato tao
(Cont'd)	Libya		
	Madagascar	13.400	
	Mauritius		
	Morocco	3.132	
	Mozambigue	6.992	
	Nigeria	3.556	1.000
•	Northern Rhodesia	10.500	2.500
	Nyasaland		
·	Reunion Island	وستار موجعة	
	Rio de Oro) (<u>min mayon</u>	
	Rio Muni	ing an arts of	
	Ruanda-Urundi		
	Sierra Leone	4,000	1.000
	Southern Rhodesia	10.500	2.500
	South-West Africa	معاد بالله بنسب الله	
	Spanish Morocco	1.644	
	Tanganyika	10.500	2.500
	Tangier	had built find gave	
	Tunisia	yee allot dag birdj	
	Uganda	10.500	2.500
	Union of South Africa	87.280	15.000
	Zanzibar		
Asia	Aden	and the set part	
(2-2-4)	Afghanistan		
$(\kappa - \kappa - 0)$	II –	page 2	

Region Région Región	Countr y Pays País	Scheduled Miles Milles services réguliers Millag. servicios regulares	Non-Scheduled Miles Milles services non réguliers Millas servicios no regulares
Asia (Contid)	Bahrein Telend		
(0000.01)	Burno		
	Gewlen	t infrid generation	
	Chine	110 ¢/0	
	Comparison of the second secon	2.500	500
	Termente	2.000	
	Formosa	Proceedings to	
	French Ludochina	Bassigs (NYA)	
	Hong Kong	Dat zo <i>n</i> Char	
	India	122.968	
	Iran	16.630	
	Iraq	8,832	
	Japan	end(C)/c2ma.2	
	Kamaran Island	تەھىرىزىد بېتىغ	
	Kuwait	57.48.736.697 889	
	Lebanon	Arrigonal activity to	
	Malayan Union	21.200	200
	Outer Mongolia	pt-fit-type=448-14	
	Pakistan	46.298	
	Pelestine	440	
	Fhilippines	78.261	
	Saudi Arabia	4.800	600
	Siam	t-wakapacietanse	
•	Singapore	antion(w sp4	
	Syria	an again dear 100 fé	×
	Transmiordan	J/18-16-38-9	

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Region Région Región	Country Pays País	Scheduled Miles Miles services réguliers Millas, servicios regula- res	Non-Scheduled Miles Miles services non régu- liers Millas servicios no regu- lares
Asia	Turkey	31,452	
(Contid)	Union of Soviet Socialist Republics	Mar my many m	
Australasi	a Australia	630.766	
	Netherlands Indies	118.000	
	New Guirea	× 801.	
	New Zealand	70.000	3.000
Europe	Albania	They will be sufficiently	
	Austria		
	Azores	662	
	Belgium	The Contract of Sector of	
	Bulgaria	4.566	1.400
	Czechcslovakia	20.916	
	Denmark	7.126	
	Finland	14.112	
	France	85,500	· · · ·
	Germany	teri palenter	
	Gibraltar	Build of complete	
	Greece	11.056	
	Hungary Iceland Ireland	6.274 4.348	
	Italy	2111.420	
	Luxembourg	F actorial in a line of	
	Malta	jan in al an	
	Netherlands	16.000	

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Region Région Region	Country Pays País	Scheduled Miles Milles services réguliers Millas servicios regulares	Non-scheduled Miles Milles services non réguliers Millas servicios no regulares
Europe	Norway	20.771	
(Cont ^r d)	Poland	21.788	
·	Portugal	3.150	
	Rumania	22.572	
	Spain	19.988	
	Sweden	33.000	8.000
	Switzerland	81-1824 In-17 Case	
	Trieste		
	Union of Soviet Socialist Republics	padjutes and Frid.	
	United Kingdom	245.000	· · ·
	Yugoslavia	16.994	
Middle	Bahamas	1.400	-500
America	British Honduras	500	750
	British West Inddes	25.000	5.000
	Canal Zone		
	Costa Rica	25 .8 56	
	Cuba	46.232	
	Curacao	5.000	
	Dominican Republic	3.192	
	El Salvador	Apara de l'Americana.	
	Guadeloupe		
	Guatemala	1.394	
	Hai ti	2.346	
	Honduras	20.693	

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Region Région Region	Country Pays Pais	Scheduled Miles Milles services réguliers Millas servicios regulares	Non-Scheduled Miles Milles services non réguliers Millas servicios regulares		
Middle America (Cont'd)	Martinique	antenting for any off the second s			
	Mexico	242.246	• •		
	Nicaragua	11.541			
	Panama	3.618			
	Puerto Rico/Virgin Islands	7.575			
North America	Alaska	112.500	112.500		
	Bermuda	संगत क्रान्ट्री कार्य कारण न			
	Canada	315.315			
	Newfoundland	. Print gand gang			
•	United States	6.689.428	· · ·		
Oceania	Canton Island	er o pas den Luij			
	Fiji Islands	وجد است والاوليو			
	Guam	den an part and			
	Hawaiian Islands	44.219			
	Kwajalein	page takan assa gintag			
	Midway Island				
	New Caledonia	ging devel allow with			
	Okinawa	922 - 10 971 Lin			
	Wake Island	فيوتا وبته زماه سب			

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	ويستعد ومحكم والمطالبة بالإكرين وربار إسترواري والانتظار التنبية والمتحد والمرود والمرود والمرود والم		
Region Région Región	Country Pays País	Scheduled Miles Milles services réguliers Milles servicios regulares	Non-Scheduled Miles Milles services non réguliers Millas servicios regulares
South	Argentina	131.540	
America	Bolivia	13.780	
	Brazil	367.965	
	British Guiana	535	
	Chile	72.740	
	Colombia	111.462	
	Ecuador	10.873	
	French Guiana	jille ant the	
	Paraguay	2.570	
	Peru	38.435	
	Surinam		
	Uruguay	4.403	,
٠	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 parcourusshebdomadairement pour les services intérieurs seulement et s'ajoutent à ceux du tableau L ^{et} 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 quadro I y del Mapa de Rutas Aéreas Internacionales.

(2=3-6)



Documents of the International Administrative Radio Conference for Aeronautical Communications (1st Session) (Geneva, 1948)

Document No. 72 – International Air Route Map

This document has not been included in this scanned reproduction of the conference documents due to technical restrictions. The original print version is available for consultation at the ITU Library & Archives in Geneva, Switzerland. Please contact <u>library@itu.int</u> for more information.

Aer-Document No. 73-E 3 June 1948

International Administrative Aeronautical Radio Conference GENEVA 1948

REPORT OF

THE COMMITTEE ON THE ALLOCATION OF (OR) FREQUENCIES

(COMMITTEE 7) 10th Meeting 2 June 1948

1. The <u>Chairman</u>, <u>Mr. A. Fry</u> (United Kingdom) opened the meeting at 14:30. Delegates from the following countries were present:

Argentina	Portugal	Portugal		
Australia		Sweden		
Canada		Ukraine	SSR	
Chile		USSR		
France		U.K.		
Honduras (Repu	blic of)	U.S.A.		

2. Aer-Document No. 47 was accepted unanimously as an accurate record of the sixth meeting of committee 7, on the understanding that a translation error appearing in the French text only would be corrected.

3. Aer-Document No. 53 was considered next but was not discussed when it was determined that the French translation was inaccurate and that the French speaking delegates had to refer to the English text to understand the material contained in the document. The Chairman directed the reporter to record this, and to request a re-translation of Aer-Document 53 into French before it could be considered by the committee.

4. The delegate of the <u>Republic of Honduras</u> expressed pleasure in the improvement of the Spanish translations both from an accuracy and availability point of view.

5. The discussion on the U.S.S.R. proposal was then continued from the previous meeting. In reply to a question from the Delegate of Australia the Soviet delegate stated that Al simplex would be accommodated in the ground to air portion of the band, but that the circraft must have transmitters of high stability in order not to destroy the advantages in their proposal, i.e. separating high power and stability transmitters from those of low power and stability.

6. The delegate of the United Kingdom stated that this conference did not have the right to decide whether Simplex or Duplex should be employed, but that our plan should provide equally for both, and at the same time permit future changes from one to the other to be made without difficulty. He was of the opinion that the USSR plan did not permit this with any degree of simplicity. The United Kingdom delegate further stated that the entire bands available to the (OR) services should be available for both Duplex and Simplex operations.



7. The delegate of <u>Canada</u> stated that his country rarely used duplex and had overcome the difficulties mentioned by the USSR insofar as simplex use is concerned. He stated that the assignment of duplex frequencies to the simplex requirements stated by Canada would be a waste of spectrum space.

8. The delegate of the U.S.A. pointed out that:

- .(a) An OR channel might be used to contact an aircraft first on A3 and later on the same flight on A1. Under such conditions if one frequency can satisfy the requirement it is wasteful to assign a simplex A3 channel and also a duplex A1 channel.
- (b) It would be very difficult to make a world wide average proportion of Al and A3 band portions which would satisfy every countries' requirements, as in each country the ration varied.
- (c) The U.S.S.R. summation of A3 merits and faults is considered fair and accurate. But the advantage of relatively high capacity is important as this permits the use of fewer frequencies to serve a large number of aircraft.
- (d) The expression of the United Kingdom delegate that this conference has no right to impose either simplex or duplex operation is correct. Each country must decide for itself.
- (e) Where there is very little traffic why assign a duplex channel when simplex is more than sufficient and the latter is all the country concerned desires.
- (f) Each system (simplex & duplex) has its own use but only the country concerned can decide where each is to be employed.

For the above reasons, stated the U.S.A. delegate, he cannot concur in the principles expressed in the proposal contained in Aer-Document No.19, para 3.

9. The delegate of the <u>Republic of Honduras</u> supported the view expressed by the U.S.A.

10. The delegate of the $\underline{U}_{a}\underline{S}_{a}\underline{S}_{a}\underline{R}_{a}$ stated that committee 4 should be asked to sum up the merits and faults of both simplex and duplex, the relative efficiency of Al and A3 emissions, and the advantages and disadvantages of dividing the OR bands in accordance with transmitter power and stability.

11. The delegate from <u>France</u> stated that the present discussion involves both operational and technical problems. Insofar as the technical standards only are concerned we should await the results of committee 4, and then use these results as a starting point for our own technical decisions. - 3 -(Aer-73-E)

12. The delegate of the <u>U.S.S.R.</u> then referred to the statements of the previous delegates and particularly to the points raised by the U.S.A. delegate. The Soviet delegate stated that:

- (a) In order to satisfy future requirements we must provide specific and firmly fixed sections in each (OR) band for the various types of emissions.
- (b) Changes from A3 to A1 emission by an aircraft in flight require manipulation on the part of the radio operator, and therefore the use of duplex is not the only point requiring more work on his part.
- (c) We agree we must know the Al and A3 requirements of every country so that we can assess the limits of the portions assigned to each type of emission. Countries submitting requirements could be asked to show the type of emission planned to be used.
- (d) The U.S.S.R. plan provides for the use of both duplex and simplex Al by a country. It provides for A3 simplex only as we cannot foresee any need for A3 duplex.

13. The <u>Chairman</u> advised that the discussion would be continued at our next meeting at which time working group 1 report would be heard.

14. The Chairman adjourned the meeting at 17:00.

The Reporter:

B. R. Rafuse

The Chairman:

A. Fry

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International Administrative Aeronautical Radio Conference GENEVA 1948 Aer-Document No.74-E 3 June 1948

Report of

the Committee on the Allotment of R Frequencies

(Committee 6) 8th Meeting, 2 June 1948 at 14.30

Chairman: Mr. E. G. Betts

1. Present:

Argentina Bielorussic Canada Cuba Denmark Egypt France French Protect. Morocco & Tunisia Iceland New Zealand Netherlands Netherlands East Indies Norway Poland Portugal Union of South Africa U.S.A and Territories IATA ICAO

2. The minutes of the 5th meeting doc. No. 50 were adopted with the following changes: In the attendance list change "North East Indies" to "Netherlands East Indies". In paragraph 2 change "Mr. de Beaufol (French Territories) to "Mr. Beaufol (France)".

3. The Chairman stated that proposals for determining the organization of Major World Route Areas would be considered and called attention to Annexes 1, 2, and 7 to PC Aer-Document No. 19 and to Aer-Documents 2,18,34, and 67.

4. Document No. 28 was discussed and it was pointed out that the proposed modification of the I.C.A.O. plan would require aircraft on two of the Pacific routes to use additional frequencies.

5. The I.A.T.A. representative gave an explanation of Document No. 67. During the discussion the delegate for <u>Canada</u> called attention to the necessity for determining the extent to which route frequencies may be used within an adjacent world or domestic region. The delegate for <u>France</u> commented that he saw no necessity for an aircraft flying long routes (approximately 4000 km with 1500 km between stops) to communicate on the route frequencies with any station other than the extreme terminals of the route. That, although there should be no prohibition against communication with air traffic control centers enroute, there is no necessity for such communication since the same

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end may be accomplished by fixed relay from the extreme terminals of the route. That an aircraft which requires communication, for landing purposes, with regional stations should not be regarded as part of the world system.

The meeting adjourned at 17:10

The Reporter:

The Chairman:

D. Mitchell

E. G. Betts

INTERNATIONAL ADMINISTRATIVE AERONAUTICAL RADIO CONFERENCE GENEVA, 1948.

Aer-Document N⁰75-E 3 June, 1948.

COMMITTEE 4

REPORT OF THE TECHNICAL AND OPERATIONAL COMMITTEE

(Committee 4)

14 Meeting 2 June, 1948.

The Chairman opened the meeting at 10 a.m.

Present:	Mr.	O_E_Vidal		Argentine
	11	E.G.Betts		Australia
	17	I. Jouk	-	Bielorussian S.S.R.
	17	C.J.Acton	1	Canada
	17	A.Schwerter	-	Chile
	11 ·	N.N.Chen	-	China
	Ŧť	E.E.Tabio	-	Cuba
	tt j	J.Boctor		Egypt
	11	M.Falgarone	1	France
	17	M.Chef	- 	French Protectorate of Morocco and Tunisia
	17	G.Briem	۔ نب	Iceland
	11	N.V.S.Iyengar	- 1	India
	11	0.Selis	-	Netherlands
	TT -	A.de Haas		Netherlands East Indies
	11	G.Searle	-	New Zealand
	11	P. Senn	-	Switzerland
	IT	D.Mitchell		United States and
	n	D _a L _a Givens	-	Territories
	12	T.N.Gautier		17 18
	T T	W.E.Weaver		17 17



(conta)	Mr	E.V.Shores	6 m i	United States and Territories (contd)
	3 4	E.L.White		
	17	G.A.Harvey	A	Union of South Africa
	• 17	W., Duncan	-	United Kingdom
	' 17	A _o Fry	- 	17 11
· · ·	ŦT .	A.Jarov	-	Union of Soviet Socialist Republics
	11	Svetozar Mitrovíc	5-4	Yugoslavia
	11	P,Greven	-	I.C.A.O.
	59	L.Layzell	-	I.A.T.A.

Following a short discussion regarding the Minutes of several previous sessions, the <u>Chairman</u> stated it would be necessary to postpone the adoption of any of these Minutes due to nonreceipt by the various Delegates of the French translations of such Minutes.

The Chairman than referred to Document AER 58, and after correction of minor errors noted by the various Delegates, it was agreed that this Document be studied by the Delegates preparatory to its consideration at its next meeting.

The Committee then took up the study of the remaining paragraphs of Document AER 5, "Separation of Frequencies" beginning with Paragraph 22. Mr.White of the U.S. Delegation advised at this time that Mr.Gautier of his Delegation was prepared to begin the revision of certain of the Frequency Propagation Charts attached to Document 5 and requested assistance for Mr.Gautier from other Delegations to expedite the completion of this work. Delegates of the Union of South Africa, Australia and New Zealand kindly volunteered for this assistance. Discussion then followed on Paragraph 22 of Document 5, Use of the charts attached to this Document was explained by Mr.Gautier of the U.S.Delegation on the blackboard, with many questions being asked by the various Delegates.

The attention of the Committee was referred by the Chairman during this discussion to Paragraphs 45-46 and 47 of Document PC AER 25 for their consideration in connection with their study of this section of Document 5.

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Following Mr.Gautier's explanation, the Committee considered the problem of "Protection Ratios" as applied to frequency selection, Mr.White of the U.S.lelegation then utilized the blackboard for an explanation of "Power Ratios" in connection with the Committee's consideration of "Protection Ratios". A number of questions were asked Mr.White by various Delegates during this discussion.

The Chairman adjourned the meeting at 12.30 p.m., advising that Document 5 would be further considered at the next meeting of Committee 4.

The Reporter:

The Chairman:

D.L.Givens

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International Administrative Aeronautical Radio Conference G E N E V A, 1948 Aer-Document No 76 - E

3 June, 1948

Committee 4

Report

of the Technical and Operational Committee

(Committee 4)

13th Meeting 1 June, 1948, at 10 a.m.

Chairman : Mr. SELIS (Netherlands).

The following countries and organizations were represented :

Argentina Australia Bielorussian S.S.R. Canada Chile Cuba Czechoslovakia Denmark Egypt France French Overseas Territories Iceland India

Netherlands Netherlands East Indies New Zealand Norway Poland Sweden Switzerland Union of South Africa Union of Soviet Socialist Republics United Kingdom United States and Territories Yugoslavia I.F.R.B. I.C.A.O I.A.T.A

The meeting was opened at 10 a.m. by the Chairman.

The <u>Chairman</u> thanked Mr. PETIT (I.F.R.B.) for delivering the French text of Aer-Document No 5.

The <u>Chairman</u> moved the adoption of Aer-Document No 32, containing the minutes of the 4th meeting of Committee 4.

The minutes were unanimously adopted.

An improvement to the French text would be prepared by the French Delegation and given to the Secretariat.

Consideration of the minutes of the 5th meeting (Aer-Doc.No 35) was postponed until available in French.

A new paragraph would be added to the minutes of the 6th meeting (Aer-Document No 38) and distributed as an amendment to this document.

The following amendments were made to the minutes of the 8th meeting (Aer-Document 48) : On p.1, add Sweden to the list of countries jour" represented. On p.2, sub-paragraph 7 (2) of the Honchttext read" conditions de instead of "conditions éclaircies". On p.3, sub-paragraph 13(1), line 3 "readily" to be changed to "hardly". P.3, sub-paragraph 13 (3) (3), read "noise in the aircraft".

The name of Mr. Weaver should be added to the U.S. delegation.



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(Aer-Doc.No 76-E)

In paragraph 18, read " signal-to-noise". Paragraph 20, second sentence, read : " He recommended that a level of 10 μ v/m be adopted. It would then be possible to adopt for the field intensity in A3a 15 db. ratio and admit for A1 a signal-noise ratio equal to 1."

Paragraph 9, p. 2, should read as follows :

"The <u>U.S.S.R.</u> delegate during the above discussion stated, that his delegation would express their opinion on the acceptance of figures representing the minimum field intensity submitted in Document 5, after receiving the replies to the questions submitted by his delegation. These questions were included in the minutes of the previous meeting of Committee 4."

Paragraph 6, p. 2, should read as follows :

"The delegate of the <u>United Kingdom</u>, supported by the I.A.T.A delegation, considered that 2 μ volts per metre would be a more desirable field intensity than 1.4 μ volts per metre for Al working; and that further information should be obtained on the actual noise level existing in modern⁴ aircraft. In this connection the United Kingdom delegation agreed to contact the Royal Aeronautical Establishment in an attempt to obtain further information on the existing aircraft noise level."

Acr-Doc.No 48, as amended, was adopted .

The <u>Chairman</u> said that twenty copies of the Recommendation of the United Kingdom with regard to PC-Aer Document No 5, paragraphs 1-21 had been distributed.

The delegate of the <u>United Kingdom</u> moved the adoption of his proposal.

The motion was seconded by Canada.

A lengthy discussion followed with regard to the proposal. The delegate of <u>Yugoslavia</u> said that more time should be devoted to this problem before considering the United Kingdom proposal. He doubted whether Committees 6 and 7 would be able to make such progress in their work until Committee 4 considered the question of Protection Ratio.

This view was supported by the delegates of France and the U.S.S.R.

The delegate of the <u>U.S.S.R</u>.suggested that the United Kingdom proposal be withdrawn from the agenda until the discussion on PC-Aer-Document No 5 was finished.

The <u>Chairman</u> said that if the delegate of the U.S.S.R. did not wish to present a motion, the U.K. proposal would be considered.

The delegate of <u>Poland</u> seconded by the delegate of the <u>U.S.S.R.</u>, then submitted a motion for postponing considerin g the U.K.proposal.

The Polish motion was rejected by 13 votes to 6. with 4 abstentions.

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- 3 -(Aer-Doc.No 76-E)

Discussion of the U.K. proposal was then resumed.

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"C) Curves for 10 µv/m which already exist to be retained . "

field intensity requirements for high capacity means of communication was available, it was agreed that an additional sub-paragraph be added

As it was apparent that not much information on actual noise level and

The U.K. proposal, as finally amended, was adopted by 14 votes to 5 with 4 abstentions (See Annex). The delegates of the U.S.S.R., Yugoslavia, Bielorussia and Poland reserved their attitudes until PC-Aer-Document No 5 had been completely studied.

The meeting was adjourned at 13.20

Reporter :

Chairman :

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as follows to paragraph 1.

0. J. Selis

- 4 -(Aer-Doc.No76-E)

Annex

United Kingdom Rroposal

Considering that a need exists for some means of selecting the order of frequencies necessary for individual air route operation, it is recommended that :

1) The maximum range charts annexed to PC-Aer-Document No 3 be modified to show the expected physical ranges, based on an assumed aircraft noise level of less than $5 \mu v/m$, with a field intensity in the vicinity of the aircraft of

a) 5 µv/m for Al manual method of communication.

b) 20 μ v/m for high capacity means of communication, including A3

c) Curves for 10 µv/m which already exist, to be maintained.

2) One of the maximum range charts be modified to show the expected physical ranges using a radiated power of 10 ky :

3) The curves be re-drawn to common standards, i.e., km., and to a more suitable scale, and be included with the introductory statements referred to in sub-paragraph 4 below in the final conference documents;

4) Paragraphs 1 to 21 of the introductory statement to PC-Aer-Doc.No 5, amended in accordance with the decisions of Committee 4, together with the associated modified charts, be used by the Conference as a guide to the allotment of frequencies. INTERNATIONAL ADMINISTRATIVE AERONAUTICAL RADIO CONFERENCE Aer-Document No. 77-E

3 June, 1948

GENEVA, 1948

Committee 4

REPORT

OF	THE	TECH	NICAL	AND	OPERATI	ONAL	COMMITTE	E
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(Committee 4)

15th Meeting

3 June, 1948

Chairman: Mr. O. J. Selis (Netherlands).

1. The following delegations and organizations were represented:

Argentina .	Mr. O. E. Vidal
Australia	Mr. E. G. Betts
Bielorussian S.S.R.	Mr. I. Jouk
Canada	Mr. C. J. Campbell
Chile	Mr. A. Schwerter
China	Mr. N. N. Chen
Denmark	Mr. K. Svenningsen
France	Mr. M. Falgarone
Iceland	Mr. G. Briem
Netherlands	Mr. L.C.H.M. Bergman
Neth. East Indies	Mr. A. de Haas
New Zealand	Mr. G. Searle
Norway	Mr. N. Soeberg
Poland	Mr. A. Aroluoh
Switzerland	Mr. P. Senn
United Kingdom	Mr. H. A. Rowland
	Mr. A. Fry
	Mr. W. A. Duncan
United States and	
Territories	Mr. E. L. White
·	Mr. E. V. Shores
	Mr. T. N. Gautier
·	Mr. D. L. Givens
Snion of Soviet	
Socialist Republics	Mr. A. Jarov

Union of South AfricaMr. G. A. HarveyYugoslaviaMr. S. MitrovicICAOMr. P. J. GrevenIATAMr. L. M. LayzellObserverMr. T. L. Bartlet

2. The <u>Chairman</u> opened the meeting at 10:00 A. M., and referred to the fact that no French translation had as yet appeared of Document No. 35, dated the 24th of May, stating that the Secretariat had again given assurances that translations would be expedited.

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3. The <u>Chairman</u> referred to Document No. 58, report of Working Group 4-B, and stated that a number of delegations had indicated a desire to offer suggestions. The document was accordingly returned to the Working Group in order that these suggestions could be received. ^It was agreed that delegations would have until Friday morning, 4 June, to furnish their suggestions to the Working Group. It was also agreed that the Chairman should invite Committees 6 and 7 to furnish representatives to serve on Working Group 4-B.

4. The representative of I.A.T.A. read a telegram stating that the Douglas, Lockheed and Consolidated aircraft factories were holding noise levels for new aircraft to 2.5 µv/m or better. It was agreed that this information lent support to the previous conclusion reached by the Committee to specify a standard of 5 µv/m.

5. The Committee then resumed consideration of Document No. 5, dealing with protection ratios.

The delegate of the <u>U.S.A.</u> continued his analysis of the problem, recommending 30 db as the desired protection ratio, with provision for dropping back to 25 db if that would mean the difference between duplication and no duplication.

The illustration given was the interference situation between stations of different route areas, and the delegate of <u>France</u> stated that he was opposed to this method of assessment, as French experience had shown that stations in the same area are the primary sources of interference.

The delegate of <u>Cuba</u> stated that in the Caribbean, twelve stations are engaged in simplex operation on the same frequency, that the region is one of congested air traffic, and that satisfactory operation had nevertheless resulted.

The delegate of <u>Bielorussia</u> stated that if we consider cross-band operation, adopting a protection ratio of 15 db, we shall have many more possibilities of duplication. He stated that while a number of cases of simplex operation must be considered this type of operation is an uneconomic exploitation of the ether. The protection in such cases should not be as high as 30 db; otherwise all requirements cannot be satisfied. He proposed 20 db for A-3 emission, and 10 db for A-1, assuming that most telegraph working would be cross-band.

The delegate of the <u>U.S.A.</u>, supported by <u>Canada</u>, stated that I.C.A.O. has set up simplex as the method of working, on the basis of operational needs. As all countries now engaged in international flying are parties to this agreement, it is necessary that we plan the allotment of frequencies so that these operational requirements, as stated by ICAO, can be met. The delegate of <u>Canada</u> added that in any case more frequencies are required for cross-band, and in addition, more equipment in the aircraft and on the ground and more operating personnel on the ground are required.

The representative of <u>I.A.T.A.</u>, supported by the delegates of <u>Australia</u>, <u>United</u> <u>Kingdom</u> and <u>Canada</u>, expressed the view that the plan set up should be capable of employing either simplex or cross-band, and therefore the basis would have to be primarily simplex.

The representative of <u>Yugoslavia</u> said that if I.C.A.O. had adopted a scheme which is uneconomical in frequency utilization, the I.T.U. should disregard the I.C.A.O. decision and formulate a plan which effects a distribution of frequencies to meet the requirements of all the world air routes. The delegate of <u>Poland</u> also expressed the view that we should consider which system is more economical.

The representative of <u>France</u> suggested that we should decide the issue of simplex <u>res</u> cross-band, as enough frequencies for cross-band would not be provided if the plan is drawn up on the basis of simplex.

The <u>Chairman</u> proposed, without objection, that the Committee should proceed to a decision in two steps: 1st, by deciding the protection ratio based on simplex operation, and 2nd, by determining whether it is necessary to set up a ratio for cross-band.

The delegate of <u>U.S.S.R.</u> inquired as to the degree of intelligibility to be used as a basis for fixing the protection ratio. The delegate of <u>South Africa</u> suggested 90%, The <u>U.S.</u> delegation supplied information that a 13 db ratio was sufficient in order to provide intelligibility 90% of the time in the case of equal field intensities, for A-1 emission, with a necessity for adding up to 17 db in some instances for A-3.

After further discussion, participated in by the delegates of the <u>U.S.A.</u>, <u>U.S.S.R.</u> it was <u>agreed</u> that 90% would be used as the intelligibility factor.

The delegate of the U.S.S.R. then stated that before adoption of any protection ratio figure it is necessary to consider practical aspects in the light of the decisions taken at Atlantic City. He indicated that, considering the probabilities of coincidence, the percentage of disruption should not be higher than 10% if a ratio of 20 or 25 db were used.

The hour of adjournment having arrived, the Chairman indicated that the opportunity would be given other delegations to produce their proposed figures at the next meeting.

6. The meeting adjourned at 12:40 p.m.

Reporter:

Chairman:

T. L. Bartlett

O. J. SELIS

International Administrative Aeronautical Radio Conference GENEVA, 1948

Aer.- Document No 78-E 4 June, 1948

COMMITTEE 6

REPORT

of the Committee on the Allocation of "R" frequencies

(Committee 6)

7th Meeting 31 May. 1948 at 2:30 p.m.

1.

Chairman : Mr. E.G. Betts (Australia)

The following delegations and organizations were represented :

Albania Argentina Australia BielorussianS.S.R. Canada China Colombia Cuba Denmark France Morocco and Tunisia Netherlands New Zealand Norway Pakistan Poland Roumania Switzerland United Kingdom Union of South Africa United States and Territories Union of Soviet Socialist Republics Yugoslavia I.A.T.A. I.C.A.O.

2. The Minutes of the 4th meeting (Aer-Document No 40) were adopted with the following rewording of Paragraph 3:

"The Delegate of <u>South Africa</u> said that in his opinion the I.C.A.O. regions should be adhered to as this would make the administration and the observance of I.C.A.O. requirements simpler.

Frequency requirements for major would air routes should then be considered receiving priority treatment through these regions.

It was not necessary to make special provision for the tropical zone as the ionospheric data would automatically correct the frequency requirements in the zone."

Acr-Document No 50 was not available in the Spanish and French text and the adoption of these minutes was therefore postponed.

3. Aer-Document No 30, the proposal of France, was considered. The Delegate of <u>France</u> pointed out that a certain number of frequencies available for aircraft station would be allocated to each country and the administrations would assign them to the different companies. It would be necessary to repeat frequencies among the different companies as it would not be possible to allocate individual private frequencies. When one company had a certain frequency, it would be used in every part of the world where this company operates. A repetition of frequencies in different parts of the world cannot be avoided insofar as aircraft transmitters are concerned. However, the proposal provides a positive geographical separation of frequencies used by ground stations. The Delegate of France is of the opinion that it would be necessary to take care of Air Traffic Control principles for determining the best method of using these frequencies.

4. Aer-Document No 38. The Chairman pointed out that this document expresses the opinion of the Delegate of China. It will be discussed later on when a detailed study of the problem is in hand.

5. Aer-Document No 33. This document submitted by the Delegate of China, agrees with the views of the Union of South Africa and the USSR concerning the equatorial zone. The same method of establishing requirements should be applied in respect of the regional and major world air route areas. A different loading factor could be applied in different countries. Paragraph 2 of this document should be amended : ".... a number of delegations including the Delegation of <u>China</u> have objected"

6. Aer-Document No 34 which is mentioned in Aer-Document No 17, Paragraph 3 c, is now available. This document will be studied before decisions regarding further action are made by the Committee.

7. Discussion of future work of Committee 6

The Chairman pointed out that before splitting into working groups, some decision is required as to the overall plan. Regional problems have to be considered as well as major world air route areas as both are tied together. The Delegate of the <u>United States</u> stated that the establishment of boundaries at this stage of our deliberations may result in the limiting of maximum frequency repetition possibilities and that it is necessary that very careful consideration be given to this matter before area boundaries are defined.

The Delegate of <u>Colombia</u> pointed out that expressions such as "domestic", "regional", "international" and "intercontinental" have been used and in order to avoid possible misunderstanding, such terms should be defined. It was decided that a Definitions Committee should be established and that this Committee should have as permanent members during the work of Committee 6 representatives of the three official languages of I.T.U. Mr. Tablo (Cuba) was appointed as Chairman of a "Definitions Committee" (Sub-Committee 6A), with Mr. Falgarone (France), Mr. Duncan (U.K.) and Mr. Greven (I.C.A.O.) as permanent members.

The Committee will convene as directed by Committee 6 for the purpose of establishing such definitions as may be required or for revising established definitions as necessary during the progress of the Committee's work.

8. As an approach to the study of the area division problem, Aer-Doc. No 34 was introduced by an explanation from the Representative of I.A.T.A.

The Meeting rose at 5:30 p.m.

The Reporter :

Peter Senn

The Chairman : E.G. Betts

(9-4-6)

International Administrative Aeronautical Radio Conference GENEVA, 1943.

4 June, 1948

COMMITTEE 6.

RCHIVE U.I.T.

REPORT OF THE COMMITTEE ON THE ALLOTMENT OF

R FREQUENCIES (Committee 6) 9th Meeting 3rd June,1948.

CHAIRMAN: Mr. E.G., BETTS (Australia)

1. The meeting opened at 2.30 p.m., the undermentioned delegations and organisations being represented:

Argentine Australia Bielorussian S.S.R. Canada Colombia Cuba Denmark Egypt France Morrocco and Tunisia India Netherlands Netherlands East Indies New Zealand Norway Portugal Pakistan Poland Switzerland Union of South Africa United Kingdom United States of America and territories Yugoslavia I.A.T.A. I.C.A.O.

2. The report of the sixth meeting, Aer Document No. 59, was approved, subject to the following amendments:

- (i) Para 1, Sub-para 2, line 3. <u>Amend</u> "Doc D.C" to read "Doc P.C".
- (ii) Pare 2, Sub-para 4, line 3. <u>Amend</u> "Doc Aer 40" to read "Doc Aer 17".
- (iii) Para 3, line 4. <u>Delete</u> "handed" and substitute "handled".
- (iv) Add under document heading: "6th Meeting".

3. Mr. Betts (Australia) was commissioned to represent the interests of Committee 6 on Working Group 4B.

4. Discussion was resumed on the I.A.T.A. proposal for the major World Air Route Areas.

5. Mr. Campbell (Canada) reviewed the difficulties encountered by international organisations in attempting to decide operational requirements, except at regional level. He emphasised that the International Administrative Aeronautical Radio Conference should avoid any action which would introduce a communications organisation incompatible with established operational procedures. He recommended that the work of Committee 6 should proceed in the order:

- (i) Determine the regional requirements for adequate coverage, with minimum demands on aircraft equipment, for flights in the Major World Air Route Areas.
 - (ii) Determine the additional regional requirements for adequate coverage for internal or transregional flying.

6. Following a general discussion Mr. Greven (I.C.A.O), upon a request from the chair, gave a description in general terms of the communications organisation existing in the Middle East, together with the frequency allotments for A.T.C. in the area, and the thinking behind the scheme as devised at the Middle East (I.C.A.O) Communications Meeting, 1946.

7. <u>Mr. Greven</u> (I.C.A.O and <u>Mr. Sather</u> (`Pakistan) on being questioned from the floor, agreed respectively that (a) the scheme had been jointly considered by A.T.C. and communications experts, and (b) it had, with the addition of the frequencies to meet added loading, proved satisfactory in operation.

3. After further detailed discussion, <u>Mr. Harvey</u> (Union of South Africa) moved that a Working Group be set up to:

Study major aviation activity centres dispersed over the world and consider all available information from existing route and r gional communications systems to meet existing A.T.C. requirements. Then to derive from this study a common formula, if possible, which could be used for the assessment of frequency requirements to meet A.T.C. regulations.

9. He (Mr. Harvey) was of the opinion that a definition for domestic services, or intra-regional or trans-regional, and major international air routes would be more easily arrived at after this examination.

10. Mr. Campbell supported the motion.

11. <u>Mr. Falgarone</u> (France) stated that he did not subscribe to the view that there was a specific need for the working group to base its work on information obtained from existing A.T.C. regions. He was of the impression that existing control organisations were based on regional conceptions and that no precise procedures had yet been formulated for control under the "route" concept.

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12. The motion for the setting up of a working group (Working Group 6B) having been adopted and Mr, Harvey elected as Chairman, the following delegations and organisations expressed a wish to be represented:

Netherlands
Netherlands East Indies
Switzerland
Union of South Africa
United States of America
and Territories.
Yugoslavia
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I.C.A.O.

13. In closing the meeting the <u>Chairman</u> stated that Working Group 6B would open its first meeting at 10.00 a.m. Friday 4th June and that Committee 6 would suspend its sittings until further notice.

14. The meeting closed at 5.10 p.m.

The Reporter H.A. Rowland. The Chairman; E.G. Betts.

(18-1-6)

International Administrative Aeronautical Radio Conference Geneva, 1948

SUMMARY RECORD OF THE THIRD PLENARY MEETING

held at the Maison des Congres, Geneva, on Tuesday, 1 June, 1948, at 3:00 p.m.

CHAIRMAN: Mr. A. LEBEL (United States)

APPROVAL OF, MINUTES OF THE FIRST AND SECOND PLENARY MEETINGS (Aer-Documents Nos, 4 and 21)

1. The CHAIRMAN said that the paragraph attributed to him on the first page of Aer-Document No. 4 should read as follows:

"The Chairman, thanking the Conference for the confidence shown in him, and for the tribute paid to his country and to his Delegation, expressed his hope..."

The final paragraph of Aer-Document No. 4, first sentence, should read:

"The Chairman said that any Delegation might be represented on Committee 2 to 7 at any time."

The Soviet Delegation had submitted a written amendment to Aer-Document No. 21. In lines 1 and 2 of sub-parageaph 2c, page 3, Replace theswords "assign" and "assignment" by the words "allot" and "allotment".

The Soviet Delegation wished to submit the following text as an amendment to the statement attributed to Mr. JAROV on page 3. Part of this amendment was an amendment to the resolution which was to be discussed as a separate item of the Agenda; the Soviet amendments would first be considered as an amendment to the text previously submitted. The text read as follows:

2. "Mr. JAROV (USSR) said that it had been made clear in the Steering Committee that the Plenary Meeting would consider the report of the Preparatory Committee before Committees 4, 5, 6 and 7 started their work. The question they had just been discussing - allocation of paragraphs to the various committees - could easily be settled either by the Steering Committee or by the Chairman of the committees among themselves.

"The Soviet Delegation thought it necessary to dwell upon one of the main questions of the Conference, which had been reflected in Document No. 25, but not precisely enough - namely, the question of the tasks of the Conference.

"At the outset of their work, they must clearly see the final aim. It was most likely that the work of the Conference would result in establishing a frequency allotment plan; however, such a plan might be of different degrees of detail. The first step in establishing the frequency allotment plan, that is, the allocation of frequency bands to the Aeronautical Mobile Services, had been passed at Atlantic City.

3. "The recommendations of the Preparatory Committee provided for thr allotment of frequencies for simultaneous use in as many parts of the world as possible, distribution within these areas being recommended by the administrations concerned,


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"To make this quite clear, the Soviet Delegation suggested that the following resolution on the tasks of the Aeronautical Conference, Geneva, 1948, be adopted:

"CONSIDERING:

4. 1. That the requirements of the Aeronautical Mobile Services can be satisfied within the limits of the HF bands laid down by Atlantic City only under the condition of the maximum utilization of the possibilities of frequency sharing between various regions of the world."

The Soviet amendments to Aer-Document No. 21, as presented by the Chairman, were adopted.

Mr. PETIT (IFRB) proposed that Paragraph 2c on Page 3 of the French text be revised by the Secretariat to bring it Antomicativith the English text.

It was agreed that the French text should be revised by the Secretariat. in accordance with the suggestion made by Mr. PETIT.

Aer-Document No. 21, as amended, was unanimously adopted.

REPORT OF THE CREDENTIALS COMMITTEE (Aer-Document No. 41)

- 5. Mr. SOUTO CRUZ (Portugal), said that there had been some disucssion in the Steering Committee on whether the Final Report of the Conference should be signed by all Delegations. It seemed to the Credentials Committee that most of the Delegations had no power to sign and, therefore, in view of the fact that the Conference represented only one step towards the ultimate goal and that the frequency list compiled would be submitted to a full Conference, in which all members of the Union would be represented, Committee 2 proposed that the Report should be signed by the Chairman of the Conference in his capacity as Chairman.
- 6. Mr. PETIT (IFRB) said that from the legal point of view, the Conference had adopted as its Rules of Procedure the General Regulations annexed to the Convention, and Article 25 of these Regulations laid down that final acts should be signed by delegations. Under Chapter III of the Regulations, special diplomatic credentials were only required by delegates to Plenipotentiary Conferences; at the Atlantic City Radio Conference, which, like the present aeronautical conference, was an administrative one, the letter or telegram accrediting a delegate had been considered adequate authority for signing the final acts.
- 7. Apart from these juridical considerations, difficulties might arise at the special administrative conference which would approve the new international frequency list, if the final acts were not signed by delegations, and this would delay putting into effect the new plan of frequency allotment. He therefore proposed, in conformity with the Rules of Procedure, that the Final Acts of the Conference be signed by all delegations. These would be transmitted to the Chairman of the P.F.B., with a covering letter signed by the Chairman in his capacity as Chairman of the Conference.
- 8. Mr. WHITE (USA), said that the Conference would either have to reconsider its Rules of Procedure or provide for signing of the final documents. But these documents would, in effect, remain recommendations. Provision should, therefore, be made for their signature by all Delegations, but Delegates should make clear to their governments that such signatures merely signified their participation in the Conference.

Mr. SOUTO CRUZ (Portugal), said that in the opinion of Committee 2, the credentials of most of the Delegations were insufficient for this purpose and that that point of view seemed to be shared by the Government of Poland.

9. Mr. FALGARONE (France), pointed out that according to Rule 25, the Final Acts were to be signed by all the Delegations, and it might, therefore, be supposed that governments would be aware of this and would have given the necessary credentials automatically. He supported the statement made by Mr. PETIT (IFRB), and moved that the Final Acts be signed by all Delegations.

It was agreed to adopt the French proposal that the Final Acts should be signed by all Delegations.

It was agreed that Committee 2 should consider the question of the type of credentials necessary for signing the Final Acts.

10. The following amendments were made to the text of Aer-Document No. 41: The name of/delegate of Pakistan was to be given as F. A. SATH.R, and, that i of the Delegate of China as N.N.CHEN. The correct title of the area represented by Mr. LALUNG-BONNAIRE should be given as "France d'Outre-Mer", and the name of the Delegate of Norway should be given as N. SOEBERG.

Aer-Document No. 41. as amended. was adopted.

COMMUNICATION FROM THE SECRETARY-GENERAL (Aer-Documents No. 9 and No. 49)

11.Mr. ACTON (Canada), said that the chapter of the Atlantic City Rules referred to on Page 1 of the above document should be Chapter VIII.

There were no directives in the Atlantic City Regulations as to how maps should be published. He moved that a small ad hoc group should be set up to prepare a report on the matter for the next Plenary Meeting. It was proposed that the group include Mr. PETIT (IFRB), Mr. VOUTAZ (Secretariat), and Mr. GREVEN (ICAO), together with a representative of IATA.

Mr. WHITE (USA) seconded the motion.

The Canadian motion for the setting up of an ad hoc group to study Aer-Document No. 49, was adopted.

It was agreed that the group should include delegates of Denmark, New Zealand and Cuba,

12.Mr. PETIT (IFRB), said that the matter contained in Paragraph 1 of Aer-Document No. 49 had already been studied by the IFRB and the following communication had been sent to the Secretary-General:

"With regard to the list of aircraft stations contained in the 18th Edition of the List of Aeronautical and Aircraft Stations, the IFRB agrees with the Secretary-General in thinking this list of doubtful value. It recommends that the 19th Edition of this List, in accordance with the directives of Atlantic City, be published as soon as possible in 1949, and kept as up to date as possible with information to be provided by administrations."

ACTION TO BE TAKEN WITH REGARD TO REGIONAL CONFERENCES (Aer-Document No. 63)

13.Mr. PETIT (IFRB), commenting on Aer-Document No. 63, said that in Region 1 no conference had been charged with allocating frequencies in the 325-405 and 315-325 Kcs, bands. As radio experts would be attending the European Broadcasting Conference in Copenhagen from the 25th June to consider the problem of broadcasting stations operating exceptionally in the 325-405 Kcs. band, they would be bound to study allocations in this band. All that remained was the 315-325 Kcs. band, 10 kcs. wide, and to convene a special conference for this would be a lengthy and expensive business.

14. These were the principal considerations which had led him to propose in Aer-Document No. 63 that the Danish Government be invited to assemble the experts who would shortly arrive in Copenhagen, in order that they might submit to the P.F.B. their proposals on the two bands in question. These proposals, included in the frequency list, would be considered by the special administrative conference.

Mr. SOUTO CRUZ (Portugal) seconded by Mr. de CALAN (France), moved that the course of action outlined in Aer-Document No. 63 be taken by the Conference.

15. Mr. JAROV (USSR), agreed in principle on the necessity of studying medium frequencies but did not think they could be studied at Copenhagen. A more practical solution would be to convene a conference towards the end of 1948, after the Administrative Council.

Mr. PETIT (IFRB), said that the more important of the two bands in question would automatically be examined by the experts in Copenhagen. It would therefore be sufficient if the experts sent their results to the P.F.B. for the information of that body.

From the point of view of memebers of the Union, to convene a special conference to study the second band - 10 kcs. will - would mean unnecessary expense and trouble.

16.Mr. JAROV (USSR), could not agree that a band only 10 kcs wide would remain for the special conference, as had been asserted. In fact, the Copenhagen Conference would consider, not the frequency allotment plan for the whole 325-405 kcs band, but only the question of leaving 3 broadcasting stations on derogations.

Mr. JOUK (Bielorussian S.S.R.), said that although the width of the band, a total of 90 kcs, was not great, the problem could not be taken so easily, in view of the large number of aeronautical stations to which frequencies had to be allocated. In the short time available before the Copenhagen Conference, the radio navigation experts would not be able to prepare themselves to solve the whole problem.

17.Mr. MITROVIC (Yugoslavia), auggested that the problem of allotment of frequencies in the 325-405 kcs. bands, and in the smaller band, as well as the problems of frequency allotment in the bands common to acronautical mobile OR services and to other non-aeronautical services, might be settled at one regional conference. Such a conference, in any case, would have to be held.

Mr. de CALAN (France), in reply to Mr. JOUK, said that the long wave band referred to was by simple arithmetic twelve times more important than the band 10 kcs. wide referred to in Aer-Document No. 63. In reply to the Delegate of Yugoslavia, it might be pointed out that the problem of shared bands would be treated by the Regional Conference which would have to deal with these services.

The Portranese motion in favor of taking the course of action cutlined in Aer-Document No. 65, was adopted by 18 votes to 8, with 8 abstentions.

OUTSTANDING REPORTS .OF COMMITTEE 4

18.Mr. SELIS (Netherlands), said that his Committee had only one recommendation to make to the Conference; this concerned aircraft loading factors, and was to be found on Page 2 of Aer-Document No. 43. He moved adoption of the recommendation.

Mr. ACTON (Sanada) seconded.

The recommendation on Page 2 of Aer-Document No. 43 was unanimously adopted.

Mr. JOUK (Bielorussian S.S.R.) abstained from voting for motives explained in document 43 itself.

RESOLUTION SUBMITTED BY THE SOVIET DELEGATION AT THE SECOND PLENARY MEETING (Aer-Document No. 21)

19. Mr. WHITE (USA) supported the Resolution, providing par. 2c were clarified. The terms of the resolution must make it clear that it might be necessary, in the interests of frequency, economy, for the Conference to specify areas much smaller than national boundaries, in which frequencies might be used. The improper assignment of a frequency for general use in a country as large, for instance, as the United States, might seriously curtail possibilities of duplication of use in other parts of the world. He suggested the following amendment:

"and that such further allotments will be made in such a manner as not to conflict with the frequency allotment plans made by this Conference for other parts of the world, particularly adjacent areas."

Mr. JAROV (USSR), did not object to this addition, in view of the fact that it was already understood in the text of the Resolution.

- 20. Mr. FRY (UK), said that his Delegation was not clear on the intention of the Resolution. He did not understand how Sub-paragraph 2b was to be applied to Aeronautical Mobile OR Services and had to assume that the Soviet Delegation saw some connection between the distribution of air routes and OR frequencies. He would propose the following clarification to Sub-paragraph 2b: insert the following: "So far as Aeronautical Mobile R Services are concerned......"
- 21. Mr. JOUK (Bielorussian S.S.R.) said that the original Resolution was of a general nature. If such an addition were made, they would have to make an addition for OR services. It would be simpler to abide by the text as it stood. Regions would be different not only for R and OR services, but for different bands according to propagation conditions.

Mr. FRY (UK), said that his Delegation could not accept any view which implied that a sharp distinction could be drawn between regions in which only R, and regions in which only CR, services existed.

In the discussion which followed, it was suggested that the Resolution as it stood should be adopted, with an amendment making it applicable only to R services, and that its application to OR services should be referred to Committee 7.

22. Mr. JAROV (USSR) thought it wrong to adopt a resolution applying only to R or OR services. The question of division of regions and factors to be considered had been .studied in individual committees and could not suitably be discussed by a Plenary Meeting. In so far as the Resolution needed clarification, considered deration of it should be postponed to the next Plenary Meeting.

It was agreed that the question should be raised again at the next Plenary Meeting.

CLOSING DATE OF CONFERENCE

23. The CHAIRMAN said that in the view of the Stagring Committee, the Plenary Meeting alone was competent to decide this matter. Some Delegations had commitments for other conferences. To set a target date would facilitate the effective planning of the work of the Conference. The Steering Committee recommended that the Conference finish "not later than 30 June, 1948"; this was a tentative date, and he moved that it be adopted by the Conference.

Mr. ACTON (Canada) seconded the motion.

- 24. Mr. JAROV (USSR) thought it premature to set a date. If such a date were fixed the result would be that the very considerable work remaining to be done would be hastily discharged. The effect of undue haste was clearly visible in the work of the Preparatory Committee.
- 25. Mr. PETIT (IFRB) said that the history of international conferences showed that target dates were rarely respected. It was most important that the Aeronautical Conference should finish its work so as not to leave anything outstanding which might embarrass the P.F.B. Hence, a target date should not be fixed except with great caution.

Mr. FALGARONE (France) suggested that they might be in a better position to study the question at the next Plenary Meeting.

26. The motion presented by the CHAIRMAN, for the adoption of June 30, 1948, as a <u>tentative date for the end of the Conference</u>, was put to the vote and adopted by 20 votes to 10, with 2 abstentions.

The meeting rose at 6:30 p.m.

Reporter:

Approved:

The Chairman

N. Langford

A. LEBEL

Aer-Document No 81 - E

4 June, 1948

U.I.T. GENEN

LIST OF DOCUMENTS PUBLISHED BY THE INTERNATIONAL ADMINISTRATIVE AERONAUTICAL RADIO CONFERENCE

GENEVA, 1948.

DOCUMENTS 1 - 50

Aer- Document No.	SUBJECT
1	- Preparatory Commission - Distribution covering note to Document PC- Aer No. 25 which contains the final Report of the Preparatory Commis- sion of the International Administrative Aeronautical Radio Conference.
2	- CHINA - Minimum Route Frequency Requirements for National Air Transport Services in China.
3	- Schedule of Meetings. May 18th and 19th, 1948.
4	- Minutes of the first Plenary Meeting held at the Maison des Congrès, Geneva, on Saturday, 15 May, 1948. Opening of the Conference and election of Chairman.
5	- Second Plenary Meeting, 19 May, 1948 Assignment of items of the Final Report between Committees.
6	- Committee 7 - Report on aeronautical mobile (OR) requirements.
7	- Committee 4 - Report of the First Meeting, 18th May, 1948.
8	- Committee 5. Report of the First Meeting 18th May, 1948.
9	- Communication from the Secretary-General of the International Telecom- munication Union to the Chairman of the Conference.
10	- Committee 7 - Report of the Committee on the allotment of "OR" frequencies. First Meeting - May 18th, 1948.
,11	- Committee 6 - Report of the Committee on allotment of R frequencies. First Meeting, 18 May, 1948.
12	- Schedule of Meetings - May 20th and 21st, 1948.
13	- Communication from the Steering Committee. Proposals submitted to the Conference.
14	- Methods of work suggested to the Conference by the Steering Committee.
15	- Committee 5 - Report of the Committee on aircraft operation statistics. Second Meeting - May 20, 1948.
16	- Committee 4 - Report of technical and operational Committee Second Meeting - 20 May, 1948.

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Aer- Document No.	SUBJECT
17	- Committee 6 - Report of the Committee on the allotment of R Frequencies. Second Meeting - 20 May, 1948.
18	- UNION OF SOUTH AFRICA - Suggested method of approach to the problem of World Allocation of Aeronautical Frequencies.
19	- Statement by the Soviet Delegation to the Plenary Meeting of the Conference relative to the report of the Preparatory Committee (PC-Aer-Document No. 25).
20	- UNION OF SOUTH AFRICA - Committee 5 - Amendment to Annex 4 to PC- Aer Doc. No. 19-E.
21	- Minutes of the second Plenary Meeting held at the Maison des Congrès, Geneva, on Wednesday, 19 May, 1948.
22	- Committee 7 - Report of the Committee on the allotment of OR frequencies. Second Meeting - 20 May, 1948.
23	- Committee 5 - Report of the Committee of Aircraft Operation Statistics. Third Meeting - 21 May, 1948.
24	- Report of the Technical and Operational Committee - Third Meeting, 21 May, 1948. Committee 4.
25	- Schedule of Meetings - May 24th and 25th, 1948.
26	- Committee 1 - Report of the Steering Committee, 3rd Meeting - 21 May, 1948.
27	- Committee 7 - Report of the Committee on the allotment of OR frequen- cies - ^T hird Meeting - 21 May, 1948.
28	- CHINA - Proposed modification of the I.C.A.O. plan for division of Major World Air Route Areas.
29	- Combined minimum and maximum distance range charts for aeronautical mobile radiotelephone communications.
3 0	- FRANCE - Proposal for the utilization of exclusive frequency bands assigned to mobile aeronautical "R" services between 3 and 25 Mc/s.
31	- BULGARIA - Amendments to Annexes 4 and 5 to PC-Aer-Doc.No.19.
32	- Committee 4 - Report of the Technical and Operational Committee - Fourth Meeting - 24 May, 1948.
33	- CHINA - Proposal on classification of air services and on the method of approach to route frequency allotment.
34	- I.A.T.A Regional division of the world.
35	- Committee 4 - Report of the technical and operational Committee. 5th Meeting - May 24th, 1948.

Aer- Document <u>No.</u>	SUBJECT
36	- Committee 6 - Report of the Committee on allotment of R frequencies. Third Meeting - 24 May, 1948.
37	- Committee 7 - Report of the Committee on the allotment of OR frequencies. Fourth Meeting - May 24, 1948.
38	- Committee 4 - Report of the technical and operational Committee - Sixth Meeting - 25 May, 1948.
39	- Schedule of Meetings - May 26th, 27th and 28th, 1948.
40	- Committee 6 - Report of the Committee on allotment of R frequencies. 4th Meeting - 25 May, 1948.
41	- Committee 2 - Report of the Credentials Committee - First Meeting May 25, 1948.
42	- Committee 7 - Report of the Committee on allotment of OR frequencies Fifth Meeting - 25 May, 1948.
43	- Committee 4 - Report of the Technical and Operational Committee. 7th Meeting - 25 May, 1948.
44	- Committee 5 - Working Group A. June 3rd, 1948
45	- Committee 4 - Report of the technical and operational Committee - 9th Meeting - 26 May, 1948.
46	- Interference ranges for given service ranges and protection ratios for transmission paths in daylight.
47	- Committee 7 - Report of the Committee on allotment of OR frequencies Sixth Meeting - 26 May, 1948.
48	- Committee 4 - Report of the technical and operational Committee - 8th Meeting - 26 May, 1948.
49	CANADA - Recommendation relative to the communication made by the Secretary-General of the I.T.U. to the Chairman of the Conference (Aer-Doc. No. 79).
50	- Report of the Committee on the allotment of R frequencies - Committe

International Administrative Aeronautical Radio Conference GENEVA 1948 Aer-Document No. 82-F 4 June 1948

COMMITTEE 7.

REPORT OF THE COMMITTEE ON THE ALLOTMENT OF

OR FREQUENCIES (Committee 7) 11th Meeting 3 June 1948

1. The Chairman, Mr. A. Fry (UK), opened the meeting at 14:30. Those present included delegates from the following countries:

Argentina	Portuga	L
Australia	UK	
Canada	Ukraine	SSR
Chile	USSR	
France	USA	
Honduras (Republic	of)	
the state TROD and	sected the	- P -7

2. The Delegate of the USSR requested the following questions be submitted to Committee 4, in lieu of the ones he had so hastily to prepare at yesterday's meeting:

- (a) A comparison of the possibility of frequency repetition for aircraft stations and ground stations for duplex and simplex for both A3 and Al emissions.
- (b) The relation between the service and interference ranges for stations transmitting A3 and A1 signals, for different values of protection ratios.
- (c) The comparison of loadings expressed by aircraft per kc of the width occupied by a channel or channels for duplex and simplex Al emission.
- (d) The ratio of transmitting speed using A3 and A1 expressed as a number of words per minute.
- (e) The number of words per kc of the actual width of a channel of the radiated emission of a transmission of Al. 43, teletype and facsimile.
- (f) The different protection ratios which are necessary for satisfactory work using Al, A3, teletype and facsimile.

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The Chairman summarized the situation stating that 3. we were not deciding if these questions should be submitted to Committee 4 on their own merit, but if the questions had to be answered by Committee 4 before we could decide finally on the Soviet proposal contained in Aer-Document 19. para 3.

On this basis it was decided that the questions need 4. not be answered by Committee 4 before deciding on Aer-Document 19. para 3. with a vote of:

Against	awaiting	answers	from	Committee	4	6
For			**	11		3
Abstenst	ions				* • •	2

The Chairman then directed attention to Aer-Document 5. 19, para 3. He pointed out that we had spent over 6 hours discussing this and that unless new material was to be added he hoped we could now decide on this proposal.

The Delegate from Australia stated that he was not in 6. favour of the Soviet proposal because it prevented the aircraft operators from having a flexible choice of either duplex or simplex in that the divisions of the bands into specific portions for specific emissions prohibits the necessary flexibility our frequency assignment plan must have.

The Ukraine SSR Delegate stated that this was the 7. third meeting in which he had listened to discussion on The many arguments advanced against the Soviet proposal. it were not convincing. He stated further that the Soviet proposal gave both duplex and simplex operation and was thus the most useful and rational solution of the problem as the USSR proposal would:

Permit more assignments through a greater repetition of frequencies for Al and A3 than would otherwise be possible. with less interference than otherwise.

The rejection of the Soviet proposal and the adoption of PC-Aer document 25 insofar as spacing channels on an A3 emission basis is concerned would give 1.5 times less channels than the channels available with telegraphic emission.

The USSR proposal was therefore supported by the Ukraine SSR and Bulgaria.

(18 - 9 - 6)

8. The USA Delegate stated that the points enumerated by the Ukraine SSR Delegate had been considered when preparing the statement given by the USA Delegate at yesterday's meeting. The USA Delegate recalled that when giving that statement he had mentioned that the Soviet proposal was not acceptable to his country. His opinion had not changed.

9. There being no further comments the Soviet proposal contained in Aer-Document 19, para 3 was put to a vote. The result of this vote was:

For the Soviet	proposal3
Against "	"10
Abstentions	0

resulting in the Soviet proposal being rejected.

10. The First Report of Working Group 1 of Committee 7 was then given by Mr. DeCalan, chairman of the group. This report is being issued as an annex to the record of this meeting.

11. The chairman observed that the report showed that the Ukraine SSR, Bielorussian SSR and USSR requirements had not been submitted in the same form as the requirements of all other countries. The Chairman enquired of the USSR delegate if he would be prepared to submit additional data so that the details on the USSR requirements would be as complete as those of the other countries.

12. The Delegate of the USSR stated that his government would not have any additional information to submit insofar as the USSR (OR) frequency requirements were concerned.

13. The Australian Delegate stated that he considered the following data essential before we could assess any requirements:

- (a) Transmitting location defined as either a known point or as an area
 - i) Up to 300 km radius in the case of large countries or
 - ii) Up to 50 km radius in the case of small countries.
- (b) Type of emission
- (c) Hours of operation
- (d) Power to be employed
- (e) Mc/s order of frequencies desired to be operated from the location
- (f) Cross reference to other locations or areas requiring the same frequency

Additionally, but not as an essential factor it would be helpful to know the radius of the service area. 14. The Delegate of France stated that he shared the views of the Australian Delegate, but that he believed the figures quoted in para 13 (a) above would apply to frequencies of the order of 6 Mc/s and below and that a larger area might well be specified for frequencies above 6 Mc/s.

15. The Delegate of the USA suggested an area of 600 km for large countries and 100 km for small countries when defining the transmitting area for frequencies above 6 Mc/s.

The Delegate from the USA also stated that the headings 16. the Australian Delegate had listed were almost verbatim extracts from the Atlantic City Regulations, dealing with Form 2. At least one country which had signed these regulations had not submitted form 2 and now was asking for special treatment in the consideration of its (OR) requirements. He expressed the opinion that Committee 7 cannot agree to accord special treatment to any country or small group of countries when the vast majority are abiding by the regulations they signed and helped formulate. As well this committee has decided previously to assess requirements on the basis of the data called for on form 2, or on It would seem submissions containing similar information. that requirements which do not give sufficient data cannot be given as adequate protection as completely detailed ones. as we will not have enough data to ensure they are given the necessary protection.

17. The USSR then made a statement relative to the Soviet proposal contained in Aer-Document 19, para 3. This statement is reproduced hereunder.

STATEMENT BY THE SOVIET DELEGATION.

The Soviet delegation is convinced that its proposal has not been considered with due attention and carefulness. No attempt has been made to compare, by means of calculation, the effect which might be obtained by means of dividing the frequency band into three parts.

The refusal to submit to committee 4 the technical questions which would have given us possibilities to compare the Soviet proposal with the proposal recommended by the Preparatory Committee - this refusal can be considered by the Soviet Delegation only as an undesire to objectively study our proposal.

For this reason the Soviet Delegation will raise this question at a Plenary Session of the Conference and will insist upon an objective comparison of its proposal contained in Aer-Document 19, para 3, with the recommendations of the Preparatory Committee supported by committee 7.

SOVIET DELEGATION

18. The Chairman adjourned the meeting at 17:00.

The Reporter: The Chairman: B.R. Rafuse A. Fry.

(18-9-6)

Annex 1 to: Aer-Document No. 82-E.

REPORT OF WORKING GROUP 1

1. Working Group 1 was charged by Committee 7 with the task of assembling the requirements for OR mobile aeronautical service by use of the telegram 55/2 sent to all member states on May 2 by the Preparatory Committee of the Aeronautical Radio Administrative Conference.

2. In order to accomplish this, the Working Group has had to:

- a) separate the requirements for OR service from those for R service, by means of information received from the various countries in reply to the telegram mentioned above. These requirements are found in the forms 2 given at Atlantic City and the forms provided for additional requests on april 10th and May 15th, 1948.
- b) publish the information found on these various forms, using the indications provided by the various countries on April 10th, May 15th and May 30th, 1948.

3. By May 30th, 1948, the final date for the submission of requirements, the Working Group finished, as far as possible, the task outlined in the preceding paragraph. However, because certain countries have not replied to the telegram of May 2, and yet on the forms 2 had submitted their requirements for the aeronautical service, there is still some uncertainty regarding their OR mobile aeronautical service requirements!

4. To clarify this question, therefore, the Working Group has sent a note to the countries represented at this conference, either directly or through another country, to request one of their delegates to furnish the desired information to the Working Group at its office, Room 103 in the Palais Wilson. Annex 1 contains the list of the countries concerned, and the note sent to them.

5. In addition, a telegram has been sent to the countries not represented at the conference asking them to indicate on the forms 2 the numbers of their requirements for the OR mobile aeronautical service and informing them that should no reply be received by June 7 it would be presumed that they have no requirement for this service. Annex II gives the list of the countries concerned and the telegram sent to them.

(18 - 9 - 6)

(Annex 1 to 82-E)

6. The Working Group now has at its disposal the requirements of the countries listed in Annex III. This represents 280 sheets of forms 2. It should be noted, however, that the USSR, Bielorussia and the Ukraine have departed from Form 2 by submitting their requirements differently, and that if these requirements had been listed on the regular forms a fair number of sheets would have to be added to the aforementioned total in order to include the considerable requirements of these three countries.

7. The Working Group suggests:

- a) that Committee 7 try to assign frequencies by use of the forms 2 only, or similar requests, having recourse to 1BM apparatus later, if necessary.
- b) that Committee 7 study the requirements submitted after May 30 by the countries listed in Annexes I and II <u>only after</u> the requirements of those countries which have conformed to that deadline (see Annex III).

List of countries represented directly or indirectly at the conference which have submitted requirements for aeronautical service but have not yet stated whether these requirements concern R service or OR service:

Belgium Columbia Cuba Dominican Republic Ecuador Honduras (Republic of) Nicaragua Venezuela Zanzibar.

Working Group 1 Committee 7 1 June 1948

Notice to Mr.....

The members of Working Group 1 of Committee 7, responsible for assembling the requirements of various countries for OR mobile aeronautical service, respectfully request you to call personally and give them some explanations concerning your requirements.

They may be found in Room 103, Palais Wilson, every morning between 10 a.m. and 12 noon.

(18 - 9 - 6)

Annex II to: Document No.82-E

List of countries not represented at the Conference which have sent their requirements for aeronautical services but have not yet made it clear whether these requirements concern R or OR services:

Belgian CongoInBoliviaLeBurmaNeCosta RicaPeEl SalvadorPhEthiopiaSiGreeceSoGuatemalaTu

Ireland Lebanon Newfoundland Peru Philippines Siam Southern Rhodesia Turkey

URGENT SERVICE

Referring to our telegram No. 55/2 dated May 2 of the International Administrative Aeronautical Radio Conference stop please indicate numbers of your requirements on form 2 for Aeronautical Mobile Services (OR) we repeat (OR) stop. No reply from you addressed to Burinterna Palais Wilson Geneva before June 7 will be considered as indication of no requirement for this service.

> Arthur Lebel Chairman of International Aeronautical Radio Conference.

List of countries which have sent their requirements for OR Mobile Aeronautical Service by May 30, 1948.

Alaska Albania Algiers Angola Argentina Australia Austria (French Stations) Azores Bermuda Bielorussia (1)Brazil British Guiana British Somaliland Bulgaria Camerouns Canada Cape Verde (Islands) Caroline - U.S.A. Ceylon Chile China - U.S.A. (1)China Cyprus Cuba - U.S.A. (1) Curaçao Czechoslovakia (1)Denmark U.S.A. France Panama Germany - U.K. Egypt - U.K. Egypt France French Equatorial Africa French West Africa French Somaliland French Guiana French Morocco Fiji Islands Finland Gibraltar Great Britain Greenland - Denmark Greenland - U.S.A. Guadeloope Hawaii (1)Hungary Hong-Kong (1) Italy India Netherlands East Indies Indo-Ch**ina** Iraq - U.K. (1)Iraq

Iran Iceland Japan - U.S.A. Johnston Island Kenya Labrador Lybia - U.K. Maçao Madagascar (l)Malaya Malta Mariannas - U.S.A. Marshail - U.S.A. Morocco - U.S.A. Martinique (1)Mexico Midway Mozambique Netherlands Newfoundland (U.S.A) Northern Ireland Norway New Caledonia New Guinea (Territory of) New Zealand Oceana Pakistan Papua Philippines - U.S.A. (1)Poland Portugal Portuguese Guinea Portuguese Indies Puerto-Rica Roumania Ryu-Kyu - U.S.A. (1)Saudi Arabia Spain (1)Sweden Switzerland (1)Surinam St. Tomé (Island) (l)Syria Togo Tonisia Ukraine Union of South Africa Union of Costet Socialist Republics United States of America Portuguese Timor

(18-9-6)

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Annex III to Document No. 82-E

(1) Uruguay Wake(Island) West Indies (Great Britain and United States) Yugoslavia

(1) Countries which have sent Forms 2 or which will have to furnish additional information.

International Administrative Aeronautical Radio Conference

GENEVA, 1948

Aer-Document No.83-E

4 June. 1948.

Committee 6

Sub-Committee B

REPORT

of Sub-Committee B of Committee 6

(1st Meeting)

CHAIRMAN : Mr. G. A. harvey Union or South Africa)

1 - The <u>Chairman</u> opened the meeting at 10:05 a.m. and announced the terms of reference as follows :

"To study the major aviation activity centers dispersed over the world and consider all available information on existing communication systems to meet existing air traffic control requirements and to derive a common formula, if possible, which can be used in the assessment of frequency requirements to meet I.C.A.O. regulations."

2 - The following delegations were represented :

Australia Poland · Canada Switzerland China United Kingdom United States of America Cuba Egypt: U.S. Territories France I.F.R.B. India I.C.A.O. Netherlands I.A.T.A. Netherlands East Indies

3 - The <u>Chairman</u> drew the attention of the Committee to Document PC-Aer-4, Annex 4 and Annex 5 to Document PC-19,

The delegate of <u>France</u> enquired as to whether or not I.C.A.O. had established any special regulations in respect of World Air Route Traffic Control as he had the impression that the only procedures so far developed related specifically to regional control. After some discussion, at the request of the Chairman, the representative of I.C.A.O. outlined in general terms the communication requirements of the A.T.C. services, and proceded further to describe the communication procedures which had to be observed by aircraft in flight and by ground stations in the international aeronautical mobile service. Mr. <u>Greven</u> advised that he had available for examination by the Delegates the following documents :

> U.I.T. GENEVE

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(Aer-Doc.No. 83-E)

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COM Division Reports 11 COT ñ

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ATC Regional documents concerning seven I.C.A.O. regions COM reports Procedures of regions, supplementary North Atlantic regional manual

The foregoing sources of information regarding the requirements of the A.T.C. services on a world wide basis were taken into consideration by the I.C.A.O. secretariat when PC-Doc. No. 4 was prepared.

5 - At the suggestion of the Chairman, an explanation of the A.T.C. procedures and communication organisation of the North Atlantic region was given by the delegate of Canada.

There followed some discussion regarding the number of frequencies required for the North Atlantic route under present conditions (12) and the necessity for aircraft to carry additional frequencies if they desired to proceed to points within Europe. The view was expressed by the delegate of the Netherlands that it would appear desirable that the eastern boundary of the region should be shifted a little further eastward so that the same frequencies could be used by the aircraft proceeding past Prestwick to Paris.

- 6 The delegate of the U.S.A. submitted that in connection with the North Atlantic region, it would be possible to determine the order and number of frequencies required for operations through the region and that these frequencies could be alloted then to the operations with the authority or administrations concerned free to determine which ground would serve any particular operation.
- 7 The delegate of Australia at the request of the Chairman gave a brief description of the communication organisation for the international routes traversing the continent of Australia and the delegate of the U.S.A. followed on with a brief statement of the position in the Eastern and Northern sections of the South Pacific Region. It was pointed out that the system had been extended through the Northern Pacific to Manila and was providing satisfactory service.
- 8- The delegate of Canada submitted that the Committee had now reached a stage where it was in unanimous agreement and suggested that it should now commence a study of the number of frequencies and order of frequencies required to serve the Major World Air Route Areas. This proposal was supported by the delegate of Cuba. The delegate of the Netherlands stated that he believed that this work would be outside the terms of reference of the sub-committee.

The Chairman ruled that this was so in that the Committee should concern itself with recommendations as to how the problem could be approached which, of course, could include a recommendation regarding . desirability of a further working group.

(Aer-Doc. No. 83-E)

- 9 The delegate of the <u>U.S.A.</u> suggested that the sub-Committee should report to Committee 6 that it had studied the A.T.C. procedures and information available and determined that the A.T.C. and/or I.C.A.O, requirements can be met if we provide frequency orders based on actual flight operations, i.e. route distance and loadings. This was supported by the delegate of <u>Australia</u> who expressed the view that Committee 6 would probably be able to establish a second working group for another task and thereby avoid further delay.
- 10 The delegate of <u>Canada</u> agreed with the foregoing proposal by the delegate of the U.S.A. and proposed that the sub-Committee recommend to Committee 6 that a working group be established immediately to undertake a study of the order of frequencies required to provide communication for the Major World Air Route Areas based on propagation data and protection ratio factors available and that the same group recommend the number of frequencies required in each order based on the flight information available. This proposal was supported by the delegates of <u>Cuba</u> and <u>China</u>.
- 11 The delegate of <u>U.S.A.</u> proposed that a small task force be established to prepare a recommendation for approval by sub-Committee 6B prior to submission to Committee 6 in order that the proposed terms of reference be adequately stated.
- 12 The two foregoing proposals (Paragraphs 10 and 11) were adopted unanimously. The delegates of the Netherlands, Cuba, U.S.A., France and I.A.T.A. were nominated by the Chairman to draft the recommendation which appears as Annex 1 to this report.
- 13 The <u>Chairman</u> stated that a further meeting of Working Group 6B would be held on Monday to discuss the draft recommendations, the time to be pointed on the board.

The Reporter :

The Chairman :

E. G. Betts

G. A. Harvey

Annex to Aer-Document No 83-E

9 June, 1948

The following test should be attached as page 1 to Annex 1 to Aer-Document No 83 - E :

To : Chairman, Committee 6 From : Chairman, Sub-Committee 6B

Please find attached the recommendations of Sub-Committee 6B which were passed unanimously.

G. A. Harvey. (Chairman, Sub-Committee 6B) UNION OF SOUTH AFRICA



INTERNATIONAL ADMINISTRATIVE AERONAUTICAL RADIO CONFERENCE Geneva 1948

Annex I to: Aer-Document No. 83-E. 8 June 1948.

COMMITTEE 6.

DRAFT RECOMMENDATION SUBMITTED BY WORKING GROUP 6-B

1. Working Group 6-B examined ICAO communications procedures and requirements and various methods of air traffic control now established or contemplated in certain areas of the world. It was unanimously agreed that any frequency allotment plan formulated by this Conference must satisfy these requirements and must be sufficiently flexible to meet the evolutionary development of air traffic control systems.

2. The Group recognized the necessity for considering the requirements of Major World Air Routes as distinct from purely Regional requirements because of the fact that the operational requirements for these routes indicate that any frequency allotment plan must make special provision for the long distance communications which have been found to be a distinctive feature of these operations.

3. A Major World Air Route is considered to be a long distance route, (made up of one or more segments) essentially international in character, requiring long distance communication facilities and extending through more than one country. A Major World Air Route may therefore be defined as the Area embracing a group of individual Major World Air Routes which generally follow the same traffic pattern, and so related geographically that the same frequency families may logically be applied.

WORKING GROUP 6-B THEREFORE RECOMMENDS THAT:

4. A Working Group 6-C be set up immediately to determine Major World Air Route Areas as defined in paragraph 3. The Flight Information Tables and associated map shall be used for this purpose. The definitions set up in paragraph 3 by Working Group 6-B should be reviewed in the light of experience gained by Working Group 6-C in carrying out their task, incorporating such modifications or changes as may be necessary for further processing by 6-A.

5. When this information has been compiled a further Working Group 6-D, should be set up which will;

5.1 - Use the propagation data available to determine the order of frequencies required to meet the communication requirements of the longest nonstop flight within each Major World Air Route Area.

> RCHIVES U.I.T. GENÈVE

(18 - 8 - 6)

- 5.2 Use the Flight Information Tables and formula adopted to determine the loading on each segment of the Major World Air Routes included in the Area, and the number of frequencies of each order required.
- 5.3 Utilize agreed protection ratios and propagation data to plan the repetition of frequencies between Major World Air Route Areas so as to ensure that aircraft traversing several Major World Air Route Areas may operate on a minimum number of frequencies.

6. 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.

7. It was agreed that the method of allocation outlined above will adequately meet the requirements of any of the air Traffic Control systems now in use or likely to be used.

(18 - 8 - 6)

International Administrative Aeronautical Radio Conference GENEVA, 1948

4 June, 1948

Committee 5

REPORT

of the Committee on Aircraft Operation Statistics

(Committee 5) 4th Meeting 4 June,1948

CHAIRMAN : Mr. Duncan (United Kingdom)

1 - The undermentioned delegations and organidations were represented :

Argentina	United Kingdom
Morocco and Tunisia	U. S. A.
New Zealand	U. S. Territories
Ukranian Soviet Socialist	U.S.S.R.
Republic	I.A.T.A.

- 2 The meeting considered the Report of Working Group A of Committee 5 (Aer-Doc-No, 44-E). In the absence of the French and Spanish texts, it was agreed to use the English version.
- 3 The <u>Chairman</u> observed that since the revised Flight Information Tables had been handed in for typing one or two delegations had furnished additional information. Although too late to be incorporated in the Tables, it could still be taken into consideration by Committee 6. It should also be mentioned that the data provided by delegations respecting non-scheduled flights was relatively limited and might not be of much assistance as a check on the figure of 33 1/3% originally proposed.
- 4 The Tables include no data regarding the services of the U.S.S.R., Bielorussia and the Ukrahian Soviet Socialist Republic. In this connection the following declaration was made by the Delegation of the U.S.S.R. :

"The <u>Soviet</u> delegation submitted its frequency requirements for OR and R services together in a single document which was handed to the Secretariat on 28th May. It should be noted that the requirements take into account all the needs on the basis of the protection ratio of 10 db for telegraphy and 20 db for telephony.

"The U.S.S.R. international flights have not been taken into account because they are relatively few in number compared with domestic flights, and besides, such international flights have probably been included by the countries which have airlines operating into the territory of the U.S.S.R.

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- 2 -(Aer-Doc. No. 84-E)

"So far as the domestic mileage per week is concerned, the Soviet Delegation has not submitted it for the reason that this factor provides no basis for the purpose of determining the real requirements in frequencies. The real requirements of the U.S.S.R. are calculated on the basis of many factors, including the mileage per week."

5 - The Committee agreed to adopt the Report of Working Group 5A (Aer-Doc. No. 44-E). Thanks were expressed to <u>Mr. Carnahan</u> and the members of the group for the task which they had performed.

The Reporter :

The Chairman :

M. Chef

W. A. Duncan

International Administrative Aeronautical Radio Conference GENEVA, 1948 Conférence administrative internationale des Radiocommunications aéronautiques GENEVE, 1948 Conferencia administrativa internacional de radiocomunicaciones aeronauticas GINEBRA, 1948

Aer-Document No. 55-E Aér-Document No. 85-F Documento Aer-No.85-S

	SCHEDULE	OF MEETINGS	;
	<u>Time :</u>	Room I :	Room II :
Monday, 7 June, 1948 :			· ·
	09:30	4	Spare
	14:30	6B: 6	7
	17:30		3
Tuesday, 8 June, 1948:		· · ·	-
	09:30	6	7
	14:30	L	2
Wednesday.9 June.1948:		· •	
	69:30	6	7
	14:30	4	Spare
			والمريد فيتبر منه معه ستم مريد

	HORAIRE DES SEANCES	
Heure	: <u>Salle I</u> :	Salle II :
Lundi, 7 juin, 1948 : 9 h.30	4	Libre
14 h.30	6B : 6	7
17 h.30		3
Mardi, 8 juin, 1948 :		
9 h.30	6	7
14 h.30	4	2
Mercredi,9 juin,1948 :		· · · · · · · · · · · · · · · · · · ·
9 h.30	6	7
14 h.30	4	Libre

PROGRAMA DE SESIONES

	<u>Hora</u> :	<u>Sala I</u> :	<u>Sala II</u> :
Lunes, 7 de junio			
de 1948 :	9 h.30	4	Disponible
	14 h.30	6B : 6	7
	17 h.30		3
Martes, 8 de junio	>	:	-
de 1948 :	9 h.30	6	7
	14 h.30	4	2
Miércoles. 9 de ju	unio	••• •••	· · · · · · · · · · · · · · · · · · ·
de 1948 :	9 h.30	6	7
•	14 h.30	4	Disponible
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International Administrative Aeronautical Radio Conference

Aer-Document No. 86 - E

G E N E V A, 1948

7 June, 1948 Committee 4

Report

of	the	Technical	and	Operational Co	ommittee
		•		(Committee 4)	
				16th Meeting	

4 June, 1948.

Chairman : Mr. O. J. Selis (Netherlands)

1.

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4.

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7.

The following delegations and organizations were represented :

Albania	Norway
Argentina	Pakistan
Australie	Poland
Bielorussian S.S.R.	Roumania
Canada	Switzerland
Chile	Union of South Africa
Cuba	Union of Soviet Socialist Republics
Denmark	United Kingdom
France	United States of America & Territories
French Protectorates	Yugoslavia
Netherlands	I.A.T.A.
Netherlands East Indies	I.C.A.O.
New Zoaland	I.F.R.B.

The roport of the 5th meeting, Aer-Document No 35, was considered with a view to adoption.

Mr. Gautier (United States), speaking as the reporter of the 5th . meeting, pointed out that the Secretariat had changed the lettering of the annexes from "A" and "B"to "B"&"C"respectively, presumably because the annexes to Aer-Document No 35 had been attached to earlier papers as "B" and "C".

Mr. Jouk (Bielorussian S.S.R.) expressed surprise that Annex B contained no reference to the proposal for channel separation made by his delegation. It was suggested that this omission could best be remedied by replacing Annex B to Aer-Document No 35 by Annex B to Aer-Document No 32, which contains the complete text.

5.

It was agreed that this should be done.

Mr. Falgarone (France), referring to Annex C, stated that he wished it recorded that he was not in agreement with the suggestion contained therein, namely, that "it might be possible for two or more Al channels to be derived from each of the channels provided under the plan."

Continuing, he said that had he fully appreciated the text of the resolution at the time it was moved, he would have voted against its adoption instead of abstaining as was the case.



- 2 -(Aer-Doc.No.86-E)

8. Page 2, last paragraph. Delete in toto and substitute the following : "The combined texts of Annexes B and C, the former being considered as a foreword to the latter, which contains the U.S.A. proposal, were put to the vote and adopted". 9. Subject to the foregoing modifications, Aer-Document No 35 was approved. 10. The report of the 11th maeting, Aer-Document No 61, was adopted subject to the following corrections : I) Page 1 (English text), line 17. After "Netherlands" add "East Indies". II)Page 3 (English test), last line. Delete "O.F.Selis" and substitute "O.J. Selis." III) Page 3 (French text), top paragraph. The conflicting wording of this paragraph to be taken up with the Socretariat. 11. The Chairman drew the attention of the meeting to Aer-Document No 65, submitted by the delegation from the Republic of Poland, which records the earlier verbal remarks of the Polish delegate with regard to the subject of minimum field intensity requirements for aircraft. 12. Further consideration was next given to the subject of the Protection Ratio. After Mr. Jouk had stated that his figures of 20 decibels, proposed at an earlier meeting, referred to reception both on board an aircraft and at the ground station, the Chairman proposed that all delegations present should inidividually state their preferred protection figures for (a) A3 simplex and (b) Al simplex. 13. The views expressed are given below:

	<u>A3</u>	<u>Al</u>
Albania,	20	10
Argentina	30	15
Australia	25-30	25-30
Bielorussian S.S.R	20	10
Canada	25-30	20
Chile	30	15
Cuba,	25-30	10-15
Czechoslovakia	20	10
Denmark	25-30	10-15
France	majority view	0 - 6
French Territories	majority view	majority view
Lceland	absent	20
Netherlands	25	15
Netherlands East	25-30	15
Indies		
New Zoaland	25-30	15
Norway	25-30	20
Pakistan	25	25
Poland	20	10
Roumania	20	10
Switzerland	30 -	majority view
United Kingdom	25-30	25-30

- 3 -(Aer-Doc.No.86-E)

-	<u>A3</u>		<u>A1</u>
Jnion of South Africa	30		15
J.S.S.R.	20		10
lugoslavia	20		10
E.C.A.O.	30		30
I.F.R.B.	25'.'	•	25
Г.А.Т.А.	301		30

14.

Mr. <u>White</u> (United States) then followed with a proposal which, he stated, seemed to strike a balance between the view expressed by all the delegations present.

15.

The United States proposal reads as follows : "Committee 4, considering the possibilities of duplication of frequencies in the World Air Route System, has assumed for this purpose that the aeronautical stations will have a radiated power of 1 kW.Mand that the aircraft stations will have a radiated power of 50 watts, and that a system of simplex communication will be employed. The committee also considered the curves embodied in PC-Aer-Document No 5 as well as the curves in Aer-Document No 29. It is recommended that when using the curves in PC.Aer-Document No 5, as amended, and in Aer-Document No 29 in considering the possibilities of duplication of the use of frequencies, a figure of not less than 25 decibels, but preferably 30 decibels, be used. This figure to apply to the reception conditions aboard an aircraft, at the maximum service range, when endeavouring to receive a station with interference from another station on the same frequency.

If as a result of the use of the recommended system of channel separation a channel is produced suitable for Al emission only, a figure of 20 decibels may be used as applied to such a channel alone.

It is futher recommended that in the interest of suppression of adjacent channel interference, plans should ensure that there will be no necessity for the use of adjacent channels by aircraft stations using the same airspace, or by aeronautical stations serving such aircraft."

In closing the meeting the <u>Chairman</u> stated that the United States proposal would be considered at the next meeting of Committee 4.

The Reporter :

H.A.Rowland .

The Chairman : 0.J. Selis.

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

Aer-Document No. 87 - E

7 June, 1948

Committee I

REPORT OF THE STEERING COMMITTEE (Committee I)

6th Meeting 4 June, 1948, at 5.30 p.m.

CHAIRMAN : Mr. A. LEBEL (Chairman of the Conference)

Present : Mr. VERES (Committee 2), Miss Florence TRAIL (Committee 2) Mr. FALGARONE (Committee 3), Mr. SELIS(Committee 4), Mr. DUNCAN (Committee 5), Mr. BETTS (Committee 6), Mr. FRY (Committee 7), and : Mr. ACTON (Canada), Mr. FURZE (Australia), Mr. HARVEY (Union of South Africa), Mr. TABIO (Cuba).

1.

REPORTS OF PREVIOUS MEETINGS (AER-DOCUMENTS Nos 51, 52 and 60)

The following amendments were adopted : in Aer-Document No. 51, read "Mr.VERES" instead of "Mr. Souto CRUZ", and in Aer-Document No 52, read "Mr. FURZE" instead of "Mr. RAFUSE."

Aer-Documents Nos 51, 52 and 60, thus amended, were adopted.

2. TRANSLATION OF DOCUMENTS

In order to avoid overloading the translation service with work at the end of the Conference, <u>it was agreed that draft copies of final</u> <u>documents should be given to the Secretariat in good time. accompanied</u> by a suitable indication of their status.

3. SCHEDULE OF MEETINGS

The Committee drew up a schedule of meetings for Monday, 7 June, Tuesday, 3 June, and Wednesday, 9 June, 1948.

The meeting rose at 6.30 p.m.

Reporter : N. Langford

Chairman : A. Lebel

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INTERNATIONAL ADMINISTRATIVE AERONAUTICAL RADIO CONFERENCE GENEVA, 1948

Aer-Document Nº 88-E

U.I.T.

GENÈN

7 June,1948 Committee 7

REPORT

OF THE COMMITTEE ON THE ALLOTMENT OF OR FREQUENCIES (Committee 7)

12th Meeting

4 June, 1948

1.

The Chairman, Mr. A. Fry (UK), opened the meeting at 10:00.Delegates from the following countries were present:

ArgentinaNew ZealandAustraliaPakistanCanadaPortugalChileUnited KingdomFranceUkrainian SSRFrench Overseas TerritoriesU.S.S.R.Honduras (Republic of)U.S.A.

2. Aer-Document 53 was accepted unanimously as an accurate record of the seventh meeting of committee 7 on the understands ing that in par.3, the phrase : "Will require a proposition of...." is to be amended to read: "Will require a proportion of...."

3. The "Statement by the Soviet Delegation" made at the close of the 11th meeting of committee 7 was read again by the chairman.

4. The delegate of the <u>U.S.A.</u> stated that the U.S.S.R. proposal (Aer-Document 19, par.3) had been considered carefully and objectively, and that it had been given as much if not more study than any other proposals considered by committee 7 to date.

5. The delegate of <u>Australia</u> associated himself with the remarks of the delegate of the U.S.A.

6. The delegate of <u>France</u> concurred in the remarks of the delegate of the U.S.A.

7. The delegate of the <u>Ukrainian S.S.R.stated</u> that despite the above statements he was not convinced, as he considered the arguments advanced against the Soviet proposal were poor and abstract. He further stated we should have had committee 4 decisions on the technical questions asked by the Soviet delegation at the begining of our 11th meeting before finally considering the U.S.S.R. proposal contained in Aer-Document 19, par.3. (Aer-N° 88-E)

The Chairman after ensuring that no other delegates 8. wished to speak at this time on the subject, then directed attention to the report of Working Group 1 of committee 7.

The delegate of the U.S.A. referred to the relevant . 9. statements he had made during our llth meeting. He emphasised that unless a nation had submitted sufficient technical data regarding its requirements the committee 7 assumptions, which would of necessity be made when assessing such countries requirements, may not be as correct as the assessments would be if all the necessary data were available.

The delegate of the U.S.S.R.stated that his country had 10. rejected form 2 as being unsatisfactory if we are to achieve ; good results. The preparatory committee found it necessary to ask for additional information over that called for on form 2 in their telegram dated 2 May, Also form 2 does not provide for a means of assessing the loading capacity of a channel. The U.S.S.R., Bielorussian S.S.R. and Ukrainian S.S.R. had assessed their (R) and (OR) requirements and submitted their assessments to the conference. Their requirements had been determined on a basis of 10 db for Al and 20 db for A3 protection ratios. He stated that he could not see any reason for submitting additional data as up to the present it is not clear what additional data is required.

11. The delegate of the U.S.A. in reply stated that :

- a) There was no mandatory rule that a country must submit its requirements on form 2, merely that essentially the same type of information as called for on form 2 must be supplied,
- b) Not only is the matter of loading capacity applicable only to (R) requirements at present, but it has no bearing on the submission of requirements.
- c) While it is appreciated that the U.S.S.R. has assessed its requirements on rigid standards of protection ratios, this fact does not help in our present problem.
- d) Since we have not received any indication that addi-tional data will be submitted it is reasonable to assume that we will not obtain any more.
- •) Uncertainty as to the type of information required is not understood as this is set forth in :

(i)	Aer-Document	22
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PC-Aer Document 25 Final Acts of the International Telecommunications and Radio Conferences, Atlantic City, 1947.

-3 -(Aer-N°88-E)

f) Committee 7 must come to a decision on this matter. All delegates have been given ample opportunity to become aware of the types of basic information required to permit our work to go on. The USA delegate stated that for the above reasons he wished to submit a resolution. The resolution is contained at Appendix I to this document.

12. The delegate of <u>Australia</u> seconded the resolution and observed that paras 1 and 2 of the resolution were statements of fact, and that paras 3 and 4 concern data necessary to reach the goal of our conference.

13. The delegate of the <u>Ukrainian SSR</u>, stated that the UBSR. submission of its (OR) requirements was based on the principles contained in their proposal (Aer-Document 19). Each country does as it wishes with its frequencies. He then asked the U.S.A. delegate on what basis frequencies would be distributed if we assess requirements on the basis of form 2.

14. The delegate of the U.S.A. stated that we are dealing with requirements submitted in accordance with decisions already agreed upon, and to which the majority of nations have conformed. The use of any other type of submission is the decision of the minority, which under such circumstances cannot get consideration without giving the same information as the majority of nations. We must make the maximum use of the possibilities of duplicating frequencies. We cannot do this unless certain essential technical data is available to us. While it is recognized that each country has the right to use any frequency within its borders as it desires, this right must not be exercised in a manner which will cause harmful interference to the services of other nations. Our committee has already stipulated that our plan, based on the assessment of requirements stated on forms 2 (or similar data) must not be so rigid that a country cannot adjust its frequencies within reasonable limits within its borders.

15. The delegate of the <u>U.S.S.R</u>. asked if the acceptance of the U.S.A. resolution would result in the automatic rejection of the U.S.S.R. requirements, as of the five points outlined in par. 4 (a) of the resolution, at least two were not covered in the U.S.S.R. submission of its requirements.

16. The <u>Chairman</u> stated that the adoption of the resolution would mean that any country which, in the submission of its requirements, had not given the minimum data specified in the five points under par. 4 (a) of the resolution would not have its requirements considered.

(3-8-6)

__4__ (Aer-N°88-E)

17. The delegate of the <u>U.S.A.</u>stated that the Chairman had interpreted his resolution correctly.

18. The delegate of the <u>U.S.S.R.</u> again asked if this meant that the U.S.S.R. requirements would not be examined if the resolution is adopted.

19. The Chairman advised the U.S.S.R. delegate that considering the status of the U.S.S.R (OR) requirements submission now before the conference they would not be examined if the resolution was adopted.

20. The delegate of <u>Australia</u> stated that the resolution could be decided upon if we asked ourselves the following question, "Are we to engineer the frequency list we are to prepare"? He then reforred to The Final Acts of the Inter-. national Telecommunication and Radio Conferences, Atlantic City, 1947 as follows:

- a) After quoting the "Preamble " contained on page 1 of the International Telecommunication Convention, he observed that while every country may do as it wishes with regard to telecommunications matters, that to get the most out of the one radio spectrum we have, all governments must reach agreement on the method of its use.
- b) After quoting Article 20 contained on page 20 of the Convention he observed that the international frequency list we are to prepare for the aeronautical mobile (OR) service is being prepared so that we can make the most use of the radio bands available to us and at the same time prevent harmful interference.
- c) After quoting par.(f) contained on page 14 of the "Resolution Relating to the Preparation of the New International Frequency List" he observed that the list we are to prepare must be based on sound engineering principles.
- d) He then stated that the signatures of the delegates and plenipotentiaries of the Bielorussian S.S.R., Ukrainian S.S.R. and U.S.S.R. were to be found for both the Convention and the Radio Regulations.

He concluded by stating that delegates and plenipotentiaries of his government also had signed the Convention and Radio Regulations and that his government was doing its very best to conform to the principles and regulations they had signed. So far Australia had submitted all information called for under these agreements and such additional data as had been (3-8-6) requested from time to time. = 5 -(Aer-N°88-E)

21. The delegate of <u>France</u> proposed two amendments to the resolution presented by the U.S.A. The text of these amendments is to be found at Annex I to this document.

22. The delegate of the \underline{U} .S.A. and the delegate of Australia seconded these amendments.

23. The delegate of <u>France</u> stated that the figures proposed in his amendments were tentative only and he was prepared to amend these if logical reasons for such changes were advanced.

24. The delegate of the <u>U.S.S.R.</u> stated that his requirements submissions conformed with three of the five points called for in the U.S.A. resolution. With regard to the two missing types of data he pointed out:

- a) Item iii (hours of operation). The hours of operation of U.S.S.R. stations vary considerably, so much so that it is impossible to specify them exactly.
- b) Item iv (Power delivered to antenna), while this information was not shown the U.S.S.R. had already advised the committee that 10 db for telegraphy and 20 db for telephony protection ratios had been used.
- c) Harmful interference is reciprocal. To meduce such possibilities the Soviet proposal contained in Aer-Document had been prepared. He stated this proposal covered all these problems.

He concluded by stating that the U.S.S.R. had no intention of submitting any additional information.

25. <u>The Chairman</u> observed that the figures for protection ratios were a separate problem and were being considered by committee 4.

26. <u>The Chairman</u> stated that no attempt to reach a decision on the U.S.A. resolution would be made until our next meeting. Written texts of this resolution and the accepted amendments will be placed in the committee members boxes before 17:00 today.

The Chairman adjourned the meeting at 12:50

The Reporter:

The Chairman: A.Fry.

B.B.Rafuse

-6 -(Aer-88-E)

APPENDIX I

PROPOSAL OF THE U.S.A. AS AMENDED BY NOTES 1 AND 2

OF THE FRENCH DELEGATION

WHEREAS

- 1 The resolution of the Atlantic City Radio Conference providing for the making of a new International Frequency List directed that this list should be based on engineering principles.
- 2 And whereas in conformity with this directive the said conference directed that the bureau of the International Telecommunications Union assemble a list of fixed service requirements on Form 1 and of mobile service requirements on Form 2, the information called for on these forms being that considered by the said conference to be necessary to enable such frequency list to be prepared on an engineering basis.
- 3 Then Committee 7 of the International Administrative Radio Aeronautical Conference recognises that, in respect of the Aeronautical Mobile (OR) requirements, whilst it is desirable to have all the information called for in Form 2 to enable it to satisfy such requirements, nevertheless it is possible for the said committee to proceed with its task of making frequency assignments in the aeronautical mobile (OR) bands without some of the details contained therein, but there remains a limit below which the amount of information required may not be allow wed to fall, without the engineering basis of the satisfying of such requirements suffering in consequence.
- 4 Therefore Committee 7 resolves that :
 - (a) In considering the plan of assignment of frequencies in the aeronautical mobile (OR) service, it should only take account of those requirements for which the following minimum information has been supplied by the country concerned :
 - (I) The general location of the ground transmitter (Note 1).
 - (II) The type of emission.
 - (III) Hours of operation (G.M.T.).
 - (IV) Power delivered to antenna (Kw.).
 - (V) Order of frequencies desired (Mc.,



(19 - 8 - 6)
(b) In conformity with the decision of Committee 7 at its second meeting on 20th May, Committee 7 shall only consider those requirements which have been received by 30th May 1948 and which contain the information required in (a) above. (Note 2).

(19 - 8 - 6)

ADDITION OF NOTES 1 AND 2 TO THE RESOLUTION SUBMITTED

8 -

BY THE UNITED KINGDOM DELEGATION AT THE MEETING

OF 4 JUNE. 1948.

In view of the fact that each country may dispose of frequencies within its own territory as it wishes, providing always that it does not cause interference to the services of neighbouring countries, the data relative to emissions may be limited when these emissions have.

1 - world wide range, 2 - a shorter range.

but are situated close to frontiers and cause interference within neighbouring countries.

Hence, the French delegation requests that paragraph 4a be amended so that the site of the transmitter shall be indicated only with a degree of accuracy compatible with the above.

(19-8-6)

Note 1 -

- a) For frequencies less than 6 mc/s, used in daylight, give the range of the transmitter to the nearest 50 kms. in the frontier zone of each country, and to the nearest 300 kms. outside this zone.
- b) For frequencies above 6 mc/s, used both by day and night, give the position of the transmitter to the nearest 100 km/s in the frontier zone of each country, and to the nearest 600 kms. outside this zone.

For frequencies below 6 mc/s, used by night, give the information indicated above in paragraph b).

Note 2 -

(19-8-6)

The requests of countries which have been submittedby the 30 May, but do not give the information indicated in paragraph 4a, will be considered on the same footing as those of countries which have provided full information by that date, if this information arrives before the 7 June, 1948. International Administrative Aeronautical Radio Conference G E N E V A, 1948 Aer-Document No. 89 - E

9 June, 1948

Committee 6

Report

of	the	Committee	on	the	Allotment	of	R	frequencies
	(Committee 6)							
					th Meeting	· .		

7 June,1948

Chairman: Mr. E. G. Betts (Australia)

The meeting opened at 4.45 p.m., the undermentioned delegations and organizations being represented :

Albania	Netherlands
Argentina	New Zealand
Australia	Poland
Bielorussian S.S.R.	Switzerland
Cuba	Union of South Africa
Denmark	United Kingdom
France	United States of America
French Protectorates	and Territories
of Morocco and Tunisia	Yugoslavia
Iceland	I.A.T.A.
India	I.C.A.O.
Treland	T.F.R.B.

2.

3.

4,

5.

6.

1.

The <u>Chairman</u> stated that discussion on Aer-Documents Nos 74 - E and 78 - E would be deferred until the French and Spanish texts were available.

The Chairman stated that Working Group No. 6 B had now completed its task and the draft recommendation of this Group would be attached as Annex No.1 to Aer-Doc. No. 83 - E. This annex would not be discussed however until it was available in all three languages.

The <u>Chairman</u> then royared the progress of Committee No. 6 to date and stated that he first wished to ascertain which method of approach was to be adopted and then form working groups to, carry out the various tasks ahead.

The delegate for <u>France</u> pointed out that there were a number of principles to be finalised before any plan could be developed and in his opinion this meeting should be devoted to a consideration of the various proposals already submitted.

The <u>Chairman</u> then gave a brief outline of the various concepts before the Committee namely the one contained in the Final Report of the Preparatory Committee, the Bielorussian proposal and the French proposal.



Е

-- 2 --(Aer-Doc.No. 89-E)

The delegate for <u>France</u> stated that the first question which the Committee had to decide was how the bands were to be used for A3 and A1 working. At present Committee No. 4 had adopted protection ratios for A3 only. If part of the bands were reserved for A1 working then the protection ratio adopted would no longer apply. If a repetition of frequencies employing A1 emission is carried out based on data applicable to A3 emission then a wastage in the repetition possibilities of a number of channels will result. The Conference should therefore take into consideration the existing frequencies for A1 in certain regions and examine the possibilities of repeating frequencies in these regions on this basis. The situation could be reviewed when high capacity means of communication is available.

The <u>Chairman</u> pointed out that none of the work done by Committee No 4 would prevent the plan put forward by the delegate for France from being adopted, but the Committee must now determine how they would proceed.

The delegate for <u>France</u> suggested that a working group be formed to study the possibilities of formulating a compromise draft plan of the various schemes put forward. He undertook to submit a proposal at the next meeting of the Committee dealing with the formation of a working group to study this question.

The <u>Chairman</u> stated that in view of the large amount of time which had already been devoted to explanation of the various plans he hoped that only a brief discussion would be necessary on each plan in future.

The meeting adjourned at 5.30 p.m.

The Reporter : J.G. Adam

The Chairman : E.G.Betts

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9.

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10.

11.

International Administrative Aeronautical Radio Conference

Aer-Document NO. 90-E

10 June. 1948

GENEVA, 1948

Committee 7

REPORT

of the Committee for Allotment of "OR" Frequencies

(Committee 7) 14th Meeting & June, 1948.

1 - The <u>Chairman</u>, Mr. <u>A. Fry</u> (United Kingdom) opened the meeting at 9.30 a.m. The delegates of the following countries were present :

> Argentina Australia Canada France Hondúras (Republic of) India New Zealand

Portugal Sweden Ukrainian Soviet Socialist Republic Union of Soviet Socialist Republics United Kingdom United States of America

2 - Aer-Document No.68, the Minutes of the 9th meeting of Committee 7 were approved with a minor amendment to be made in the statement of the French delegate on page 1. Amended text should read :

"in the aeronautical mobile services "OR", instead of : "in the aeronautical mobile services."

3 - The delegate of Australia then outlined on the blackboard the general principle of frequency allocation in the "OR band which he submitted for consideration to the members of Committee 7. This outline should serve the purpose of clarifying the explanations on this question given at the end of the preceding meeting.

Table A	10 (a) Simple in the same Distance , wh	3]	Mc/s Ban	<u>d</u>	1992 - 1995 - 1995 - 1995 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 -				
Protostion	The second s	Power of emission							
ratio	: 50w.	100w.	: 300w.	500w.	: l kw.	2.1/2kw: 5 kw.			
30 decibels					2000				
27 decibels	:	: : :		: ;	1700	:			
25 decibels	:	: :		· · · ·	1500	:			

By using the square pattern method, it was possible to determine roughly how many times a given frequency could be used throughout the world, for a given power of emission and a given protection ratio, and whether or not frequency requirements in a given band could be satisfied. The technical data of Committee 4 might be set forth as in Table A. This Table gave propagation distances in terms of powers of emission and of protection ratios desired. The figures were given purely as an example. Square patterns might then be drawn on transparent material corresponding to the various ranges and each powers. It might be supposed, for instance, that in the 3 Mc/s frequency band there were 1000 requests for a uniform power of 1 kW and that Committee 4 had established 25 possible channels in that band.

The use of grids on an appropriate map would show that the same frequency might be repeated 20 times thr ughout the world, being a protection ratio of 30 decibels; 30 times if the protection ratio envisaged is only 27 db, 40 times if the ratio is reduced to 25 db.

This would mean that 500 requests might be satisfied in the first case. 750 in the second, an 1000 in the third. This did not mean, of course, that the protection ratio to be used should be calculated according to the number of requests but the first phase of this method might clarify matters considerably and lead to a clearer submission of demands according to their order of importance.

The duplication distance of a particular frequency, for a given power output, might now be more closely considered. This duplication distance (RD) equals the service range (SR) plus the interforence range (IR).

RD = SR + IR

3 Mc/: Band

Table B

In accordance with the data of Committee 4, SR and IR ranges could easily be summarized in a Table B similar to the preceding Table. A given protection ratio would, " course, be allowed for.

Table B		<u>3 Mc/</u>	Bond	alanter and the set of	Protectio	n ratio, 30	<u>db.</u>	
Range	ан Сан Сан Сан Сан Сан Сан Сан Сан Сан С			Power	Power of emission			
•	: 50w.	: 100w.	: 301 w.	500w.	: 1 kw.	: 2.1/2kw.	5 kw	
of interfer- ence (IR)	: 400	: 800	1000	: : 1200	: 1700	2300	4000	
of service (SR)	: ; 350	: : 500 :	700	: 800	: 1200	1400	2000	

Drawing these circles on transparent material and by placing the transparent material on an appropriate world map, it was possible to determine with even greater accuracy the areas in which a particular frequency might be used, even supposing different y or outputs to be involved, if a given transmitting station were considered.

In brief, the transparent grids would give a rough idea of the number of times a given frequency could be duplicated (for the same power). The use of great circles with transparent material would give a greater degree of accuracy.

It should be understood that these two points were outlined only very broadly, in order to outline procedure proposed by the delegate of Australia. The delegate of Australia was well aware of the fact that the grids could be formed by assembling quadrilaterals of any kind and the transparoncy of great circles by closed elliptics or other curves, because many factors had to be considered in practice. Also, the preparation of transparencies would depend on the technical data submitted by Committee 4 and on the form in which they would be presented.

- 2 -(Aur-Doc. No.90-E)

4 - The delegate of India pointed out that the use of transparency might lead to some duplication areas falling outside the land masses and suggested another use of great circle transparency. Referring to the example given of the 25 channels possible in the 3 Mc/s band and letting

the	first channel equal	Х
the	second channel	X + 1
the	third channel	X + 2
and	the twenty fifth	X + 24

it would be sounder to start from a given station using the frequency X, in order to determine the stations which might use the frequencies X + 1. then $X \div 2$, then $X \div 3$, etc.

Therefore, he would use only the charts of the circular system. He further requested that the factors of service range and interference range to be considered should be those which would give the system greater security, in other words, the shortest service range and the longest interference range.

As this new proposal for the use of great circles did not solve the problem of duplication of frequencies, it became clear that a more thorough exchange of views was necessary. This discussion (as proposed by the delegate of India) should take place outside the Committee between the delegates of India and Australia, with the delegate of France joining the debate,

It was so ruled by the Chairman who then wished to know whether the princi-'ple of the duplication of frequencies "OR" outlined by the delegate of Australia was generally acceptable.

5 - The delegate of Australia emphasized that Europe was the region of the world where requirements seemed to be most concentrated and proposed that this method be applied in the first place to that area. The United States delegate acknowledged the merits of this proposal, but pointed out that other areas must be treated in the same manner, since the duplication of certain frequencies is such as to affect all countries of the world in view of their propagation.

The Chairman stated that all areas would be treated in the same manner and that there was no question of priority in the Australian proposal which, furthermore was of a very comprehensive nature.

6 - The principle of the allocation of frequencies "OR" submitted by the delegate of Australia was supported by the delegates of New-Zealand, Portugal and the United States of America.

The delegate of the U.S.S.R., on the other hand, expressed the wish to study more thoroughly the draft under consideration and stated that he could not give his opinion on this question at the present time. He therefore asked to reserve his reply until the next meeting. The United States delegate agreed in principle; other zones, however, should be dealt with in the same way; the more so as the multiple duplication of certain frequencies, in view of their propagation characteristics, was liable to have an effect throughout the world.

(Aer-Doc.No.90-E)

The delogate of the <u>United States of America</u> proposed to set up a working group which would be in a better position to define in detail the Australian proposal by studying the technical data. This proposal was favourably received by the whole committee. The <u>Chairman</u> emphasized that any other method which might hereafter be recommended by any other delegation would be considered in an equally objective way.

- 7 On the Chairman's suggestion :
 - a) the working group in question was called working group No. 2 of Committee 7.
 - b) It would comprise all delegates, members of Committee 7 who wished to take part in its work.
 - c) Col. <u>C. W. Janes</u> of the <u>U.S.</u> delegation was appointed Chairman of the working group.
 - d) Following the proposal of the delegate of the <u>U.S.A.</u>, its terms of reference were as follows :
 - 1 A thorough examination of all methods of frequency allocation in the "OR" bands taking into consideration all relevant technical data submitted by Committee 4 or obtained from any other sources.
 - 2 Application of the essential principle regarding the economy of frequencies.
 - 3 Determination of the material means (charts, grids, etc.) to be put at the disposal of Committee 7 for the implementation of the soundest method of frequency allocation.

It was agreed that this work should be started as soon as possible and be carried out in the shortest possible time.

The meeting adjourned at 12.45 p.m.

The Reporter :

The Chairman :

Commandant G. Sarre

A. Fry

International Administrative Aeronautical Radio Conference

GENEVA, 1948

Aer-Document No. 91-E

9 June, 1948

Committee 4

REPORT

of the Technical and Operational Committee

(Committee 4) 18th Meeting 8 June, 1948

CHAIRMAN : Mr. O. J. Selis (Netherlands)

The following were represented :

Albania Argentine Australia Bielorussia Canada Chile China Cuba Denmark France Ireland Netherlands New Zealand Pakistan Poland Roumania Switzerland U.S.S.R. Union of South Africa U.S.A. and Territories United Kingdom Yugoslavia I.A.T.A.

1 - The report of the 12th Meeting (Doc.No.70) was approved with the following changes :

Add the name of Mr. E. Tabio, Cuba, to the list of those present.

Page 3 - Under (a) change "sensibility" to "consitivity". Under (c) change "keying" to "transmission".

Page 4 - The first column of the table should be headed "satisfactory reception" instead of "intelligibility".

The last note on the table should read : The ratio 4/1 corresponds to 12 db.

- 2 It was decided to postpone consideration of the Minutes of the 13th Meeting (Doc.No.76) until the next Meeting.
- 3 The resolution submitted by the delegate of the United States concerning the factors to be considered in the duplication of the use of frequencies was discussed. An amendment to this resolution submitted by the delegate from the Union of South Africa was approved.
- 4 The Soviet delegation stated that :

- 2 -(A_r-Doc.No.91-E)

"For reasons mentioned in our statement at the meeting of Counittee 4 on June 7th 1948, which is to be included in the minutes of the meeting, the Soviet Delegation expresses its disagreement with the adopted resolution as proposed by the U.S.A. Delegation and reserves its opinion on this question for the future."

5 - The delegate from Yugoslavia stated that :

"A protection ratio of 30 db. for A3 emissions and one of 20 db. for A1 emissions would reduce the possibilities of duplicating frequencies. This would lead to a frequency allotment plan which could not possibly satisfy the requirements of all services and of all countries. Hence the Yugoslav delegation will vote against the resolution proposed by the United States and reserves its attitude towards the problems involved."

6 - The resolution, in the following text, was approved by a vote of :

for	against	abstentions
14	7	5

Committee 4 in considering the possibilities of duplication of frequencies has assumed for this purpose that aeronautical stations will have a radiated power of 1000 watts and that aircraft stations will have a radiated power of 50 watts, and that a system of simplex communication will be employed. The committee also considered the curves embodied in PC Aer-Doc. 5 as well as the curves in Aer-Doc.29.

It is recommended that, when using the curves in PC Aer-Doc.5, as amended, and in Aer-Doc. 29, in considering the possibilities of duplication of the use of frequencies for all types of emission, except in the special case mentioned in the next paragraph, a figure of 30 db. to be used initially and this to be downgraded as far as 25 db. in individual cases if this will achieve an increase in the reputition factor in such cases.

This figure is to apply to the reception conditions aboard an aircraft at the maximum service range when endeavoring to receive a particular ground station with interference from another ground station on the same frequency. In view of the disparity of power between the aircraft and ground stations, this figure will result in a protection ratio of the order of 12 and 17 db. at the ground station when receiving the aircraft through the interference of the other ground station.

If as a result of the use of the recommended system of channel separation, one or more channels are produced suitable for Al emission only, a figure of 20 db. is to be used initially and this to be downgraded as far as 15 db. in individual cases if this will achieve an increase in the repetition factor. This ratio to be used for these channels above. In view of the disparity of power between the aircraft and ground station, this figure will result in a protection ratio of the order of 2 and 7 decibels at the ground station when receiving the aircraft through the interference of the other ground station, - 3 -(A_er-Doc.No.91-E)

- 7 The question of adjacent channel protection was discussed and an explanation of Figure 19 of Document PC No. 5 was given by the United States delegation. It was stated that this figure was based on a protection ratio of 42 db. and that it should be revised to agree with the ratios of 25 and 30 db. The explanation of Figure 19 given in paragraph 23 of Doc. PC No. 5 was discussed.
- 8 The U.S. Delegation agreed to supply revised text of the explanation of Fog. 19 within two days and two revised charts by next Monday if possible.

The Reporter :

The Chairman :

D. Mitchell

0. J. Selis

International Administrative Aeronautical Radio Conference GENEVA, 1948

Aer-Document N⁰92-E. 9 June, 1948

REPORT OF THE AD HOC WORKING GROUP

(Reference : Aer-Document Nos. 9 and 49)

Chairman : Mr. P. T. Greven (I.C. A. O.)

- Members : Mr. Tabio (Cuba, Mr. Searle (New Zealand), Mr. Svenningsen (Denmark), Mr. Acton (Canada), Mr. Falgarone (France), Mr. Petit (I.F. R. B.), Mr. Voutay (I.T. U.), Mr. Entwhistle (I.C. A. O.).
- I. The Ad Hoc Working Group has carefully studied the communication received by the Chairman of the Aeronautical Conference, from the Secretary General, dated 26 April 1948, contained in Aer-Document N^o9, and Aer-Document N^o49, submitted by the Canadian Delegation.
- 2. After taking into account the Final Acts of the International Telecommunication and Radio Conferences, Atlantic City, 1947, and other factors, the Working Group recommends that the Aeronautical Radio Conference make the following recommendationsregarding the communication received from the Secretary General :
 - 2.1.- In considering <u>publication</u> of the List of Aeronautical and Aircraft Stations, it is recommended :
 - (a) That the 19th Edition of this List be withheld until February 1949, and that the attention of Administrations be directed to the necessity for supplying the Secretary General with accurate data for inclusich in that edition. In case of the section listing Aircraft Stations, only those aircraft making international flights are to be included.
 - (b) That the 20th Edition of this List should not be published until the draft new Frequency List, containing the Aeronautical Mobile Service Frequency Allotment plan, has been approved by the Special Administrative Radio Conference, to be called for that purpose. Furthermore, this edition should list only the frequencies available for use by the Aeronautical Mobile Service Stations in the new frequency list and this should be indicated on the cover.
 - 2.3.- In considering the publication of the Map of Land Stations open to public correspondence with Aircraft Stations, it is recommended ;
 - (a) That this map should be published in accordance with the Radio Regulations, Atlantic City, 1947, and should contain all Land Stations providing an international public correspondence service to aircraft only.



(19 - 9 - 6)

- (b) That the Secretary General use his discretion regarding the areas, scale, projection, etc., bearing inmind that this map will be utilized solely for identifying the location of such land stations.
- 2.3 Publication of the Map of Radionavigation Land Stations, as regerds the aeronautical service, presents a problem of a changing character. Aeronautical radio matigation aids undergo constant revision in meeting the expansion and changing needs of aviation on a global basis. Catering for this requirement involves the establishment of extensive cartographic services, supported by a rapid means of revision to keep abreast of new developments and installations. Such an undertaking would invalue heavy expenditure of funds already being incurred by many states. A specialized agency under the United Nations Organization, The International Civil Aviation Organization (I.C.A.O.), through its member States, has established standards for charts and maps, which contain all pertinent information on aeronautical radionavigation stations. These charts and maps undergo constant revision through an accepted I.C.A.O. procedure; namely-Notice to Airmen (NOTAM) messages to all interested ope-rating agencies. However, it is necessary to draw attention to the fact that whereas, under the Atlantic City-Regulations, each ITO member state automatically receives data respecting the location of radionavigation land stations, all member states of ITU are not member states of I.C.A.O. It would therefore be necessary for states. non-members of I.C.A.O., to make individual arrangements .with I.C.A.O. to obtain such charts and maps.

The Ad Hoc Group therefore,

Considering,

- (a) That the "Recommendations of the United Nations", contained in Annex 5, Article IV, Paragraph 1, to the International Telecommunication Convention, 1947, stress the need for the coordination of policies and activities of specialized agencies.
- (b) That the United Nations specialized agency "International Civil Aviation Organization" (I.C.A.O.) has arranged for the publication of charts with complete information of aeronautical radionavigation aids provided on the world air routes.
- (c) That the publication of such a map in so far as the aeronautical mobile service is concerned, would be a duplication of a service now being provided by recognized International Organizations.

(19 - 9 - 6)

Recomminds,

That, as regards the aeronautical service, the Aeronautical Radio Conference recommend to the Administrative Council (third session) that the Secretary General be instructed to exclude Aeronautical Radionavigation Land Stations in the "Map of Radionavigation Land Stations", referred to in Chapter VIII, Article 20, Item 464, of the Radio Regulations, Atlantic City, 1947,

Observation.

That in making this recommendation the Aeronautical Radio Conference appreciates that, if adopted, this will involve an irregularity of the Radio Regulations, Atlantic City, 1947. However, it considers that this is a special case, involving an agreement between the United Nations and the International Telecommunications Union.

The Chairman :

P.T.Greven

(19 - 9 - 6)

International Administrative Aeronautical Radio Conference

GENEVA, 1948

Aer-Document No. 93-E

9 June, 1948

Committee 2

REPORT

of the Credentials Committee

1 - The meeting was opened at 2.30 p.m. by the Chairman, Mr. Veres (Portugal). The following Delegations were represented :

> French Protectorates of Morocco and Tunisia Portugal United Kingdom United States U. S. Territories

2 - The Chairman stated the agenda of the meeting as follows :

- a) Study of the type of credentials necessary for signing the Final Act. as raised by the Third Plenary Session (Aer-Doc.No.80-E,par.9).
- b) Unsettled cases
- c) Additional credentials.
- d) Amendments to the reports of the Committee (Docs. 41 and 63) as approved by the Third Plenary Session. (Doc. Aer-No. 80, par. 10)
- 3 The Committee discussed its first item of agenda and agreed to submit the following opinion to the next Plenary Session :

"Committee 2 having studied the following question raised by the Third Plenary Assembly as recorded in paragraph 9 of Aer-doc.No. 80 :

"It was agreed that Committee 2 should consider the question of the type of credentials necessary for signing the Final Act."

reached the conclusion that the adequacy of the credentials of the delegates to this Conference to sign the Final Act of the Conference must depend upon the extent of the obligation entailed for the interested governments by the signature of their delegates.

In this connection, Committee 2 is of the opinion that the credentials of the said delegates are adequate to sign the said Final Act, on condition that the Plenary Assembly agree to the following statement;

"The signature of the Final Act of this Conference by the delegates to the said Conference means that the signing delegates acknowledge that the Final Act is authentic and that, as delegates, they concur with the conclusions contained therein." -2 - (Aer-Doc.No.93-E)

- 4 In connection with paragraph 3 above, the Committee considered the telegram received from the Government of Poland asking that it be advised whether the Final Actswould be signed and, if so, whether additional powers were required to enable its representative to sign the Acts. The Committee agreed that the Government of Poland should be advised that the credentials of its representative are adequate in line with the Committee's opinion in paragraph 3 above.
- 5 The Committee, considering the next item of its agenda, examined for the third time the documents referring to the representation of India. A telegram received from the Government of India dated March 20, 1948 stated that India was not sending a representative to the Aeronautical Conference. Subsequently, the delegate of India to the P.F.B. sent a letter to the Secretariat stating that he had been designated to represent India at the Conference. A further communication from the representative of India to the P.F.B. did not serve to clarify the case. The Committee does not consider that the documents constitute adequate credentials to permit the representative of India to vote in any meetings or sessions of the Conference.
- 6 The Committee, as the third item of its agenda, examined and approved unanimously the credentials of the delegate of Ireland, Mr. T. E. O' Dalaigh. In the list shown in Annex 1 of Aer-Doc. No. 41 and completed by Section A of Annex 1 of Aer-Doc. No. 53, Ireland should appear under the number 42, and the type of credential should be shown as (c).
- 7 In considering its fourth agenda item, the Committee noted that some of amendments to the Committee's Reports (Docs. 41 and 63) as approved by the Third Plenary Session were recorded inaccurately in Aer-Doc. No. 80.

In Doc. 41 the name of the delegate of Pakistan should read : S. A. Sathar. The delegate of Pakistan stated in the third Plenary Session that the letter (d) indicating the type of credentials listed opposite his name should be corrected to read : (c). However, the Committee has not received an official document from the Government of Pakistan which would warrant this correction.

The name of the delegate of China (Aer-Doc.41) should be corrected to read : N. N. Chen. The name of the delegate of Norway should read : N. Soeberg.

The Committee noted the amendment with regard to the correct title of the area represented by M. Lalung-Bonnaire. The Committee has been advised of the receipt of a letter by the Secretariat from the Government of France stating that the correct name of the area listed as No. 20 in Annex I of the Convention of Atlantic City should now read : Territoires d'outremer de la République Française et Territoires administrés comme tels"(Overseas Territories of the French Republic and Territories administered as such).

8 - The Committee examined and approved the credentials of Mr. Layzell (IATA) and agreed that Doc. 41 should be amended to include his name with those listed as representing I.A.T.A

The meeting adjourned at 4.30 p.m.

The Reporters:

F. A. Trail - M. Chef

The Chairman : Victor Veres

International Administrative Aeronautical Radio Conference GENEVA, 1948 Conférence internationale administrative des Radiocommunications aéronautiques GENEVE, 1948 Conferencia Administrativa Internacional de Radiocomunicaciones Aeronauticas 9 June, 1948 9 juin, 1948 9 de Junio de 1948 GINEBRA, 1948

Aer-Document No. 94-E

Aér-Document No. 94-F

Documento Aer-No.94-S

SCHEDULE OF MEETINGS

	والالا فيك فأوار أنسر بعاد بيب ويرويهم بعداليه المراجع والمراجع والمحافظ فيند		
	Time :	Room I :	Room II :
Thursday, 10 June, 1948			
	09:30	4	7 (2)
	14:30	6 (c)	7(2)
Friday, 11 June, 1948			
and an and a second	09:00	3	
	09:30	2	7
	10:00	4	
	14:30	Plena	rv Meeting
	17:30		1

HCRAIRE DES SEANCES

Taudi 10 inin 10/0	Heure :	Salle I :	Salle II :
<u>Jeuar, 10 Juin, 1948</u>	9 h.30	4	7 (2)
<u>Vendredi, 11 juin, 1948</u>	14 n.30	6 (c)	7 (2)
	9 h. 9 h.30	3	7
	10 h. 14 h.30	4	Assemblée Plénière
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PROGRAMA DE SESIONES

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International Administrative Aeronautical Radio Conference

GENEVA, 1948

Aer-Document No. 95-E

10 June, 1948

Committee 6

REPORT

of the Committee for Allotment of R Frequencies

(Committee 6) 12th Meeting.

1 - The Chairman, Mr. E. G. Betts (Australia), opened the meeting at 9:30 a.m. The following delegations and organizations were represented :

Albania Argentina Australia Bielorussian S.S.R. Canada Cuba Denmark Egypt France India Ireland Iceland Netherlands Netherland East Indies Nicaragua

Norway New Zealand Pakistan Poland French Protectorates of Morocco and Tunisia Roumania United States of America and Territories United Kingdom Switzerland Union of South Africa U.S.S.R. Yugoslavia I.A.T.A. O.A.C.I.

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- 2 The delegate of <u>India</u> was happy to announce the inaugural flight of an air service between Bombay and London via Cairo and Geneva. The plane would land at Cointrin Airport that evening.
- 3 The minutes of the Seventh Meeting (Aer-doc.78) were adopted. In the French text of this document, page 2, paragraph 3, second sub-paragraph, next to last sentence, read "fréquences communes" instead of "fréquences connues".
- 4 The minutes of the Eighth Meeting (Aer-doc. 74) were adopted, with the following amendments :
 - a) M. Falgarone's declaration should be worded as follows :

"The French delegate points out that the use of route frequencies on an air route having regular intermediate stop-overs, also depends on the number of aircraft in service on each part of the route to complete the total distance. If aircraft are changed at each stop it is then possible to use only regional frequencies for each aircraft in the particular service."

b) The name of <u>Yugoslavic</u> should be added to the list of delegations represented.

- F -

(Aer-Doc-No.95-E)

- 5 The French and Spanish texts of Aer-doc-Nos 79 and 83 not having been distributed, consideration of the minutes of the Ninth Meeting and of Working Group 6B was postponed until the next meeting.
- 6 It was decided to create a working group which would study paragraph 19, Document PC Aer-No. 25, before Committees 4 and 5 had finished their work.

Mr. <u>Duncan</u> (Chairman of Committee 5) stated that the amended flight tables would appear on June 10th and that the wall-chart of air routes was being prepared.

The new working group would be designated "60". Mr. <u>Harvey</u> (Union of South Africa) accepted the Chairmanship, with the privilege of designating his successor in case of absence.

The following delegations indicated that they would participate in the work of this Group : Argentina, Australia, Egypt, United States of America, France, India, Netherland Indies, Ireland, Netherlands, United Kingdom, Yugoslavia, I.A.T.A. and I.C.A.O.

On the proposal of Mr. <u>White</u> (United States) it was agreed that other delegations might be invited to participate in the work of the Group in order to furnish additional information in case of need.

Working Group 6C would meet that morning to fix a working plan. Its terms of reference would be paragraph 19, Doc. PC Aer-No.25. This might be amended by Committee 6 when sub-committee 6B's report and recommendations were considered.

7 - Concerning the terms of paragraph 27 of Document PC Aer-No.25, the delegates of Australia, Cuba, United States of America, France, India and the I.C.A.O. discussed the powers of delegates in matters of meteorology and the establishment of precise data concerning requirements for the transmission of weather reports to aircraft in flight, also the distances to be covered.

The delegate of <u>Canada</u> observed that the I.M.O. had declined the invitation of the I.T.U. to be represented at the Aeronautical Conference but that there were a certain number of meteorologists attending the I.C.A.O. Conference at present being held in Geneva.

Finally it was decided to create a new working group "6E". The following terms of reference, as proposed by the delegation of the United States and seconded by the delegation of India, were adopted :

a) The group should study the documentation at the disposal of the Conference, including the I.C.A.O. regional documents and also the Forms 2; and prepare a summary of these documents in so far as they concern the question of weather reports transmitted to aircraft in flight, or refer to paragraphs 27 and 28 of Document PC Aer-No.25.

b) On the basis of such studies, recommend an approach to this problem, which would enable Committee 6 to determine :

- 3 -(A_cr-Doc-No.95-E)

(1) The necessary megacycle order of frequencies.

- (2) The number of necessary frequencies in each megacycle order.
- (3) The areas in which the use of these frequencies may be duplicated.

On the proposal of the <u>Chairman</u>, Mr. <u>Tabio</u> (Cuba) accepted the Chairmanship of the new Working (roup 6E.

The delegations of Cuba, France, Poland, I.A.T.A. and I.C.A.O. agreed to participate in the work of this Group. It was agreed that the Group might invite experts to participate in its meetings in an advisory capacity, particularly Mr. <u>Entwhistle</u> of I.C.A.O. or any other person who might supply useful information.

8 - It was decided that Committee 7 would be informed of the work of this Group.

Mr. Fry (United Kingdom), Chairman of Committee 7, stated that Mr. <u>de</u> <u>Calan</u> (France), Chairman of Working Group 7A, who had already been asked to study the Forms 2 for the OR services, might be able to furnish some useful information on this subject.

- 9 On the proposal of Mr. <u>Greven</u> (I.C.A.O.) it was decided that Groups 6C and 6E would not meet simultaneously.
- 10 The next meeting of Committee 6 would be announced by a notice posted on the bulletin board.

The agenda having been completed, the meeting was adjourned at 12:00 noon, on the understanding that sub-committee 60 would meet immediately and determine course of action.

The Reporter :

The Chairman :

M. Chef

Mr. E. G. Betts

International Administrative Aeronautical Conference GENEVA 1948

Aer-Document No. 96-E. 10 June 1948

COMMITTEE 7

REPORT OF THE COMMITTEE ON THE ALLOTMENT OF OR

FREQUENCIES (Committee 7) 13th Meeting 7 June 1948

1.

The Chairman: Mr. Fry opened the meeting at 14.30,

Delegates from the following countries were present:

Honduras (Republic of) Argentina Australia Ireland New Zealand Canada Chile Portugal Ecuador United Kingdom Ukrainian SSR France and overseas USSR Territories of the French Republic. U.S.A.

2. It was agreed that Commandant G. Sarre, of the French Delegation would serve as reporter during the working week ending June 11.

The Chairman proposed and the members of the committee 3. agreed that the Vice-Chairman Mr. Y.D. Furze would represent Committee 7 on Working Group 4B of Committee 4.

Aer-Doc. No. 64, report of the 8th meeting of Committee 4. 7 was adopted without comment.

The Chairman then invited the members of the Committee 5. to decide upon the U.S.A. proposal, as amended by the French delegation, in agreement with the United States and Australian delegations. Every delegate present should have a copy of that amendment, as it was distributed in the various languages of the conference.

The delegate of France stated that, in his amendment, he wished to:

- Replace the date of June 7 by that of June 10, 1. since June 7 was the date of that very meeting at which the proposal was being discussed.
- 2. Define what must be understood by the term frontier band. He suggested that the width of such a band should be 600 km. A frontier band would then be a strip of territory 600 kms wide extending from the frontier of a country towards the interior.

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These two points were accepted and it was decided that the definition of the frontier band would appear at the bottom of Note 1, thus completing the United States proposal.

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The Soviet delegate made the following statement: "The Soviet delegation, considering:

- a) the Resolution on the establishment of the new International List of Frequencies (See Para 12, point a) of page 18 of Recommendations and resolutions adopted by the International Telecommunication Conference at Atlantic City) which says that; "before undertaking the preparation of a new frequency list, the P.F.B. should lay down a detailed technical procedure to be followed in the preparation of the list."
- b) the fact that the various data required under Article 4 of the United States draft resolution are not essential to the allotment of available OR band frequencies among all countries
- c) the fact that no resolutions have been adopted, either by the Atlantic City Conference or by the P.F.B, which would preclude the examination of requirements submitted in a form other than forms 1 and 2;

"Considers that:

the proposal submitted by the delegation of the United States, which would preclude the consideration of such requirements as might not contain all the data provided for in the draft resolution, is not in conformity with either the spirit or the letter of the resolution referred to above.

"Considering, further: that the P.F.B., when studying a similar question, adopted a resolution permitting countries to submit their requirements in a form other than forms 1 and 2.

"The Soviet Delegation proposes:

1) That the proposal made by the United States delegation on the procedure to be adopted for consideration of frequency requirements, be rejected;

2) That the preparation of technical principles, to be followed in the drawing up of the new plan of allocation of frequencies in the OR bands, be completed;

3) That a procedure be determined for meeting the demands, and that a recommendation be submitted concerning the plan of allocation of frequencies amongcountries, based on the technical principles adopted and utilizing such requests as countries have already submitted, regardless of their form;

4) That each industrial country be entrusted with the responsibility of distributing among its stations the frequencies allocated to it, due regard being paid to the technical regulations adopted by the conference.

6. While taking note of the Soviet statement, the <u>Chairman</u> still felt that a decision should be taken on the proposal of the United States delegation. The delegate of the USSR considered that this would not be fair, and maintained his views even after the delegate of <u>France</u> observed that under the above mentioned point d) of paragraph 12, the P.F.B. must base its work on forms 1 and 2 submitted by the various countries.

The Delegate of <u>Argentina</u> stated that although his country had respected the Atlantic City Recommendations and had submitted its requirements on forms 1 and 2, the sites of transmitters for OR Mobile Aeronautical Services had not been given; however, he understood the necessity for submitting additional data and would gladly do so. He wondered whether, from his own point of view, the time limit of June 10 was not too short; he would prefer an extension to June 14. After point e) of paragra h 12 had been read to him, he declared himself fully reassured and agreed that the date of June 10 should remain unchanged.

The delegate of the <u>USSR</u> taking the floor again wished to make his point of view perfectly clear before the Committee proceeded to a vote. The situation of Soviet aviation differed somewhat from that of other countries. The various air networks servicing agriculture, sanitation, postal communications and forest fire protection were in full development. Hence the Soviet Union had expressed its requirements in a different manner, since form 2 did not provide suitable means.

The delegate of <u>Ukraine</u> speaking on behalf of <u>Bulgaria</u>, seconded the Soviet proposal, and asked that it be considered before the U.S. proposal be put to the vote. He felt that if form 2 had been found sufficient, there would have been no need to demand additional data. This seemed to condemn form 2.

7. As chief of the delegation of the U.S.A., and not as Chairman of the Aeronautical Conference, <u>Mr. Lebel</u> seconded by the <u>Chilean</u> delegate, asked that the proposal of his delegation be put to the vote.

Replying to the Soviet delegate, who wished to know if Committee 7 was competent to take a decision like the one it intended to take, <u>Mr. Lebel</u> answered that Committee 7 was competent to do so, and further remarked that the Soviet delegate, when referring to Para 12 of the Atlantic City

Recommendations, had mentioned only point a) of that paragraph, leaving out other points dealing with directives to be given to the P.F.B., its terms of reference, technical data, and examination of forms 1 and 2. These items should also be considered.

8. At the <u>Chairman's</u> request, the question of whether a vote should be taken was itself put to the vote. The results were:

for..... 13 against..... 3 abstentions.... 0

The United States proposal, as amended, was also adopted by 13 votes to 3, and is to be found in the Annex to the report of the 12th Meeting (Aer-Document No. 88).

9. After the vote, the Soviet delegate made the following statement:

"In conformity with the statement made at this meeting, the Soviet delegation objects to putting this matter to the vote, and considers that the decision of Committee 7 concerning the procedure for considering frequency requirements is both wrong and irregular. Consequently, the Soviet delegation declares that it considers itself in no way bound by that decision."

10. The delegate from <u>Canada</u> made the following statement, explaining why he was in favour of the resolution submitted by the U.S.A:

"If we utilize such data as are contained in the frequency requirements form submitted by the USSR and if other countries give us no more information, the following suppositions shall be accepted when making preliminary calculations for the new frequency list:

- a) All the frequencies requested by a given country are used throughout its territory and along its national boundaries.
- b) Those frequencies are continuously used, both by day and night.
- c) Those frequencies are used with powers equal to or above 5 kw. In most cases, such predictions would obviously not correspond to reality. Such incomplete data would mean interference ranges being fixed at ratios far above what would have been fixed if complete data had been available, and the difference might run into thousands of kms.

Merely to indicate that a Radio station is situated somewhere within the national boundaries may suffice in the case of an extremely small country, when a change in the position of the station may have no important effect on the allocation of similar or adjacent channels in other areas, but would be dangerous in the case of countries as vast as the USSR or Canada.

Finally, normal hours during which a frequency is used, and its emitted power must be known, regardless of the expanse of the country concerned, if maximum duplication of frequencies with minimum interference is to be achieved on a world-wide scale.

11. The above statement closing the debate on the proposal by the U.S.A., the <u>Chairman</u> asked the Committee to return to P.C. Aer-Doc. No. 25 and to consider the points raised:

1) by paragraphs 43 to 51

2) by paragraphs 52 to 53.

For the moment it appeared unnecessary to dwell upon the study of paragraphs 48 to 51, but paragraphs 52 and 53 might well be considered.

Their consideration showed that they were worded in a very general manner, as the Preparatory Committee had but little data available.

The delegate from <u>Australia</u> stated that the sharing plan suggested by the U.S.A. to the Preparatory Committee was a squaring into which frequencies were distributed according to a given protection ratio.

In his opinion, a given protection ratio, emitted power and frequency would permit the determining of the size of the squares of the considered grid, and by superimposing the latter on a world map, to determine the number of frequency duplications possible by day and night.

He further suggested that interference ranges be taken into account, and pointed out that the service range and interference range circles could be drawn around a given transmitting point. Provided that interference range circles did not overlap, the total possibility of duplication of one given frequency throughout the world would thus be determined with greater accuracy.

The above statement merely outlines the principle of the procedure. The necessary factors, such as protection ratio, propagation curves etc, could be supplied from the technical data of Committee 4.

- 6 -(96-E)

The delegate of the $\underline{U},\underline{S},\underline{A}$ approved the Australian suggestion but remarked that the application of such a method required more thorough examination, as certain factors, by which their nature might change the very form of the grids, had to be taken into account - for example, operation of permanent services, and differences in time-tables from one area to another. He therefore proposed to set up a technical Working Group to study those points.

The <u>Chairman</u> considered that before such action was taken every delegate should fully understand the principle of the method outlined by the delegate of Australia. He therefore postponed the discussion until the next session and adjourned the meeting at 17.25.

The Reporter Commandant G. SARRE The Chairman M.A. Fry.

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

Aer-Document No. 97 - E

10 June, 1948 Committee 4

Report

of the Technical and Operational Committee

(Committee 4)

19th meeting 9 June, 1948

Chairman : Mr. O.J. Selis (Netherlands)

1.

The following delegations and organizations were represented :

Argentina Australia Bielorussian S.S.R. Canada China Cuba Egypt France French Protectorates of Morocco and Tunisia Iceland India Ireland Netherlands Netherlands East Indies New Zealand Poland Sweden Switzerland United Kingdom United States and Territories Union of South Africa Union of Soviet Socialist Republics Yugoslavia I.C.A.O I.A.T.A.

2.

3.

The Chairman opened the meeting at 14.30, by refering to the revised text of Annex B to Aer-Document 35 and it was agreed to accept this new text.

Aer-Document 86 was then considered for adoption. It was agreed that the following amendments and additions should first be made :

3.1 Para.6. After "plan", add, "for A3 Emission".

3.2 Para.13 include :



<u>A3</u>

30

<u>A1</u>

20

3.4 Para. 13 for I.A.T.A figures to be changed to read :

I.A.T.A.

3.5 Para.13 add para.13 a)

- 2 -(Aer-Doc.No 97-E)

The <u>I.A.T.A.</u> considered that the figures quoted above should be accepted on the understanding that if the results obtained by applying the graphs so drawn varied substantially from what we know to be practically correct then the figures should be revised to give a result which agree more closely with those obtained in practice.

Aer-Document 86 was then accepted with the amendments listed in para. 3 above.

The <u>Chairman</u> of <u>Working Group 4 B</u> when asked to report on the progress of this working group stated that the progress to date had been slow and that he hoped to hold a meeting at 16.00 hours today.

The <u>Chairman</u> recommended that the committee adopt Aer-Document 76 with the reservation that a slight change of wording should be made to para. 1 of Annex B as there had been slight differences over the wording of this paragraph at a previous meeting. The document was accepted on this basis and after some discussion it was agreed that the wording of this paragraph should be changed to read as follows, and that the paragraphs be renumbered :

Considering that a need exists for some means of selecting the order of frequencies necessary for individual air route operation, it is recommended that :

1) The maximum range charts annexed to PC-Aer-Document No 3 be modified to show the expected physical ranges, based on an assumed aircraft noise level of not more than 5 μ v/m (bearing in mind that with adequate services it should be possible to limit the local noise level to achieve the objective of 15 db signal to noise ratio for A3) with a field intensity in the vicinity of the aircraft of

a) 5 µv/m for Al manual method of communication.

b) 20 µv/m for high capacity means of communication, including A3

2) Curves for 10 µv/m which already exist, to be maintained.

3) One of the maximum range charts be modified to show the expected physical ranges using a radiated power of 10 kM :

4) The curves be re-drawn to common standards, i.e., km., and to a more suitable scale, and be included with the introductory statements referred to in sub-paragraph 4 below in the final conference documents;

5) Paragraphs 1 to 21 of the introductory statement to PC-Aer-Doc. No 5, amended in accordance with the decisions of Committee 4, together with the associated modified charts, be used by the Conference as a guide to the allotment of frequencies.

Considerable discussion revolved around a point raised by the Delegate of China in connection with the variance in the results obtained in practice and those obtained by applying the maximum range charts and figure 18.

As a result of the discussions mentioned in para. 7 above the Chairman stated that if on further investigation any delegate has a precise case where the conditions are identical and the calculations using the charts do not agree with practical experience then he should refer the matter to this committee for further investigation by a small working group.

4.

5.

6.

7.

8.

- 3 -(Aer-Doc.No 97 - E)

Discussion followed on the desirability of setting up a figure for the protection ratio to be used on circuits employing the crossband method of operation. In view of the decisions already made in Committee 6 to base the channel requirements on simplex operation in order that both types of operation may be accommodated considerable doubt existed as to the desireability or necessity of setting up a separate figure for crossband.

It was agreed that as the standards set up by Committee 4 were primarily tools to be used by Committees 6 & 7 the Chairman of Committee 4 should contact the chairmen of these Committees and ascertain if they considered it necessary for Committee 4 to continue with this work.

11. Mr. <u>Falgarone</u> of the <u>French Delegation</u> drew the attention of the meeting to the necessity to have the text of technical reports referred to a technical specialist to ensure that a precise French text is obtained.

The Chairman agreed to take this matter up with the secretariat.

The <u>Chairman</u> informed the meeting that there were two subjects yet to be considered before the work of Committee 4 could be suspended, namely, the report of Working Group 4 B and Public Correspondence.

14.

12.

13.

The meeting was adjourned at 16.15 hours to enable Working Group 4 B to carry on its work.

Reporter :

L. M. Layzell

Chairman : O. J. Selis

9.

10.

International Administrative Aeronautical Radio Conference GENEVA, 1943 Aer. Document nº 98-E 10 June 1948

Committee 6

<u>REPORT</u>

of the

COMMITTEE ON THE ALLOTMENT OF R FREQUENCIES

(Committee 6)

11th Meeting

8 June, 1948

<u>Chairman</u>: Mr. Betts (Australia) <u>Vice-Chairman:</u> Mr. Tabio (Cuba)

- 1 The Chairman declared the meeting open at 9.40 a.m.
- 2 Present:

Albania Argentina Australia Bielorussian S.S.R. Canada China Colombia Cuba Denmark Egypt France French Protectorates of Morocco and Tunisia India Ireland Notherlands New Zealand Nicaragua Norway Pakistan Poland Switzerland United Kingdon United States and Territories Yugoslavia I.C.A.O. I.A.T.A. I.F.R.B.

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3 - The Chairman declared the meeting open at 9.40 a.m.

4 - The Delegate of $\underline{I.A.T.A}$ made a statement regarding the future expansion of air-transport and that plans produced now must place no restriction on future developments in communication techniques.

5 - The delegate of <u>France</u> agreed with the previous remarks and submitted the following proposal:

That the committee decides to establish a working group n° 6x which will have the following tasks:

- 5.1. To compare the proposals made by the preparatory Committee and Bielorussia and U.S.S.R., France and I.C.A.O. and other proposals regarding a system of allocation of frequencies in the major world air routes.
- 5.2. To extract from this comparison the principles of operation which is specific for each type of commission A₁, A₂, A₃, A₄, (R^{CH/,} etc.

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5.3. To submit to the Committee a draft of the general structure of the bands of the (R) services which is envisaged for the major world air routes which would satisfy the various principles of operation which are set out in paragraph 5.2.

6 - Bofore setting up such a group Committee 6 must make decisions, namely:

- 6.1. The manner in which the "R" bands will be allocated amongst the major world air routes and the regional and national routes.
- 6.2. The simultaneous adoption of the various types of emission A_1 , A_2 , ctc., in accordance with the wishes of the various countries.
- 6.3. The possibility of using for the A₁ comissions the cross band system concurrently with the simplex system.

The delegate of <u>Yugoslavia</u> seconded this proposal.

7 - The delegate of the <u>United States</u> stated that in his opinion the formation of another working group as proposed by France was unnecessary, as all plans had received full consideration.

8 - The delegate of <u>France</u> stated he was prepared to withdraw that portion of his proposal which dealt with the formation of new sub - committee 6x if matter discussed in full committee.

9 - The delegate of <u>I:A.T.A.</u> stated that A_2 separation would permit A_3 simplex or A_1 , adjacent channel crosshand working which was the airline operators requirement. He then proceeded to quote statistics covering the views of airline operators on the above subject to add weight to their statement. This was I:A.T.A.'s reason for supporting provision on high capacity means of communication. Upon request they provided the following definition of adjacent channel crosshand operation.

"A system providing two way communication on two frequencies using one frequency for communication in one direction and the other for communication in the opposite direction. The two radio frequencies are within the B.F.O. range of the receiver and readable without readjusting other controls of the receiver. The United Kingdom stated their definition differed slightly and required amondment to "within the audible frequency range of the receiver". I.A.T.A. agreed."

10 - T. The United States then made a proposal which was seconded by the delegate from the <u>Union of South</u> <u>Africa</u>.Amendmonts were proposed by the delegates of <u>New Zealand</u>, <u>United</u> <u>Kingdom</u>, <u>Canada</u> and <u>Colombia</u> which were acceptable to the proposer and "... the seconder. The final proposal being as follows:

"It is recommended that the plan of frequency allocation as developed by the preparatory Committee be adopted with the clear under standing 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 prin ciples as the work of the Committee progresses. In carryingout 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/best meet the needs of the aircraft operating agencies."

- 3 -(Acr.nº 98-E)

11 -The delegate of France then submitted the following concrete proposal which amended his previous proposal.

It is recommended that Committee 6 make the following decisions:

- The manner in which the "R" bands will be allocated amongst the 11.1. major world air routes and the regional and national routes.
- The simultaneous adoption of the various types of emission 11.2. A₁, A₂, otc., in accordance with the wishes of the various countries.
- The possibility of using for A, mission the crosshand 11.3. system concurrently with the simplex system. Then the Committee shall undertake the study of the following points:
- To compare the proposals made by the preparatory Committee, 11.4. the general proposal of the Soviet Delegation as contained in Document 19, France, I.C.A.O. and any other proposals regarding a system of allocation of frequencies on the major world air routes.
- 11.5. To extract from this comparision the principle of operation which is specific for each type of A_1 , A_2 , A_3 , A_4 , ctc.
- 11.6. To prepare a draft of the general structure of the bands of the (R) services which is envisaged for the major world air routes which would satisfy the various principles of operation which are set out in previous paragraph.

This proposal was seconded by the delegate of Yugoslavia.

12 - After considerable discussion it was decided to wote on the two proposals separately.

The French proposal put to the vote with following result:

In favour	11
Against	15
Abstentions	5

Proposal therefore rejected.

13 - Before the U.S.A. proposal was put to the vote Yugoslavia and China required clarification on the basic principles which could not be changed in future. The United States quoted principles involving A2& Simplex. The delegate for China enquired whether equitable treatmont of all categories of air services would be considered as a basic principle. This was agreed.

14 - The U.S.A. proposal was then put to the vote with the following result:

In favour	18
Against	11
Abstentions	0

Motion therefore carried.

15 - Before the voting on the U.S.A. proposal commenced, the delegate of Colombia was awarded a proxy vote by the delegate of Nicaragua. This was in the form of a signed statement handed to the Chairman of the meeting. 46 The meeting adjourned at 12.45 p.m.

The Chairman: E.G.Betts

The Reporter: G.A. Harvey

(20-10-6)

International Administrative Aeronautical Radio Conference GENEVA, 1948 Aer - Document Nº 99 - E 10 June, 1948

COMMITTEE 7

REPORT of THE COMMITTEE ON ALLOTMENT OF OR FREQUENCIES (Committee 7) 15th Meeting 9 June, 1948

1. The <u>CHAIRMAN</u>, Mr. <u>A. FRY</u> (United Kingdom) opened the meeting at 9.30 a.m.

The following countries were present at the meeting:

Argentina	Sweden		
Australia	Ukraine (S.S.R.)		
Canada	United Kingdom		
France	United States of America		
Honduras (Republic of)	U.S.S.R.		

2. The Committee approved by unanimity document Aer-N°.73, minutes of the 10th meeting.

At the request of the <u>Canadian</u> delegate, a slight grammatical correction was to be made in the text of point b) of paragraph 8 (English document) to read: "ratio" instead of "ration". This correction does not affect the French text.

3. During its 14th meeting Committee 7 decided to create a Working Group N° 2 for the study of the methods to be used for the allocation of frequencies in the "OR" bands. The <u>CHAIRMAN</u> stated that it would be as well for this group to start work at once and he proposed to adjourn the meeting immediately in order that it should be able to meet in Room II. This proposal was generally approved and the meeting was adjourned at 09.40 a.m.

The Reporter:

The Charman

Commandant G. Sarre

Mr. A. Fry

(12 - 11 - 6)



Aer-Document No 100 = E Aér-Document No 100 = F Aer-Documento No 100 - S 10 June 1948 10 juin 1948 10 de junio de 1948

Agenda for the Fourth Plenary Meeting

- 1. Approval of minutes of the 3rd Plenary Meeting (Aer-Document No.80)
- 2. Resolution submitted by the Soviet delegation at the 2nd Plenary Meeting (Aer-Document No.21)
- 3. Report of Committee 2 (Aer-Document No.93).
- 4. Report of Committee 4, if available.
- 5. Report of the Ad Hoc Working Group set up by the 3rd Plenary Meeting (Acr-Document No.80) to study the matter contained in Aer-Document Nos 9 & 49

Ordre du jour de la 4e Assemblée plénière

- 1. Approbation du procès-verbal de la 3e assemblée plénière(doc.Aér.nº 80)
 - 2. Résolution soumise par la délégation de l'U.R.S.S. à la deuxième assemblée plénière (doc.Aér.n° 21)
 - 3. Rapport de la Commission 2 (doc.Aér.nº 93)
 - 4. Rapport de la Commission 4, si disponible.
 - 5. Rapport du Groupe ad hoc chargé par la 3e assemblée plénière de l'étude des documents Aér.nº 9 et 49.

Orden del Dia de la Cuarta Sesion Flenaria

- 1. Aprobacion del acta de la tercera sesion plenaria (Doc. Aer. 80)
- 2. Resolucion presentada por la Delegacion Sovietica en la segunda sesion plenaria (Doc.Aer.21)
- 3. Informe de la Comision 2 (Doc. Acr. 93).
- 4. Informe de la Comision 4, si se dispone de el.
- 5. Informe del Grupo de trabajo ad hoc establecido por la tercera sesion plenaria (Doc.Aer 80) para examinar los asuntos a que se contraen los documentos Aer.9 y 49.