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**INTERNATIONAL CIVIL AVIATION ORGANIZATION**

**South American Regional Office**

**REGIONAL COORDINATION MEETING IN  
PREPARATION OF THE ITU WRC-2003**

**SUMMARY OF DISCUSSIONS AND CONCLUSIONS**

(Lima, 27 to 28 March 2001)

**RCM WRC-2003**

**INTERNATIONAL CIVIL AVIATION ORGANIZATION**

**South American Office**

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PREPARATION OF THE ITU WRC-2003**

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**ii.1 Place and Duration of the Meeting**

The Regional Coordination Meeting in Preparation of the ITU WRC-2003 was held in Lima, in the premises of CORPAC's Civil Aviation Training Centre, from 27 to 28 March 2001.

**ii.2 Opening Ceremony**

The meeting was inaugurated on 27 March 2001. Mr. Juan Carlos Pávic, Air Circulation Director of the General Directorate of Civil Aviation of Peru and Mr. Félix Granthon, General Manager of the Corporación Peruana de Aeropuertos y Aviación Comercial (CORPAC), were present as local authorities in the opening ceremony. Mr. Paulo Imre Hegedus, Regional Director of the ICAO South American Office, welcomed the participants on behalf of ICAO and highlighted the objectives of the meeting. Mr. Juan Carlos Pávic gave a warm welcome to the participants on behalf of the Government of Peru and officially inaugurated the Meeting.

**ii.3 Organization of the Meeting**

Mr. Steve Mitchell acted as Chairman of the Meeting, and Mr. Alessandro Capretti, TO/CNS, acted as Secretary of the Meeting, with the assistance of Mr. Carlos Stehli, RO/CNS of the ICAO SAM Office.

**ii.4 Working Languages**

The working languages of the Meeting were English and Spanish. The documentation and the report of the Meeting were issued in these two languages.

**ii.5 Agenda**

**Agenda Item 1:** Introduction to ITU

**Agenda Item 2:** Review of the ICAO position for ITU WRC-2003

**Agenda Item 3:** Regional telecommunications activities in preparation for ITU WRC-2003

**Agenda Item 4:** Frequency planning for aeronautical systems

- a) Aircraft FM immunity requirements
- b) Frequency planning for conventional systems in the CAR/SAM and other regions
- c) Current and future frequency allocations for GNSS
- d) VDL
- e) HF DL

**ii.6 Schedule and Working Methods**

The Meeting agreed that the working sessions would begin at 09:00 hours and end at 14:00 hours, with two breaks. The working hours were extended as necessary according to the Meeting requirements. The Meeting discussed the agenda items as a single committee.

**ii.7 Attendance**

The Meeting was attended by members of the AMCP WGF and representatives of 11 States, as well as from 3 International Organizations, totalling 32 delegates as shown in the List of Participants in pages iii-1 through iii-9.

**ii.8 Web Site**

The documentation presented to the meeting including the Summary of Discussions and Conclusions are available at <http://www.lima.icao.int/>

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**Agenda Item 1: Introduction to ITU**

1.1 Under this Agenda item, the meeting received information on the relevant ITU processes in relation with the preparation of World Radio Conferences and the role played by ICAO. In this regard, information was provided on the ITU purposes and its structure.

1.2 Of particular importance was the information provided concerning the structure of the ITU Radio Regulations, their status and content, emphasizing those parts of interest for civil aviation and the role to be played by the national radio authorities. In this regard, the meeting, after the presentation of the information, noted the importance of the role of ICAO concerning its assistance to the aeronautical administrations in order to provide guidance, as necessary, for their active involvement in the coordination with the telecommunication authorities, aimed at participating in the regional mechanism (CITEL) as well as during the ITU WRCs in supporting the ICAO positions at the WRCs, which are convened normally every 3 years.

**Agenda Item 2: Review of the ICAO position for ITU WRC-2003**

2.1 In discussing this Agenda item, the meeting was presented with information on the results of the WRC-2000 held in Istanbul, Turkey, from 8 May to 2 June 2000. In this regard, the meeting noted that the ICAO delegation was headed by the President of the Council, who addressed a speech at the opening of the Conference. During the Conference, around 120 aviation experts participated as part of their States' delegation and the ICAO Secretariat organized five coordination meetings with the mentioned aviation experts to address aviation related issues.

2.1.1 It was also noted that, in general, the WRC-2000 results fully satisfied the ICAO position. One of the important issues was the suppression of the ITU-R Resolution 220 and the retention in an exclusive basis of the band 1 559 to 1 610 Mhz for the deployment of GNSS, as considered in the ICAO CNS/ATM systems concept. The meeting noted that the major factors contributing to aviation achievements at the WRC-2000 included:

- a) the early development and dissemination of the ICAO position;
- b) the active participation by ICAO experts in the preparation work of the ITU, including the relevant meetings of the ITU-R;
- c) the increased participation by ICAO experts in the meetings of the regional telecommunications organizations (APT, CEPT, CITELE, African Group); and
- d) higher profile of spectrum management issues in accordance with Assembly Resolution A32-13 through the actions of the governing bodies and actions by the president of the Council and the Secretary General.

2.2 Based on the experience gained, the ICAO Secretariat prepared a strategy for establishing and promoting the ICAO position for future ITU WRC's, which is attached as **Appendix A** to this part of the summary and will be submitted to the ICAO Council for approval. The meeting, in examining Appendix A, noted that the regional planning and implementation groups like GREPECAS could produce a useful work for promoting the ICAO position. It was informed that normally GREPECAS has encouraged the actions required by the ICAO Secretariat to obtain support of the ICAO position at any level of its development. In this regard, the meeting formulated the following Conclusion:

**CONCLUSION 2/1 - Role of the PIRGs in promoting the ICAO Position**

In considering the actions to develop the ICAO position for future WRC's, the role of PIRG's in promoting the ICAO position should be taken into account by ICAO reflecting this matter in paragraph 2 of the strategy attached as Appendix A to this part of the summary.

2.3 The preliminary ICAO position on areas of critical concern to international civil aviation to be discussed at the ITU WRC-2003 was reviewed. In this regard, it was noted that the mentioned ICAO position was circulated for States comments as attachment of letter E 3/5-00/101 dated 8 December 2000.

2.3.1 In examining the agenda for the WRC-2003, it was noted the extent of the same and that no impact on aeronautical services has been identified in Agenda items 1.2, 1.7, 1.10, 1.12, 1.13, 1.18, 1.19, 1.21, 1.23 to 1.27, 1.29, 1.30, 1.32 to 1.34, 3 to 6, 7.1; therefore, the same were not addressed in the ICAO position. The other WRC-2003 Agenda items were introduced having in mind that during the sixth meeting of the WGF they would be reviewed in more detail considering the comments received from the States and international organizations. The work performed by the meeting on the review of the preliminary ICAO position served to the participating States to exchange points of view on this matter and to take knowledge on the associated ITU-R documentation and the further actions to be performed by ICAO. In this regard, it is expected that after the WGF/6 meeting, the ICAO position will be updated and submitted to the Air Navigation Commission for its final review. Approval by the ICAO Council was expected by June 2001. The resulting document would be submitted to the States and interested international organizations by July 2001. Further updates of the position would be similarly coordinated as required by future developments within the ITU and ICAO.

## APPENDIX A

### STRATEGY FOR ESTABLISHING AND PROMOTING THE ICAO POSITION FOR FUTURE ITU WORLD RADIOCOMMUNICATION CONFERENCES

This document presents a long-term strategy for establishing and promoting the ICAO position for future ITU World Radiocommunication Conferences (WRC) with a view to securing support to the ICAO position from ITU Administrations and relevant international organizations.

#### 1. BASIS FOR THE ICAO POSITION

1.1 The ICAO position is developed on the basis of current and future aviation requirements for radio frequency spectrum, taking into account the expected growth in air traffic and the development of new technologies.

1.2 The long-term implementation strategy contained in the *Global Air Navigation Plan for CNS/ATM Systems* (Doc 9750) forms the basis for the spectrum requirements.

1.3. The ICAO policy on radio frequency spectrum requirements, as approved by the Council, is contained in the *Handbook on Radio Frequency Spectrum Requirements for Civil Aviation including Statement of Approved ICAO Policies* (Doc 9718, 2nd edition).

1.4 The framework for the development and support of the ICAO position is contained in Assembly Resolution A32-13.

#### 2. DEVELOPMENT OF THE ICAO POSITION

2.1 The ICAO position for a WRC is established as early as possible after the agenda for that WRC is established. The position presents the ICAO views on all agenda items of interest to international civil aviation on the agenda of the WRC, with particular regard to the impact on safety, regularity and efficiency of flight. Technical and operational information is provided as required to support the position.

2.2 The focal point on all aspects related to the development of the ICAO position for the ITU WRCs is the Aeronautical Mobile Communication Panel (AMCP), through its Working Group F. The GNSSP is responsible for developing material related to the use of GNSS elements, in coordination with AMCP as required.

2.3 Throughout the development of the position, proper coordination with and involvement of the ICAO regional offices is required. Their involvement enables the incorporation of specific regional requirements and helps achieve improved support at the regional and national level.

2.4 The draft ICAO position developed by the AMCP is reviewed by the ANC and sent to States and relevant international organizations for comments. The comments are reviewed by the ANC and a consolidated ICAO position is submitted by the ANC to the Council for approval.

2.5 After approval by the Council, the ICAO position is sent to States for use in the coordination process leading to the development of national positions. The ICAO position is also submitted as an information paper to the ITU WRC.

2.6 Following the development of the ICAO position, consequential amendments to policy statements contained in *Handbook on Radio Frequency Spectrum Requirements for Civil Aviation* are developed for approval by the Council.

2.7 Any subsequent developments arising from ICAO and ITU activities in preparation for the WRC are considered by the Council with a view to updating the ICAO position as necessary.

### 3. SUPPORT TO THE ICAO POSITION

3.1 Assembly Resolution A32-13 shall be fully implemented so as to secure support from States to the ICAO position and ensure that the resources necessary to support increased participation by ICAO to international and regional spectrum management activities are made available.

3.2 In addition to being submitted to States (paragraph 3.5 refers), the ICAO position is also disseminated, as early as possible, to the regional telecommunication organizations involved in the development of regional positions for the ITU Conference. Presentation of the position and follow-up is provided by the relevant ICAO regional offices, with assistance from Headquarters as required.

3.3 ICAO contributes to the WRC preparatory activities conducted by ITU (meetings of relevant ITU-R Study Groups and ITU Conference Preparatory Meetings) by submitting additional technical papers supporting the ICAO position.

3.4 Close coordination and cooperation with other aviation organizations participating in the Conference, such as IATA, needs to be maintained. Also coordination with other specialized agencies of the UN on issues of common interest is required to broaden the support to specific elements of the ICAO position.

3.5 Regional ICAO coordination meetings to present and discuss the ICAO position should be organized as required. These meeting could be held in conjunction with the meetings of AMCP Working Group F.

### 4. NEW TRENDS IN SPECTRUM MANAGEMENT

4.1 In the application of the strategy outlined above, a number of new trends influencing the allocation of spectrum today and in the future need to be taken into account. Such trends, which may affect the availability of adequate and protected spectrum for aviation, include:

- a) the increased role of the private sector in the work of the ITU;
- b) the increased economic value of spectrum for certain applications;
- c) the increased availability of radio devices that do not require licensing by radiocommunication authorities; and
- d) the increased pressure for sharing aeronautical spectrum with non-aeronautical services.

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4.2 The increased role of the private sector in the ITU has had an adverse impact on the influence of inter-governmental bodies such as ICAO. This situation should be addressed in the context of an ITU Plenipotentiary Conferences (the next one is scheduled for 2002), with a view to strengthening the role of ICAO in ITU.

4.3 The economic value of spectrum allocated to certain applications can exceed by far the economic value of aeronautical applications of the same spectrum. This has recently been demonstrated by the results of the “spectrum auctions” conducted in several countries to support future commercial mobile multimedia systems. This situation requires aviation to identify clearly the need and economic value of required spectrum in certain bands and to consider innovative approaches to guarantee the required level of safety service availability.

4.4 Technical trends such as the ones mentioned in 4.1 c. and d. above have the potential of increasing interference levels to aeronautical systems and must therefore be carefully assessed on a case-by-case basis. A comprehensive investigation of interference levels and available margins in all aeronautical bands needs to be conducted urgently.

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**Agenda Item 3: Regional telecommunications activities in preparation for ITU WRC-2003**

3.1 In reviewing this Agenda item, the meeting noted that the Organization of American States (OAS) created the International Telecommunication Commission (CITEL) to promote the continuous development of telecommunications in the western hemisphere. It was also noted that the CITEL has three permanent Committees, in which Permanent Consultative Committee III (PCC III) Radiocommunications, acts, among other things, as a technical advisory body for coordination and regional preparation for major ITU Conferences and meetings, including the preparation of common proposals and positions for the ITU WRC's.

3.2 In line with the ICAO strategy for establishing and promoting the ICAO position for future ITU WRC's, the meeting noted the importance for the aeronautical authorities to initiate, as early as possible, the coordination with the telecommunication authorities and to use the ICAO position to prepare their proposal in order to obtain support from them. The meeting recognized the need to make efforts by the aeronautical administrations to participate in the CITEL mechanism, especially in the PCC III. In this regard, it was noted that the PCC III meetings programmed for the year 2001 would be held in Ottawa, Canada (June 2001), Guatemala (September, 2001) and a COM/CITEL meeting in Ecuador (December 2001). The meeting was informed that all the CITEL meetings programme can be obtained from the OAS Web <http://www.oas.org/>. To download documentation for those meetings a password is required, which could be obtained by request using electronic mail.

3.3 It was informed that ICAO attends the CITEL PCC III meetings and advantage should be taken of this opportunity to establish with the aeronautical experts, the necessary coordination leading to exercise influence to the CITEL mechanism in order to obtain support to the ICAO position.

3.3 Based on the above, the meeting formulated the following Conclusion:

**CONCLUSION 3/1 - Coordination with the Telecommunication authorities and participation in the meetings of the CITEL Permanent Consultative Committee III (PCC III)**

In order to obtain support to the ICAO position on areas of critical concern to international civil aviation to be discussed at the WRC-2003, the aeronautical authorities, as early as possible, should establish and maintain an effective coordination with the telecommunication authorities, as well as to make all efforts to participate in the CITEL PCC III meetings as part of their States delegations.

**Agenda Item 4:** Frequency planning for aeronautical systems

- a) Aircraft FM immunity requirements
- b) Frequency planning for conventional systems in the CAR/SAM and other regions
- c) Current and future frequency allocations for GNSS
- d) VDL
- e) HFDL

4.1 The development of this Agenda item was made based on a series of Power Point presentations complemented by further discussions.

*Aircraft FM immunity requirements*

4.1 The meeting was informed that the SARP's addressing FM immunity requirements are contained in the Annex 10 for VOR/ILS (Vol I) and VHF voice communications (Vol III). It was noted that the effect of the harmful interference from the VHF FM broadcast stations is worse in the case of VOR/ILS and measures should be taken to eliminate or diminish its effect to acceptable levels. The meeting was also advised on the mechanism by which the interference is produced.

4.1.1 The meeting received information on cases of VHF FM harmful interference in some South American States. In this regard, it was also noted that the problem was identified to be located at some airports serving large cities and the administrations are taking actions in coordination with the telecommunication authorities to establish plans leading to manage the problem. It was recognized that the interference problem was far from being simple but for the time being, it was not considered to be a critical factor, at least in the SAM ICAO Region. A State informed that for aircraft flying in the EUR region it is being requested avionics meeting the ICAO SARPs up to 2003. In discussing this matter, some States indicated that to diminish the problem of interference to the current avionics it is necessary to agree with the broadcasting authorities adequate geographical separation criteria and not necessarily meet the ICAO SARPs. In this regard, the Secretary indicated that Annex 10 SARPs shall be met or differences shall be declared by the States. Other delegates indicated that due to the fact that all new avionics meets ICAO FM immunity SARPs, the problem any way with the time will be solved.

4.1.2 Since the meeting did not reach a conclusion on the matter, it requested ICAO to produce some guidance material in order to assist CAR/SAM States on this matter. ICAO will consider the meeting request in relation with the production of guidance material, which will be submitted in the future for their consideration.

*Frequency planning for conventional system in the CAR/SAM regions and other regions*

4.2 The meeting was presented with issues concerning frequency planning and methodologies for the selection of suitable nav aids and COM/VHF frequencies. In this regard, it was noted the methodologies applied in the CAR/SAM regions, United States and the EUR region, which were established following the needs of the frequency congestion in each case as well as the agreements taken by regional air navigation meetings.

*Current and future frequency allocations for GNSS*

4.3 In discussing this part of the agenda the meeting reviewed the satellite components of GNSS and GBAS.

*4.3.1 Satellite component of GNSS*

The meeting reviewed the current and future frequency allocations for GNSS. It was noted that a number of new allocations to the radionavigation satellite service had been introduced by ITU WRC-2000 in addition to the main existing GNSS band (1 559 – 1 610 MHz). In particular, the meeting reviewed information related to the new allocation in the band 1 164 – 1 215 MHz, which is planned for use by future enhancements of the GPS systems and by the planned Galileo system. The necessary protection requirements for current and future aeronautical radionavigation aids in the band were also noted. Finally, the meeting was informed that frequency planning for the satellite component of GNSS would not be performed directly by national civil aviation authorities. Frequency planning and coordination of the satellites would be the responsibility of the satellite systems operator.

*4.3.2 Ground-based augmentation system (GBAS)*

The meeting was informed that the ICAO Council had adopted SARPs for the GNSS ground-based augmentation system (GBAS). GBAS will operate in the VHF navigation band. Frequency planning criteria to enable introduction of GBAS in the VOR band have been developed. Further work is planned on frequency planning criteria to enable introduction into the ILS band.

*VHF Data Link (VDL)*

4.4 The meeting was informed that extensive work was being conducted within AMCP to develop frequency planning criteria for the introduction of VHF Digital Link (VDL) systems in the VHF COM band.. It was noted that the criteria currently used to plan analog VHF COM systems cannot be used for VDL without changes. Proposals for introduction of VDL technology in the NAV band are also under consideration, and would require the development of additional planning criteria.

*HF Data Link (HDL)*

4.5 The meeting noted that HF DL ICAO SARPs and guidance material were available and that this data link was implemented as an operational data communications by ARINC, which had plans to implement a worldwide HF DL system. Concerning the planning of HF DL for the CAR/SAM regions, the meeting noted that the CAR/SAM/3 RAN meeting recommended as part of the Aeronautical Mobile Service (R) this data link for several ATS units operating nowadays HF analog voice communications for FIS purposes using HF frequencies according the Frequency Allotment Plan contained in the Appendix S27 to the ITU Radio Regulations.

4.5.1 It was noted that in one SAM State a HF DL station forming part of the mentioned worldwide system was being to be implemented using frequencies from RDARA 13 D, MWARA SAM and Worldwide area III. In this regard it was also noted that:

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- a) RDARAs contains domestic HF frequencies normally in use and in some cases some of them are shared by two or more RDARAs. Protection of the frequencies are limited to the corresponding RDARA
  - b) MWARAs contains HF frequencies already recommended by the FASID to be implemented in the CAR/SAM aeronautical stations. Normally all frequencies of the HF family are not necessarily implemented and in some cases continental air spaces are fully covered with VHF. This cases could be study in order to get HF frequencies for other uses such as HFDL.
  - c) Worldwide frequencies are used by the airlines aeronautical stations and in same case frequencies are extremely busy.

4.5.2 The meeting, in considering the need to maintain the HF analog voice communications and also the need to plan and implement in the future HFDL services, agreed that ICAO should develop further guidance material for frequency planning of HFDL. It was noted that this matter would enable a smooth transition to the HFDL communications eliminating the potential possibilities of interference with the current HF analog voice communications obtaining an adequate and efficient use of the band 2.8 - 22 Mhz.

4.5.2.1 Based on the above, the following Conclusion was formulated:

**CONCLUSION 4/1 - Guidance material for the implementation of the HFDL**

In order to enable a smooth transition to the HFDL services eliminating the potential possibilities of interference with the current HF analog voice communications, ICAO, should consider the development of the necessary guidance material for the planning of the HFDL using the frequencies in the band 2.8 - 22 Mhz and the relevant material of Appendix S27 for the implementation of the HFDL in a worldwide basis.