

ELEVENTH AIR NAVIGATION CONFERENCE

Montreal, 22 September to 3 October 2003

Agenda Item 5 Review of the outcome of the ITU World Radio Conference (2003) : (WRC-2003) and its impact on aeronautical electromagnetic spectrum utilization

THE OUTCOME OF THE ITU WORLD RADIO CONFERENCE 2003 (WRC-2003)

(Presented by Brazil)

SUMMARY

This working paper presents the results of the ITU World Radio Conference 2003 (WRC-2003) and its impact on the use of the aeronautical electromagnetic spectrum. This working paper was developed pursuant to Conclusion 11/54 of GREPECAS/11 Meeting.

Action by the conference is in paragraph 3.

1. INTRODUCTION

1.1 Brazil, following Conclusion 11/54 of GREPECAS/11 (Manaus, Brazil, 3 to 7 December 2002), prepared this working paper, which has been reviewed and supported by the following States/International Organizations: Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, Ecuador, El Salvador, Haiti, Mexico, Panama, Paraguay, Peru, United States, Venezuela, COCESNA, IATA and IFATCA.

1.2 The Aeronautical Administration of Brazil (DECEA) attended the Conference Preparatory Meeting (CPM-02) held in Geneva, in November of 2002, and all coordination meetings of the Inter-American Telecommunication Commission (CITEL), in which the regional position was consolidated.

¹ Spanish version provided by Brazil.

1.3 At the WRC-03, the work was organised in committees to deal with the agenda items. These committees were subdivided into working groups and these, in turn, into sub-groups and drafting groups to discuss specific issues of each agenda item.

1.4 During the conference, ICAO held several coordination meetings to strengthen its position and to anticipate any discrepancies or difficulties which could have emerged during the conference.

2. AGENDA ITEMS

2.1 Agenda Item 1.4

2.1.1 **Title:** To consider the results of studies related to Resolution 114 (WRC-95), dealing with the use of the band 5 091 - 5 150 MHz by the fixed-satellite service (Earth-to-space) (limited to non-GSO MSS feeder links), and review the allocations to the aeronautical radionavigation service and the fixed-satellite service in the band 5 091 - 5 150 MHz.

2.1.2 **ICAO position:** Maintain the current regulatory mechanism, accepting the extension from 2010 up to 2018, at which time the FSS must revert to secondary status in the band 5 091 - 5 150 MHz.

2.1.3 **Discussion:** Discussions on this item were based on the proposals of Asia Pacific Telecommunity (APT), European Conference of Postal and Telecommunications Administrations (CEPT) and CITEL. Following an extensive debate, a consensus was reached to modify the footnote to extend the date from 2010 to 2018, at which time the fixed-satellite service (FSS) would revert to secondary status, and starting in 2012, not to grant new assignments to the FSS in this band. The meeting also approved the modification in Resolution 114, defining service sharing up to 2018.

2.1.4 **Final result concerning ICAO:** The issue was closed in keeping with the guidance provided by ICAO.

2.2 Agenda Item 1.5

2.2.1 **Title:** To consider, in accordance with Resolution 736 (WRC-2000), regulatory provisions and spectrum requirements for new and additional allocations to the mobile, fixed, Earth exploration-satellite and space research services, and to review the status of the radiolocation service in the frequency range 5 150 - 5 725 MHz, with a view to upgrading it, taking into account the results of ITU-R studies.

2.2.2 **ICAO position:** Accept the upgrading of the radiolocation service to primary status in the band 5 350 - 5 470 MHz only on the express condition that no interference be caused to the VHF aeronautical radionavigation service (ARNS) operating in accordance with 5.449, and that no protection be required from the ARNS to the radiolocation service, as agreed between administrations taking account of relevant ITU-R recommendations.

2.2.3 **Discussion:** This issue dealt with several bands above 5 GHz. The main aeronautical interest is to defend the band 5 350 - 5 470 MHz, also allocated to the ARNS. Following an intense debate, a consensus was reached and the allocations were approved, together with several footnotes and a resolution.

In the band 5 350 - 5 470 MHz, an upgrade of radiolocation service to primary status was approved with a footnote to ensure protection to ARNS, as recommended by ICAO. New services were also granted in the band 5 150 - 5 350 MHz for wireless access networks (RLAN). In the meantime, only the band 5 150 - 5 250 MHz (out of the MLS band (5 030 - 5 150 MHz)) will be allocated to the ARNS, but new services in this band were for indoor use only.

2.2.4 **Final result concerning ICAO:** The issue was closed in keeping with the guidance provided by ICAO. However, indoor use was granted for the RLAN in the band 5 150 - 5 250 MHz, without affecting the ARNS, which at present does not use the band (expansion of the MLS).

2.3 **Agenda Item 1.6**

2.3.1 **Title:** To consider regulatory measures to protect feeder links (Earth-to-space) for the mobile-satellite service which operate in the band 5 150 - 5 250 MHz, taking into account the latest ITU-R recommendations (for example, Recommendations ITU-R S.1426, ITU-R S.427 and ITU-R M.1454)

2.3.2 **ICAO position:** Monitor developments of future aeronautical systems that could be deployed in the band, with a view to supporting appropriate proposals to WRC-03.

2.3.3 **Discussion:** This item was discussed together with Agenda Item 1.5. The resolution approved for this item included mobile-satellite service (MSS) protection limits.

2.3.4 **Final result concerning ICAO:** The issue was closed in keeping with the guidance provided by ICAO, with the same remarks as in the previous item.

2.4 **Agenda Item 1.15**

2.4.1 **Title:** To review the results of studies concerning the radionavigation-satellite service (RNSS), in accordance with Resolutions 604 (WRC-2000), 605 (WRC-2000) and 606 (WRC-2000).

2.4.2 **ICAO position:**

- a) To support the establishment of an epfd limit of -121.5 dB(W/m²) in any 1 MHz for the aggregate interference from all RNSS systems in the band 1 164 - 1 215 MHz, as a necessary protection for aeronautical DME systems currently in operation, and to support the incorporation of the agreed epfd limit within an adequate regulatory framework having full mandatory force; and
- b) To support the incorporation of a single regulatory mechanism applicable to RNSS in the whole band 1 215 - 1 300 MHz as a necessary protection for radars used for civil aviation purposes, and to support the incorporation of the agreed mechanism within an adequate regulatory framework having full mandatory force for current and future RNSS systems.

2.4.3 **Discussion:** Various proposals were submitted and three discussion groups were created (in addition to several informal groups) and carried out discussions that reached a consensus on each of the resolutions.

- a) In relation to Resolution 605, all measures required to protect the DME were included, but serious discrepancies on regulatory aspects persisted. DME protection was ensured through the adoption of an aggregate power density limit (epfd) of -121.5 dB (W/m²). A second resolution was approved stipulating that, as of 2005, system reports that meet a specified list of criteria are subject to the procedure established in Art. 9 of the Radio Regulation (RR); and
- b) Regarding Resolution 606, the inclusion of a footnote to protect the radiolocation service in the band 1 215 - 1 300 MHz was accepted. This was adopted to ensure that as many RNSS providers as possible have equitable access to the satellite resources. The footnote states that, in some countries, this band is also allocated on a primary basis to radionavigation services. Thus, significant flexibility is provided in the event that the CAR/SAM Region decides to use this band for radionavigation services in the future.

2.4.4 **Final result concerning ICAO:** This issue was closed in keeping with the guidance provided by ICAO.

2.5 **Agenda Item 1.17**

2.5.1 **Title:** To consider upgrading the allocation to the radiolocation service in the frequency range 2 900 - 3 100 MHz to primary.

2.5.2 **ICAO position:** Any upgrading of the radiolocation service to primary status in bands allocated to aeronautical services must ensure the provision of adequate measures to continued protection of aeronautical services, present and future. In particular, the allocation should be made on the conditions of non-interference to, and no protection from, the radionavigation service.

2.5.3 **Discussion:** Following several days of debate, an agreement was reached on the text of the footnote as follows: "In the band 2 900 - 3 100 MHz, radiolocation service stations should not cause harmful interference or claim protection from radionavigation radar systems." This note meets the needs of the international civil aviation community; the radar systems used for air navigation will be protected from radiolocation systems.

2.5.4 **Final result concerning ICAO:** The issue was closed in keeping with the guidance provided by ICAO.

2.6 **Agenda Item 1.28**

2.6.1 **Title:** To permit the use of the band 108 - 117.975 MHz for the transmission of radionavigation satellite differential correction signals by ICAO standard ground-based systems.

2.6.2 **ICAO position:** Support an allocation permitting the use of the band 108 - 117.975 MHz by ICAO standard systems supporting navigation and surveillance functions, on the condition that priority and protection be given to the aeronautical radionavigation service. Ensure conformity with ITU-R Recommendation SM.1009 regarding compatibility with the FM broadcast services in the band 87.5 - 108 MHz.

2.6.3 **Discussion:** The proposal initially discussed contemplated the use of the band for the GBAS only, leaving the VDL Mode 4, in the absence of conclusive studies within the ITU-R, to be dealt with at the WRC-07. This position differed from that of ICAO, and it was noted that in this case this issue would have to be referred back to a new conference, whose results might be different from those intended by the aeronautical community, and could also delay VDL Mode 4 implementation. The resolution approved allows for the use of the GBAS throughout the band 108 - 117 975 MHz. However the use of surveillance equipment is restricted to the upper segment of the band (above 112 000 MHz) until all the studies concerning its compatibility with FM broadcast are completed and have been submitted to the ITU-R. Furthermore, it was decided that there is no need to submit the issue to a future conference (WRC-03 Resolution COM5/2).

2.6.4 **Final result concerning ICAO:** The issue was closed in keeping with the guidance provided by ICAO.

2.7 AGENDA FOR THE WRC-07

2.7.1 Through Resolution COM7/A, the conference approved the agenda for the next conference (WRC-07), including several items of aeronautical interest. Consequently, ICAO should participate actively in the preparation of the WRC-07, selecting the items to be included in the studies by aeronautical experts, so as to provide guidance to the States in the formulation of their positions.

3. ACTION BY THE CONFERENCE

3.1 The conference is invited to:

- a) urge States to participate actively in ITU activities in order to ensure the protection and use of the radio frequency spectrum granted to aeronautical services;
- b) urge States to increase the participation of members of the aeronautical community in the preparatory work for the WRC-07; and
- c) urge States to assist and support ICAO in the development of its position for the WRC-07.

