

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****REVIEW OF THE OUTCOME OF THE ITU WORLD
RADIOCOMMUNICATION CONFERENCE (2003) (WRC-2003) AND
ITS IMPACT ON AERONAUTICAL SPECTRUM UTILIZATION**

(Presented by the Secretariat)

SUMMARY

This paper presents the results of the ITU World Radiocommunication Conference 2003 (WRC-03) which was held in Geneva, Switzerland from 9 June to 4 July 2003. It also includes proposed further actions that need to be taken by ICAO and Contracting States as a result of the outcome of WRC-03.

1. INTRODUCTION

1.1 The International Telecommunication Union (ITU) World Radiocommunication Conference (WRC-03) reviewed a number of items related to the allocation and use of the radio frequency spectrum which were relevant to international civil aviation. The ICAO preparation for this conference was undertaken by the Air Navigation Commission, which tasked the Aeronautical Mobile Communication Panel (AMCP) to develop the draft ICAO position for the conference. The Global Navigation Satellite System Panel (GNSSP) also assisted in the development material relevant to GNSS. The ICAO position, which addressed issues of critical concern to aviation, was approved by the Council on 22 June 2001 and was sent to ICAO Contracting States on 10 August 2001. On 16 April 2003 the Council approved a number of updates to the ICAO position. The updated ICAO position was then sent to Contracting States and relevant international organizations on 23 April 2003 and submitted to the WRC-03 as an ICAO information paper.

1.2 During the preparation for the WRC-03, ICAO played an active role in the activities of regional telecommunication organizations¹ and Study Group 8 of the Radiocommunication Sector of the ITU (ITU-R). ICAO also organized various regional preparatory meetings to review and address developments by States and regional telecommunication organizations and to consider updates to the ICAO position. These regional meetings were held in conjunction with meetings of AMCP Working Group F, which developed the draft ICAO position, and were critical in the development of the updates to the ICAO position, in particular with regard to the inclusion of regional considerations.

1.3 The next ITU WRC is planned to be held in 2007 (WRC-07).

2. REVIEW OF THE RESULTS OF THE WRC-03

2.1 The results of the WRC-03 in relation to the ICAO position are given in the table below.

Results of the WRC-03 in relation to the ICAO position

Ref. Column 4:

P= partially complies with ICAO position

C= complies with ICAO position

WRC-03 Agenda Item	Results	Further action	Compliance with ICAO position
1.1	Some countries have deleted their name from a number of footnotes which allocate certain aeronautical bands to non-aeronautical services.	Encourage further deletion of country names at WRC-07	P
1.3	Decisions on globally/regionally harmonized bands for public protection and disaster relief did not affect bands allocated to aeronautical services.	None	C
1.4	The current sharing conditions for the use of the band 5 091 - 5 150 MHz by the aeronautical radionavigation service and the fixed satellite service (FSS) are extended to 2012 (no new assignments to FSS) and 2018 (FSS becomes secondary).	Monitor developments and review these dates at WRC-10 (See Note 1)	C
1.5	Upgrading of the radiolocation service, the Earth exploration satellite service and the space research service in the band 5 350 - 5 470 MHz were made under the explicit condition that no interference is caused to the aeronautical radionavigation service (airborne weather radar). The band 5 150 - 5250 MHz is now globally	None	C

¹ ICAO participated in activities of the following regional telecommunication organizations: Asia-Pacific Telecommunity (APT), Arab Spectrum Management Group (ASMG), European Conference of Postal and Telecommunications Administrations (CEPT), Comisión Interamericana de Telecomunicaciones (CITEL), and African Telecommunication Union (ATU).

WRC-03 Agenda Item	Results	Further action	Compliance with ICAO position
	available for (indoor) radio local area network (LAN) systems.		
1.6	Decisions on the protection for the FSS in the frequency band 5 150 - 5 250 MHz did not affect aeronautical systems.	None	C
1.8	Definitions and calculation methods for spurious and out-of-band domain emissions introduced; no changes to the values for these emissions. Measures for protection of passive services introduced.	Review ICAO material in light of the new provisions	C
1.9	Decision for changes to Appendix 3 and Chapter VII of the Radio Regulations did not affect aeronautical allocations.	None	C
1.11	The conference agreed to permit the operation of the aeronautical mobile satellite service in the 14 GHz band on a secondary basis. This usage is not intended for aeronautical safety communications.	None	C
1.14	The conference adopted a resolution, inviting Administrations to take administrative and technical measures to remove interference to aeronautical HF bands.	To monitor and review the possibility to introduce technical measures suppressing interference; encourage administrations to terminate unauthorized transmissions in the aeronautical HF bands	C
1.15	An epfd limit of -121.5 Db (W/m ²) from all RNSS systems operating in the band 1 164 - 1 215 MHz was introduced in the Radio Regulations in order to protect DME from harmful interference. A footnote was introduced in the Radio Regulation to protect the radionavigation service (including primary radars used for civil aviation applications) from harmful interference from RNSS systems in the band 1215 - 1300 MHz.	Support further studies in ITU-R to establish detailed protection requirements for radar (see Note 2)	C
1.16	No allocations were made in aeronautical bands.	None	C
1.17	The radiolocation service was upgraded to a primary status with the express condition that it shall not cause harmful interference nor claim protection from the aeronautical radionavigation service in the band 2 900 - 3 100 MHz.	None	C

WRC-03 Agenda Item	Results	Further action	Compliance with ICAO position
1.20	No allocations were made for non-GSO mobile satellite systems below 1 MHz	None	C

WRC-03 Agenda Item	Results	Further action	Compliance with ICAO position
1.22	No new allocations for IMT-2000 systems were made. Further studies on technical and operational issues relating to future developments of IMT-2000 were agreed in preparation for WRC-07.	Support further ITU-R studies to prevent any impact on aeronautical systems	C
1.28	An allocation to the Aeronautical Mobile (R) Service, limited to data links for navigation and surveillance systems, was introduced in the Radio Regulations in the band 108 - 117.975 MHz.	Support ITU-R studies on the compatibility of broadcasting and aeronautical services (see Note 3)	C
1.31	Allocations were made to the mobile satellite service between 1 - 3 GHz without affecting any aeronautical allocation or application in this frequency range.	None	C
2	Decisions on incorporation by reference of ITU-R Recommendations into the Radio Regulations did not affect any aeronautical allocation or application.	None	C
4	Recommendation 402 was removed from the Radio Regulations, as information provided by ITU-R (and confirmed by ICAO) indicated that this Recommendation was no longer implemented by Administrations since 1993. In coordination with the ITU Secretariat, procedures were developed to facilitate the introduction of new systems in the aeronautical HF bands (more to be added)	Support implementation of the new procedures	P
7.2	The meeting developed an agenda for WRC-07. Elements of this agenda that affect civil aviation are identified in AN-Conf/11-IP/2.	See AN-Conf/11-IP/2	C

Note 1.— Several systems are being considered by States for the introduction of aeronautical applications in this band. It is expected that harmonized frequency bands for these systems will facilitate implementation. The current date (2012) after which no new assignments will be brought into use for the fixed satellite service (FSS) will be reviewed at WRC-10 in the light of the requirements for the use of this band by the aeronautical radionavigation service. Further work in ICAO will initially concentrate on the need for globally harmonized standards (SARPs) and spectrum. Material on the compatibility between new aeronautical applications and the FSS will be developed by ICAO for presentation to ITU-R..

Note 2.— The recommendations that are expected to be developed as a result of these studies will provide States with further guidance material on the protection of radar systems.

Note 3.— Further work in ITU-R is necessary to update ITU-R Recommendation SM.1009 in order to introduce both the FM immunity characteristics for the ICAO ground-based augmentation system (GBAS) and VHF digital link Mode 4 (VDL Mode 4). In the case of VDL Mode 4, additional material needs to be developed to secure adequate protection of the FM broadcasting service. The compatibility of digital sound broadcasting systems and aeronautical services will also need to be addressed.

3. SUMMARY OF THE RESULTS

3.1 The decisions of the WRC-03 on all agenda items of concern to civil aviation were generally very favourable to international civil aviation and in conformity to the ICAO position. Many administrations and regional organizations supported important elements of the ICAO position facilitating the introduction of amendments to the Radio Regulations without adversely affecting the aeronautical use of the electromagnetic spectrum.

3.2 Pivotal in achieving these results was the active participation of aeronautical experts from ICAO Contracting States, international organizations and ICAO in various meetings of the regional telecommunication organizations and of the relevant ITU-R study groups between 2000 and 2003 in accordance with Assembly Resolution A32-13.

4. FURTHER WORK

4.1 Further work in ICAO in relation to the protection of radar systems in the band 1 215 - 1 300 MHz will continue in ITU-R, with a view to developing relevant recommendations regarding the compatibility between the radio navigation satellite service (RNSS) and the radionavigation service (RNS), including primary radars used for civil aviation applications.

4.2 For the introduction of new aeronautical applications in currently available aeronautical bands, it is essential to develop globally harmonized proposals for relevant SARPs, in order to secure the future availability of adequate spectrum for aviation. If necessary, proposals for new aeronautical applications in these bands can be considered at WRC-07. In accordance with the agenda for WRC-07, new aeronautical allocations in bands which are currently not available for aviation can also be considered.

4.3 The introduction of the ICAO ground-based augmentation system (GBAS) and VHF digital link (VDL) Mode 4 systems in the band 108 - 117.975 MHz requires ICAO to develop the necessary material for presentation and review by the ITU-R on any compatibility issues that may arise between broadcasting and aeronautical services.

4.4 As mentioned above, one of the main reasons of the overall satisfactory outcome was that ICAO Contracting States and international organizations had implemented Assembly Resolution A32-13, resulting in a substantive participation of experts from States in the preparatory activities for the WRC-03 in the ITU and regional telecommunication organizations. Accordingly, continued implementation of Assembly Resolution A32-13 will be essential as a follow-up of the WRC-2003 outcome and in preparation for WRC-2007.

4.5 Noting the above, the following recommendation is proposed:

**Recommendation 5/yyy —
Preparation for the ITU World Radiocommunication Conference
2007 (WRC-07)**

That ICAO

- a) urge Contracting States and international organizations to continue their efforts on implementation of the relevant elements of Assembly Resolution A32-13; and
- b) continue to assign high priority to the tasks relating to the protection and availability of radio frequency spectrum allocated to aeronautical services and in particular actively participates in the relevant activities of the ITU-R and of the regional telecommunication organizations.

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