International Civil Aviation Organization

Fourth Meeting of the APIRG Communications, Navigation and Surveillance Sub-group (CNS/SG/4)
(Dakar, Senegal, 25 – 29 July 2011)

Agenda Item 8: Aeronautical Radio Frequency Spectrum issues

Review of ICAO position, including updates and preparations for the ITU-WRC -2012 meeting

SUMMARY
This paper presents the ICAO Position on issues of interest to international civil aviation to be decided at the 2012 ITU World Radiocommunication Conference (WRC-12).
Action by the meeting is at paragraph 3.
References : ICAO Annex 10 —Volume V –Aeronautical Frequency Spectrum Utilization ICAO Doc 9718 — Handbook on radio frequency spectrum requirements ICAO Position for WRC 12 Report on CPM Second Meeting Reports on ATU 1st and 2nd meetings *Note: AFI References can be downloaded from **www.icao.int/wacaf.***
Related ICAO Strategic Objective **A**: ***Safety*** and **C**: ***Environmental Protection and Sustainable*** Development of Air Transport.

1. INTRODUCTION

1.1 The ICAO Position to IUT World radio conference aims at protecting aeronautical spectrum for radiocommunication and radionavigation systems required for current and future safety-of-flight applications. In particular, it stresses that safety considerations dictate that exclusive frequency bands must be allocated to ***safety critical aeronautical systems*** and that ***adequate protection against harmful interference*** must be ensured. It also includes proposals for new aeronautical allocations to support new aeronautical applications.

1.2 ICAO supports the working principle as utilized in studies for WRC-07 and reflected in the WRC-07 Conference Preparatory Meeting report material on Agenda Item 1.6. In particular that compatibility of ICAO standard systems with "***existing or planned aeronautical systems operating in accordance with international aeronautical standards will be ensured by ICAO***". Compatibility of ICAO standard systems with non-ICAO standard systems will be addressed in ITU.

2 DISCUSSION

2.1 The ICAO Position should be considered in conjunction with section 7-II of the *Handbook on Radio Frequency Spectrum Requirements for Civil Aviation including Statement of Approved ICAO Policies* (Doc 9718, 5th Edition-2010) (Civil aviation frequency allocations – ICAO policies and related information). Doc 9718 is available on website http://www.icao.int/anb/panels/acp (***see webpage: Repository***). Also available at the above-mentioned website are the ITU WRC Resolutions referenced in the ICAO Position.

2.2 The ICAO Council, at the 3rd meeting of its 193rd Session on 15 June 2011, approved updates to the ICAO position on the International Telecommunication Union (ITU) World Radiocommunication Conference (2012) (WRC-12) issues of critical concern to aviation and

authorized their transmission to ICAO Contracting States, relevant international organizations and to the WRC-12, together with relevant material as required.

2.3 The original ICAO position was sent to ICAO Contracting States under cover of ***State letter E 3/5-09/61 dated 30 June 2009.*** The letter had mentioned that prior to WRC-12 new developments resulting from studies under way in ICAO and ITU might require the submission of additional material to the conference. The approved updates contain that additional material based on the latest results of ICAO and ITU studies. The main points addressed by these updates, which were reviewed by the Air Navigation Commission on 12 May 2011, are as follows:

a) A further clarification of the spectrum requirement for unmanned aircraft systems (UAS), expressing clearly that in order for ICAO to be in a position to accommodate UAS in civil airspace and to develop SARPs, spectrum for UAS communications systems needs to be afforded the necessary status and sufficient protection from harmful interference through an appropriate allocation identified as providing an aeronautical safety service, similarly to other spectrum used to support the safe operation of aircraft (***WRC-12 Agenda Item 1.3 refers***);

b) ITU-R studies have been successfully concluded in support of the new allocations made to the aeronautical mobile (route) service at WRC-07 and a potential new allocation for aeronautical surface applications at airports (***WRC-12 Agenda Item 1.4 refers***);

c) Studies have confirmed that long-term aeronautical mobile satellite (route) service spectrum requirements up to the year 2025 can be accommodated within existing frequency bands available for this service. Provisions, however, need to be included in the ITU Radio Regulations to improve transparency in the coordination process (***WRC-12 Agenda Item 1.7 refers***);

d) The aerospace industry has indicated that they are currently not considering the frequency band 37 - 38 GHz to support a wireless network within aircraft to provide/enhance intra-aircraft safety communications. The aerospace industry, however, has indicated the need to support a future agenda item to consider frequency spectrum requirements for such an application (***WRC-12 Agenda Items 1.12 and 8.2 refer***); and

e) During ITU-R studies, a number of candidate frequency bands have been identified for expansion of the mobile satellite service. This includes three potential allocations in bands used by aeronautical radionavigation systems. If new services are to be introduced in these bands, operation of aeronautical safety systems must be protected (***WRC-12 Agenda Item 1.25 refers***).

2.4 In accordance with the Council action, the attached updated ICAO position in **Appendix** will be submitted to the ITU WRC-12 as an information paper. As pointed out in State letter E 3/5-09/61, **active support from States is deemed to be the only means to ensure that the results of the WRC-12 reflect civil aviation's need for spectrum** (ICAO Assembly Resolution A36-25 refers).

The ICAO position is presented in **Appendix** to this working paper (**WP23A AppendixA**).

2.5 During the past WRC 07, support from ICAO contracting States to ICAO position allowed to reach the objectives of the international civil aviation for the protection and optimum usage of the aeronautical frequency spectrum. In particular for the developing countries the support from the African Group (ATU) after coordination of ICAO with AFI aviation stakeholders was essential to the approval of Recommendation **724 (WRC-07)** -***Use by civil aviation of frequency allocations on a primary basis to the fixed-satellite service.*** This recommendation calls administrations, in particular in developing countries and in countries with remote and rural areas to:

- Recognize the importance of VSAT operations to the modernization of civil aviation telecommunications systems;
- Encourage the implementation of VSAT systems that could support both aeronautical and other communication requirements;
- Expedite, to the maximum extent possible and as necessary, the authorization process to enable aeronautical communications using VSAT technology;

ITU Resolution 724 (WR-07) is attached in **Appendix B.**

The implementation of the ICAO Assembly Resolution 36-25 by AFI States will contribute to the consideration of ICAO position by the AFI Group (ATU) and therefore by the Conference.

3. ACTION TO BE TAKEN BY THE MEETING

The meeting is invited to:

a) – Take note of the above information.

b) – Examine ICAO updated position in the aim of taking the necessary coordination actions to ensure the promotion of this position and;

c) – encourage States/organizations to participate in the forthcoming ICAO preparatory meetings: *Regional Frequency Spectrum Workshop for the preparation of the World Radiocommunication (Conference (WRC/12); 25th Meeting of the Aeronautical Communication Panel Working Group F (ACP-WG/F/25)* to be held in Dakar from 6 to 14 October 2011.

APPENDIX A

ICAO POSITION FOR WRC 12

[Provided in a separate file: *CNS-SG.4 WP23A Appendix A*]

APPENDIX B

RECOMMENDATION 724 (WRC-07)

Use by civil aviation of frequency allocations on a primary basis to the fixed-satellite service

The World Radiocommunication Conference (Geneva, 2007),

considering

a) that remote and rural areas often still lack a terrestrial communication infrastructure that meets the evolving requirements of modern civil aviation;

b) that the cost of providing and maintaining such an infrastructure could be expensive, particularly in remote regions;

c) that satellite communication systems operating in the fixed-satellite service (FSS) may be the only medium to satisfy the requirements of the International Civil Aviation Organization's (ICAO) communication, navigation, surveillance and air traffic management (CNS/ATM) systems, where an adequate terrestrial communication infrastructure is not available;

d) that the use of VSAT systems, operating in the FSS and being deployed on a large scale in aeronautical communications, has the potential to significantly enhance communications between air traffic control centres as well as with remote aeronautical stations;

e) that establishing and utilizing satellite communication systems for civil aviation would also bring benefits for developing countries and countries with remote and rural areas by enabling the use of VSAT systems for non-aeronautical communications;

f) that in the cases identified in *considering e)* it is necessary to draw attention to the importance of aeronautical communications as opposed to non-aeronautical communications,

noting

a) that the FSS is not a safety service;

b) that Resolution **20 (Rev.WRC-03)** *resolves to instruct the Secretary-General* "to encourage ICAO to continue its assistance to developing countries which are endeavouring to improve their aeronautical telecommunications ...",

recommends

1 that administrations, in particular in developing countries and in countries with remote and rural areas, recognize the importance of VSAT operations to the modernization of civil aviation telecommunications systems and encourage the implementation of VSAT systems that could support both aeronautical and other communication requirements;

2 that administrations in developing countries be encouraged, to the maximum extent possible and as necessary, to expedite the authorization process to enable aeronautical communications using VSAT technology;

3 that arrangements should be made to provide for urgent service restoration or alternative routing in case of a disruption of a VSAT link associated with the aeronautical communications;

4 that administrations implementing VSAT systems in accordance with *recommends* 1 to 3 should do so in satellite networks operating in frequency bands with a primary allocation to the satellite services;

5 to invite ICAO, noting Resolution **20 (Rev.WRC-03)**, to continue its assistance to developing countries to improve their aeronautical telecommunications, including interoperability of VSAT networks, and provide guidance to developing countries on how they could best use VSAT technology for this purpose,

requests the Secretary-General

to bring this Recommendation to the attention of ICAO.