



DIRECTORS GENERAL OF CIVIL AVIATION-MIDDLE EAST REGION

Second Meeting (DGCA-MID/2)
(Jeddah, Saudi Arabia, 20-22 May 2013)

Agenda Item 5: Air Navigation

SUPPORT OF THE ICAO POLICY ON RADIO FREQUENCY SPECTRUM MATTERS

(Presented by secretariat)

SUMMARY

The aim of this paper is to discuss trends in the ITU World Radiocommunication Conferences, frequency spectrum relevant outcome of the 12th Air Navigation Conference (AN Conf/12), MIDANPIRG meetings and the requirement for active support MID States at the highest level possible.

Action by the meeting is at paragraph 3.

1. INTRODUCTION

1.1 Assembly Resolution A36-25 “*Support of the ICAO Policy on radio frequency spectrum matters*” provides guidance to States and ICAO as regards necessary attribution of resources to the ITU World Radiocommunication Conferences and their related process to ensure that aviation radio frequency spectrum requirements continue to be met.

1.2 Since A36-25 was originally developed (A32-13, in 1998), the pressure on the frequency spectrum, a scarce and finite resource has continued to mount within States and internationally. The culmination of international spectrum co-ordination is the World Radiocommunication Conferences (WRCs). During the last 15 years the WRC process has almost doubled in terms of industry participation, while the aviation industry has not kept up with this trend.

1.3 In order for the ICAO position to be duly considered by future WRCs, increased support to the WRC process by ICAO, States and the civil aviation industry is essential. In recognition of the above, AN Conf/12 (Montreal, Nov 2012) developed Recommendation 1/12, 1/13 and 1/14. Assembly Resolution A36-25 and relevant AN Conf/12 Recommendations are at **Appendices A and B** to this working paper respectively.

2. DISCUSSION

The World Radiocommunication Conference (WRC) AND the International Telecommunication Union (ITU)

2.1 International agreements on the allocation and use of the radio frequency spectrum are made at World Radiocommunication Conferences (WRCs) which are held within the framework of ITU, every three to four years approximately. These agreements are laid out in the ITU Radio Regulations, which specify the allocation of radio frequency spectrum to user services. The ITU is the specialized agency of the United Nations for telecommunications matters.

2.2 ICAO is recognized by both States and the ITU as the international body with the competence to coordinate the aeronautical input to ITU discussions on radio frequency spectrum matters. ICAO retains a privileged position at the WRCs as an observer in a special advisory capacity. While not accorded the right of a direct vote or making direct technical proposals for the solution of individual agenda items being deliberated during the WRCs, this privileged position enables ICAO to fully participate in the deliberations of these conferences, as well as the preparatory process leading up to them. The ICAO position at WRCs reflects the coordinated requirements of the international civil aviation community and is approved by the ICAO Council.

Required Support to the ICAO Position at WRCs

2.3 Availability of the necessary radio frequency spectrum continues to be a prerequisite for the safety of civil aviation and the effective implementation of the communications, navigation, and surveillance/air traffic management (CNS/ATM) systems. However, as demand for radio spectrum from non-aviation users keeps growing, aviation faces an ever-increasing competition and even danger of loss of some of its allocations within the limited available spectrum. It is essential that aviation's requirements for radio frequency spectrum be strongly supported by all ICAO member States in all international fora where spectrum allocations are addressed, so as to ensure that aviation requirements for safety of life services are duly presented and understood.

2.4 Since Assembly Resolution A36-25 was originally developed, the WRC process has almost doubled in terms of industry participation, while civil aviation representation has not been able to keep up with this trend. For the ICAO position to be duly considered by future WRCs when deliberating on matters of interest to the aviation community, an increased level of support by ITU Member Administrations is essential.

2.5 Currently the telecommunication industry has identified a requirement for vastly increasing their available frequency spectrum, in support of new mobile and broadband applications. Within many ITU Member States, the telecommunications authorities largely control the process leading to development of proposals for presentation to the ITU WRCs, and aviation authorities' inputs to the process often fail to influence adequately the national position. Additionally, the dominant role gained by regional organizations in ITU activities has substantially increased the resource requirements to support the associated intensive schedule of WRC preparation meetings at various levels.

2.6 For the MID region the activities of the Arab Spectrum Management Group (ASMG) is important and it was noted that at last WRC, on the agenda item of AM(R)S and AMS(R)S allocations for Unmanned Aircraft Systems (UAS). A portion of the ASMG Position was: *“the type of Routes to be used for these systems must be determined, and should be provided in a specific Appendix as part of the RR, taking into account the safety and security requirements of other flights as determined by ICAO”*.

2.7 The above position indicates that there was no coordination between Radio Regulatory (RR) authorities and aviation authorities in MID region when this position was developed. As it is within the purview of aviation authorities of States to regulate airspace and determine ATS routes, not RR authorities. In any case, Article 8 of the ICAO Convention is clear on the subject of UAS entering the airspace of other States. ITU, as the UN specialized agency to coordinate Radio Frequency spectrum use, does not and cannot determine ATS routes through their Radio Regulations.

2.8 In view of the above MIDANPIRG meetings discussed in details the importance of coordination between civil aviation authorities and RR authorities and adopted several Conclusions; the last one adopted by MIDANPIRG/12 meeting was:

CONCLUSION 12/43: SUPPORT ICAO POSITION FOR WRC-12

That, MID States be urged to:

- a- include ICAO Position on WRC-12 in their State Position to the extent possible;*
- b- support Civil Aviation Authorities, aviation spectrum experts to participate actively in the national and regional level activities related to WRC-12 including ITU study groups to support ICAO Position; and*
- c- support Civil Aviation Authorities, aviation spectrum experts to participate in WRC-12 and coordinate with the ICAO delegation to the conference.*

2.9 An inadequate level of support of the international civil aviation position at WRCs may lead to WRC decisions which do not address adequately the aeronautical Radio Frequency (RF) spectrum bandwidth requirements. In the long run, aeronautical services may be jeopardized, with potentially serious consequences.

2.10 Such consequences could include harmful interference from non-aeronautical services to existing aeronautical services, requiring expensive re-equipping of aircraft to preserve the current level of safety; failure of certain systems to satisfy operational requirements (such as in the case of interference to global navigation satellite system (GNSS)); and inability to satisfy the growing need for aeronautical spectrum to support new CNS/ATM systems and enhance safety and regularity of flight.

2.11 For the protection of GNSS signal MIDANPIRG/13 meeting adopted conclusion 13/44 urging concerned MID States to remove their names which still appear in the footnotes affecting GNSS signal.

CONCLUSION 13/44: PROTECTION OF GNSS SIGNAL

That, States that are listed in the footnotes 5.362B and 5.362C be urged to take necessary measures to remove their names from these footnotes as soon as possible.

2.12 In order to improve the current situation, it is recommended that MID Region States should commit to support the ICAO position at WRCs and in regional and international activities conducted in preparation to WRCs. To do so, they should include in their proposals to the WRC, to the extent possible, material consistent with the ICAO position; and also they should undertake to provide for aviation interests to be fully integrated into States' positions for WRCs.

2.13 Recommendations 1/12, 1/13 and 1/14 by AN Conf/12, are relevant to Aeronautical Frequency Spectrum use, planning and strategy. Recommendation 1/12 is the most relevant of those. It reaffirms Assembly Resolution A36-25 also recommends the development and implementation of a comprehensive RF Spectrum Strategy to ensure timely availability and appropriate protection of adequate RF spectrum, to create a sustainable environment for growth and technology development, to support safety and operational effectiveness for current and future aviation systems, and to allow for the transition between present and next generation technologies. In terms of the MID Region, Recommendation 1/14 deserves special attention as well, as it highlights potential loss of current frequency assignments for the operation of aeronautical VSAT systems.

2.14 In conclusion, since Assembly Resolution A36-25 was originally developed (A32-13, in 1998), the pressure on the RF spectrum, a scarce and finite resource has continued to mount and consequently the WRC process has almost doubled in terms of industry participation, while the aviation industry has not kept up with this trend. For the ICAO position to be duly considered by future WRCs, increased support to the WRC process by ICAO, States and the civil aviation industry as a whole, is essential.

3. ACTION BY THE MEETING

3.1 The meeting is invited to urge MID States to:

- a) make high level contact with RF regulatory authorities in order to explain to the regulator to include aviation spectrum needs in their national position to the possible extent and support ICAO position at WRC;
- b) appoint member(s) from their Civil Aviation authorities to continuously meet with RF regulatory authorities and educate/update them on aviation needs for the spectrum;
- c) attend ASMG meeting and support aviation RF spectrum needs; and
- d) support the conduct of regional workshops and seminars in support of ICAO position for WRC.

APPENDIX A

ASSEMBLY RESOLUTION A36-25

A36-25: Support of the ICAO Policy on radio frequency spectrum matters

Whereas ICAO is the specialized agency of the United Nations responsible for the safety, regularity and efficiency of international civil aviation;

Whereas ICAO adopts international Standards and Recommended Practices (SARPs) for aeronautical communications systems and radio navigation aids;

Whereas the International Telecommunication Union (ITU) is the specialized agency of the United Nations regulating the use of the radio frequency spectrum;

Whereas the ICAO position, as approved by the Council, for ITU World Radiocommunication Conferences (WRCs) is the result of the coordination of international aviation requirements for radio frequency spectrum;

Recognizing that the development and the implementation of the communications, navigation, and surveillance/air traffic management (CNS/ATM) systems and the safety of international civil aviation could be seriously jeopardized unless aviation requirements for allocations of radio frequency spectrum are satisfied and protection of those allocations is achieved;

Recognizing that support from ITU member administrations is required to ensure that the ICAO position is supported by the WRC and that aviation requirements are met;

Considering the urgent need to increase such support due to the growing demand for spectrum and aggressive competition from commercial telecommunications services;

Considering the increased level of ITU WRC preparation activities associated with the growing demand for bandwidth from all users of the radio frequency (RF) spectrum, as well as the increased importance of the development of regional positions by regional telecommunication bodies such as APT, ASMG, ATU, CEPT, CITEL and RCC*;

Considering Recommendations 7/3 and 7/6 of the Special Communications/Operations Divisional Meeting (1995) (SP COM/OPS/95) as well as Recommendation 5/2 of the 11th Air Navigation Conference (2003);

The Assembly:

1. *Urges* Contracting States and International Organizations to support firmly the ICAO position at WRCs and in regional and other international activities conducted in preparation for WRCs by the following means:

* APT: Asia-Pacific Telecommunity; ASMG: Arab Spectrum Management Group; ATU: African Telecommunications Union; CEPT: the European Conference of Postal and Telecommunications Administrations; CITEL: Comisión Interamericana de Telecomunicaciones; RCC: Regional Commonwealth in the field of Communications.

- a) undertaking to provide for aviation interests to be fully integrated in the development of their positions presented to regional telecommunications fora involved in the preparation of joint proposals to the WRC;
- b) including in their proposals to the WRC, to the extent possible, material consistent with the ICAO position;
- c) supporting the ICAO position and the ICAO policy statements at ITU WRCs as approved by Council and incorporated in the *Handbook on Radio Frequency Spectrum Requirements for Civil Aviation* (Doc 9718);
- d) undertaking to provide experts from their civil aviation authorities to fully participate in the development of States' and regional positions and development of aviation interests at the ITU; and
- e) ensuring, to the maximum extent possible, that their delegations to regional conferences, ITU study groups and WRCs include experts from their civil aviation authorities or other aviation officials who are fully prepared to represent aviation interests;

2. *Requests* the Secretary General to bring to the attention of ITU the importance of adequate radio frequency spectrum allocation and protection for the safety of aviation;

3. *Instructs* the Council and the Secretary General, as a matter of high priority within the budget adopted by the Assembly, to ensure that the resources necessary to support increased participation by ICAO in international and regional spectrum management activities are made available; and

4. *Declares* that this resolution supersedes Resolution A32-13.

APPENDIX B

12th Air-Navigation Conference (AN-Conf/12)

Report on Agenda Item 1, sub-item 1.4, Frequency Spectrum

1.4 SPECTRUM

1.4.1 On the continuing development of aeronautical frequency spectrum as a resource, the Committee agreed that frequency spectrum is fundamental to aviation safety and aviation operations. It is essential that aviation maintains access to sufficient, suitably protected spectrum to support the current and future global ATM system. The Committee noted that in order to achieve this, aviation needs to continue to be engaged in the radio regulatory process (World Radiocommunication Conferences (WRC) and ITU-R preparatory process). The Committee supported the need for a common globally coordinated ICAO position and sufficient resources devoted to ensure that future aviation spectrum needs are recognized and met, and to ensure that potential and actual threats are identified and addressed. Based on its discussions, the Committee accepted the following recommendation:

Recommendation 1/12 – Development of the aeronautical frequency spectrum resource

That States and stakeholders:

- a) recognize that a prerequisite for the deployment of systems and technologies is the availability of adequate and appropriate radio spectrum to support aeronautical safety services;
- b) work together to deliver efficient aeronautical frequency management and “best practices” to demonstrate the effectiveness and relevance of the industry in spectrum management;
- c) support ICAO activities relating to the aviation spectrum strategy and policy through relevant expert group meetings and regional planning groups; and
- d) support Assembly Resolution A36-25 and the requirement for sufficient State representation of aviation interests at World Radiocommunication Conferences (WRCs) and relevant International Telecommunication Union WRC preparatory meetings;

That ICAO:

- e) develop and implement a comprehensive aviation frequency spectrum strategy to be referenced to the GANP, which includes the following objectives:
 - 1) timely availability and appropriate protection of adequate spectrum to create a sustainable environment for growth and technology development to support safety and operational effectiveness for current and future operational systems and allow for the transition between present and next generation technologies;
 - 2) demonstrate efficient use of the spectrum allocated through efficient frequency management and use of best practises; and
 - 3) clearly state in the strategy the need for aeronautical systems to operate in spectrum allocated to an appropriate aeronautical safety service;

- f) establish timelines and methodologies to complement the GANP planning objectives with a frequency spectrum strategy;
- g) continue to allocate adequate resources with a far-sighted approach to its work programmes regarding aviation spectrum challenges;
- h) consider a methodology to enable ATM stakeholders to effectively share ICAO material on aviation frequency spectrum as a common guidance for securing the aviation position at World Radiocommunication Conferences; and
- i) consider structuring the *Handbook on Radio Frequency Spectrum Requirements for Civil Aviation including Statement of Approved ICAO Policies* (Doc 9718) by using a web-based platform as appropriate, to further support States in their implementation of the spectrum strategy.

1.4.2 Specific issues related to the agenda of ITU WRC-15

1.4.2.1 The Committee noted that WRC-15 will consider a potential regulatory action to facilitate the use of fixed satellite service spectrum for the command and control link for remotely piloted aircraft systems (RPAS), consistent with the safety of life aspects of RPAS operations. The Committee agreed that it is important that States and ICAO support the on-going International Telecommunication Union Radio Communication Sector (ITU-R) preparatory studies on this issue to ensure that the safety of life concerns will be sufficiently addressed. Based on its discussions, the Committee accepted the following recommendation:

Recommendation 1/13 – Potential use of fixed satellite service spectrum allocations to support the safe operation of remotely piloted aircraft systems

That ICAO support studies in the International Telecommunication Union Radio Communication Sector (ITU-R) to determine what ITU regulatory actions are required to enable use of frequency bands allocated to the fixed satellite service for remotely piloted aircraft system command and control (C2) links to ensure consistency with ICAO technical and regulatory requirements for a safety service.

1.4.3.2 The Committee noted that very small aperture terminal (VSAT) satellite networks in the C-band (3400 – 4200 MHz) are used to facilitate Safety of Life CNS services where terrestrial infrastructure is non-existing or not sufficiently reliable. Due to atmospheric and rainfall attenuation in higher frequency bands, the C-band remains the most suitable frequency band for this service, especially in tropical regions. C-band VSAT networks are currently in use in all regions of the world. However, it was recalled that at WRC-07, an allocation specific to ITU Region 1 (Europe and Africa) was made to the international mobile telecommunications (IMT) service in the C-band. This has resulted in interference and reduced access for aeronautical C-band networks, especially in Africa.

1.4.3.3 Furthermore, the Committee noted that the outcome of WRC-15 Agenda Items 1.1 and 9.1.5 may negatively impact the continued operation of C-band VSAT networks on a worldwide basis, unless aviation interests are sufficiently supported during the WRC. The Committee agreed that long-term VSAT spectrum availability and protection from interference needs to be guaranteed across the entire African continent and other parts of the world. Based on the above, the Committee accepted the following recommendation:

Recommendation 1/14 – Long-term very small aperture terminal spectrum availability and protection

That:

- a) ICAO and Member States not support additional international mobile telecommunications spectrum allocations in the fixed satellite service C-band spectrum at the expense of the current or future aeronautical very small aperture terminal networks; and
- b) ICAO and Member States pursue this matter in the International Telecommunication Union Radio Communication Sector (ITU-R) and during the World Radiocommunication Conference (WRC-15), with a coordinated proposal to promote a solution where the international mobile telecommunications spectrum allocation does not compromise the availability of the aeronautical very small aperture terminal networks.

- END -