Agenda Item 1: Follow-up to conclusions and decisions adopted by SAM/IG meetings, results of the 38th session of the ICAO Assembly (A38) and thirteenth meeting of Civil Aviation Authorities of the SAM Region (RAAC/13) and progress made in the development of the new electronic Air Navigation Plan (e-ANP)

Results of the 38th Session of the ICAO Assembly (A38)

(Presented by the Secretariat)

SUMMARY

This working paper presents information on the results of the 38th Session of the ICAO Assembly concerning air navigation aspects and their impact on air navigation planning and implementation activities in the SAM Region.

REFERENCES:

Resolutions adopted at the 38th Session of the ICAO Assembly (A38) (Montreal, Canada, 24 September to 4 October 2013).

ICAO strategic objectives:	*A – Safety; and* *B – Air navigation capacity and efficiency*

1. **Background**

1.1 The 38th Session of the ICAO Assembly (A38) was held in Montreal, Canada, from 29 September 2013 to 4 October 2013 with the participation of 1,851 delegates of 184 ICAO member States and 54 observer organisations.

1.2 This working paper only covers A38 resolutions related to air navigation aspects considered to be relevant to this Meeting.

2. **Discussion**

2.1 The following resolutions adopted at the 38th Session of the ICAO Assembly have been deemed relevant for air navigation planning and implementation in the SAM Region:

a) A38-2 – ICAO global planning for safety and air navigation;
b) A38-6 – Support of the ICAO policy on radio frequency spectrum matters;
c) A38-8 – Proficiency in the English language used for radiotelephony communications;
d) A38-11 – Formulation and implementation of standards and recommended practices (SARPs) and procedures for air navigation services (PANS) and notification of differences; and
e) A38-12 – Consolidated statement of continuing ICAO policies and associated practices related specifically to air navigation.

2.2 **Appendix A** to this working paper presents the content of A38 resolutions addressed in this working paper.

Resolution A38 - 2 – ICAO global planning for safety and air navigation

2.3 Through Resolution A38-2, the Assembly endorsed the first edition of the Global Aviation Safety Plan (GASP) and the fourth edition of the Global Air Navigation Plan (GANP) to be used as global strategic direction for safety and air navigation, respectively, and resolved that the aforementioned GASP and GANP would provide the framework for the development and implementation of regional, sub-regional and national implementation plans, thus ensuring harmonisation and coordination of efforts aimed at improving civil aviation safety, capacity and efficiency.

2.4 Resolution 38-2 superseded Resolution A37-4 on ICAO safety planning and Resolution A37-12 on ICAO global sustainability planning.

2.5 The *SAM Performance-Based Air Navigation Implementation Plan* (PBIP) (Version 1.4) has been amended taking into account the ICAO Global Air Navigation Plan (GANP) (Doc. 9750) (fourth edition) and in alignment with the Aviation System Block Upgrades (ASBU) methodology, with a view to achieving a more efficient and interoperable airspace that will meet future capacity demand without compromising safety. It was submitted to, and approved by, the Thirteenth Meeting of Civil Aviation Authorities of the South American Region (RAAC/13) through Conclusion RAAC/13-5.

2.6 The States of the Region should amend their national air navigation plan based on the new GANP and the PBIP. The GANP and the PBIP may be downloaded from: http://www.icao.int/SAM/Pages/eDocumentsDisplay.aspx?area=GEN.

Resolution A38-6 – Support of the ICAO policy on radio frequency spectrum matters

2.7 This Resolution supersedes Resolution A 36-25 and seeks to meet current and future radio frequency spectrum allocation requirements to ensure the operation of communications, navigation, and surveillance systems in support of air navigation. In this regard, it urges the States, international organisations and other civil aviation stakeholders to support firmly the ICAO frequency spectrum strategy and the ICAO position at the International Telecommunication Union (ITU) World Radiocommunication Conference (WRC) and in other regional and international activities conducted in preparation for the WRC.

2.8 The States should work together to deliver efficient aeronautical frequency management and “best practices” to demonstrate the effectiveness and relevance of the aviation industry in spectrum management; support ICAO activities relating to the aviation frequency spectrum strategy and policy through relevant expert group meetings and regional planning groups; undertake to provide for aviation interests to be fully integrated in the development of their positions presented to regional telecommunication fora involved in the preparation of joint proposals to the WRC; include in their proposals to the WRC, to the extent possible, material consistent with the ICAO position; support the ICAO position and the ICAO policy statements at ITU WRCs as approved by the Council and incorporated in the *Handbook on Radio Frequency Spectrum Requirements for Civil Aviation* (Doc 9718); undertake to provide civil aviation experts to fully participate in the development of States’ and regional positions and development of aviation interests at the ITU; and ensure, to the maximum extent possible, that their delegations to regional conferences, ITU study groups, and WRCs include experts from their civil aviation authorities and other civil aviation stakeholders who are fully prepared to represent aviation interests.

2.9 In this regard, the States must actively participate in the activities required to support the ICAO position at the forthcoming ITU WRC-15. The ICAO position was circulated by ICAO through State letter E 3/5.15-13/57 dated 3 July 2013, a copy of which is contained in **Appendix B** to this working paper. In order to coordinate national activities in support of the ICAO position, the States should designate national focal points and notify the Regional Office by the end of April 2014.

Conclusion SAM/IG/13-X Designation of national focal points to coordinate activities in support of the ICAO position at the ITU WRC-15

That SAM States, if they have not done so yet, designate a national focal point to coordinate, as necessary, between ICAO and the national bodies responsible for managing the radio frequency spectrum, with a view to supporting the ICAO position at the ITU WRC-15 shown in Appendix B, notifying the Regional Office no later than **31 May 2014**.

Resolution A38-8 – Proficiency in the English language used for radiotelephony communications

2.10 The Resolution urges member States to use ICAO standardised phraseology in all situations for which it has been specified, encouraging them to make use of the ICAO Aviation English Language Test Service (AELTS) to verify language testing instruments, make use of the ICAO Language Proficiency Requirements – Rated Speech Samples training aid; and to assist each other in their implementation of the language proficiency requirements. This Resolution supersedes Resolution A37-10.

A38-11 – Formulation and implementation of standards and recommended practices (SARPs) and procedures for air navigation services (PANS) and notification of differences

2.11 This Resolution provides guidelines for the formulation of SARPs and PANS, as well as amendments, and their implementation by States. In this regard, it calls on States to comply with Articles 37 and 38 of the Chicago Convention, which refer, respectively, to collaboration in securing the highest practicable degree of uniformity in regulation and practices in all matters in which such uniformity will facilitate and improve air navigation, and to the fact that any member State which finds it impractical to comply in all respects with any international standard or procedure or deems it necessary to adopt regulations or practices differing therefrom is obliged to give immediate notification to ICAO.

2.12 In this regard, member States are reminded of the requirement under ICAO Annex 15 to publish any significant differences in their aeronautical information publication (AIP) and to use the Electronic Filing of Differences (EFOD) system when notifying their differences to ICAO.

2.13 ICAO resolves that member States will be encouraged and assisted in the implementation of SARPs and PANS and provided as soon as possible with more guidance in respect of the notification and publication of differences. It also calls on all member States able to do so to provide requesting States with technical cooperation in the form of financial and technical resources to enable those States to carry out their obligations under Articles 37 and 38 of the Convention.

A38-12 – Consolidated statement of continuing ICAO policies and associated practices related specifically to air navigation

2.14 Pursuant to Resolution A15-9, the Assembly resolved to adopt a consolidated statement of continuing air navigation policies as they existed at the close of the A38. The statement contains practices associated with the policies that constitute guidance intended to facilitate and ensure implementation of the respective policies. The following policies are contemplated in the statement: global air navigation meetings, Air Navigation Commission (ANC) panels, certificates of airworthiness, certificates of competency and licenses of flight crews, qualified and competent aviation personnel, formulation and implementation of regional plans and regional supplementary procedures, regional air navigation (RAN) meetings, delimitation of air traffic service (ATS) airspaces, provision of search and rescue services, civil/military air traffic coordination and cooperation, adequate conditions of employment for aviation ground personnel, participation by States in the technical work of ICAO, Headquarters' and the Regional Offices' technical Secretariat, cooperation among member States in the investigation of aircraft accidents, and human performance.

2.15 The States should take note of the continuing policies of the aforementioned statement and take them into account in the planning, establishment, and provision of air navigation services. Special attention should be paid to policies and practices concerning qualified and competent civil aviation personnel and human performance.

3. Suggested action

3.1 The Meeting is invited to:

a) take note of the information provided in this working paper;
b) take into account the resolutions adopted by the 38th Session of the ICAO Assembly (A38) listed in section 2 and Appendix A to this working paper when planning and implementing air navigation systems, services, and procedures in the SAM Region; and
c) analyse and consider the approval of the conclusion contained in paragraph 2.9 of this working paper.

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APPENDIX A

RESOLUTIONS ADOPTED BY THE ASSEMBLY - 38th SESSION

Montréal, 24 September—4 October 2013

A38-2: ICAO global planning for safety and air navigation

Whereas ICAO strives to achieve the goal of a safe and orderly development of civil aviation through cooperation among Member States and other stakeholders;

Whereas to realize this goal, the Organization has established Strategic Objectives, including objectives for safety and for capacity and efficiency;

Recognizing the importance of global frameworks to support the Strategic Objectives of ICAO;

Recognizing the importance of effective implementation of regional and national plans and initiatives based on the global frameworks;

Recognizing that further progress in improving the global safety, capacity and efficiency of civil aviation is best achieved through a cooperative, collaborative and coordinated approach in partnership with all stakeholders under the leadership of ICAO; and

Noting the approval on 30 July 2013 by the Council of the first edition of the Global Aviation Safety Plan (GASP) and on 29 May 2013 of the fourth edition of the Global Air Navigation Plan (GANP);

The Assembly:

1. *Endorses* the first edition of the Global Aviation Safety Plan (GASP) and the fourth edition of the Global Air Navigation Plan (GANP) as the global strategic directions for safety and air navigation, respectively;

2. *Resolves* that ICAO shall implement and keep current the GASP and the GANP to support the relevant Strategic Objectives of the Organization;

3. *Resolves* that these global plans shall be implemented and kept current in close cooperation and coordination with all concerned stakeholders;

4. *Resolves* that these global plans shall provide the frameworks in which regional, subregional and national implementation plans will be developed and implemented, thus ensuring harmonization and coordination of efforts aimed at improving international civil aviation safety, capacity and efficiency;

5. *Urges* Member States to develop sustainable solutions to fully exercise their safety oversight and air navigation responsibilities which can be achieved by sharing resources, utilizing internal and/or external resources, such as regional and sub-regional organizations and the expertise of other States;

6. *Urges* Member States to demonstrate the political will necessary for taking remedial actions to address safety and air navigation deficiencies, including those identified by Universal Safety Oversight Audit Programme (USOAP), through the application of GASP and GANP objectives and the ICAO regional planning process;

7. *Urges* Member States, the industry and financing institutions to provide the needed support for the coordinated implementation of the GASP and GANP, avoiding duplication of efforts;

8. *Calls upon* States and *invites* other stakeholders to cooperate in the development and implementation of regional, subregional and national plans based on the frameworks of the GASP and GANP;

9. *Instructs* the Council to provide a report on the implementation and evolution of the GASP and GANP to future regular sessions of the Assembly;

10. *Instructs* the Secretary General to promote, make available and effectively communicate the GASP and the GANP; and

11. *Declares* that this resolution supersedes Resolution A37-4 on ICAO global planning for safety and Resolution A37-12 on ICAO global planning for sustainability.

APPENDIX A

Global Aviation Safety Plan (GASP)

Reaffirming that the primary objective of the Organization continues to be the improvement of safety and an associated reduction in the number of accidents and related fatalities within the international civil aviation system;

Recognizing that safety is a responsibility involving ICAO, Member States and all other stakeholders;

Recognizing the safety benefits that can be drawn from partnerships between States and industry;

Recognizing that the High-level Safety Conference (2010) reaffirmed the need for the ICAO safety framework to continuously evolve to ensure its sustained effectiveness and efficiency in the changing regulatory, economic and technical environment;

Noting that the expected increase in international civil aviation traffic will result in an increasing number of aircraft accidents unless the accident rate is reduced;

Recognizing the need to maintain the public's confidence in air transport by providing access to relevant safety information;

Recognizing that a proactive approach in which a strategy is established to set priorities, targets and indicators to manage safety risks is of paramount importance to the achievement of further improvements in aviation safety;

Recognizing that regional aviation safety groups have been implemented by ICAO, taking into account the needs of the various regions and building on the already existing structures and forms of cooperation;

Noting the intent to apply the safety management principles in the GASP to enhance safety by focusing action where it is most needed; and

Noting the need to assist Member States in implementing safety management principles and mitigate risks on identified operational issues;

The Assembly:

1. *Stresses* the need for continuous improvement of aviation safety through a reduction in the number of accidents and related fatalities in air transport operations in all parts of the world, particularly in States where safety records are significantly worse than the worldwide average;

2. *Stresses* that limited resources of the international aviation community should be used strategically to support States or regions whose safety oversight maturity is not at an acceptable level and where political willingness exists to improve safety oversight functions;

3. *Urges* Member States to support the Global Aviation Safety Plan (GASP) objectives by implementing the safety initiatives outlined therein;

4. *Urges* Member States, regional safety oversight organizations (RSOOs), regional aviation safety groups (RASGs) and international organizations concerned to work with all stakeholders to set priorities, targets and indicators consistent with the GASP objectives with the view to reduce the number and rate of aircraft accidents;

5. *Urges* States to fully exercise safety oversight of their operators in full compliance with applicable Standards and Recommended Practices (SARPs), and assure themselves that every foreign operators flying into their territory receives adequate oversight from its own State and take appropriate action when necessary to preserve safety; and

6. *Urges* ICAO to complete the development of safety roadmaps in support of the GASP by the end of 2014 to assist in the risk mitigation of operational issues identified.

APPENDIX B

Global Air Navigation Plan (GANP)

Whereas the enhancement of the safety, capacity and efficiency of aviation operations is a key element of the ICAO Strategic Objectives;

Having adopted Resolution A37-15, a consolidated statement of continuing ICAO policies and associated practices related specifically to air navigation;

Recognizing the importance of GANP as an operational strategy and part of the basket of measures for environmental protection; and

Recognizing that many States and regions are developing new generation plans for their own air navigation modernization;

The Assembly:

1. *Instructs* the Council to use the guidance in the Global Air Navigation Plan (GANP) to develop and prioritize the technical work programme of ICAO in the field of air navigation;

2. *Urges* the Council to provide States with a standardization roadmap, as announced in the GANP, as a basis for the work programme of ICAO;

3. *Calls upon* States, planning and implementation regional groups (PIRGs), and the aviation industry to utilize the guidance provided in the GANP for planning and implementation activities which establish priorities, targets and indicators consistent with globally-harmonized objectives, taking into account operational needs;

4. *Calls upon* States to take into consideration the GANP guidelines as an efficient operational measure for environmental protection;

5. *Calls upon* States, PIRGs, and the aviation industry to provide timely information to ICAO, and to each other, regarding the implementation status of the GANP, including the lessons learned from the implementation of its provisions;

6. *Invites* PIRGs to use ICAO standardized tools or adequate regional tools to monitor and, in collaboration with ICAO, analyse the implementation status of air navigation systems;

7. *Instructs* the Council to publish the results of the analysis on the regional performance dashboards and in an annual global air navigation report including, as a minimum, the key implementation priorities and accrued environmental benefits estimated using CAEP-recognized methods; and

8. *Urge*s States that are developing new generation plans for their own air navigation modernization to coordinate with ICAO and align their plans so as to ensure global compatibility and harmonization.

A38-6: 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;

Whereas a comprehensive frequency spectrum strategy is required by aviation to support timely availability and appropriate protection of adequate spectrum;

Whereas a sustainable environment for growth and technology development is required to support safety and operational effectiveness for current and future operational systems and allow for the transition between present and future technologies;

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 requirements for appropriate aviation safety spectrum allocations are satisfied and protection of those allocations is achieved;

Recognizing that to ensure optimal use of the frequency spectrum allocated to aviation, efficient frequency management and use of best practices are required;

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[1]; and

Considering Recommendations 7/3 and 7/6 of the Special Communications/Operations Divisional Meeting (1995) (SP COM/OPS/95), Recommendation 5/2 of the 11th Air Navigation Conference (2003) and Recommendation 1/12 of the 12th Air Navigation Conference (2012);

The Assembly:

1. *Urges* Member States, international organizations and other civil aviation stakeholders to support firmly the ICAO frequency spectrum strategy and the ICAO position at WRCs and in regional and other international activities conducted in preparation for WRCs, including by the following means:

a) working together to deliver efficient aeronautical frequency management and "best practices" to demonstrate the effectiveness and relevance of the aviation industry in spectrum management;

b) supporting ICAO activities relating to the aviation frequency spectrum strategy and policy through relevant expert group meetings and regional planning groups;

c) 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;

d) including in their proposals to the WRC, to the extent possible, material consistent with the ICAO position;

e) 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);

f) undertaking to provide civil aviation experts to fully participate in the development of States' and regional positions and development of aviation interests at the ITU; and

g) ensuring, to the maximum extent possible, that their delegations to regional conferences, ITU study groups and WRCs include experts from their civil aviation authorities and other civil aviation stakeholders who are fully prepared to represent aviation interests;

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[1] 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.

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 the development and implementation of a comprehensive aviation frequency spectrum strategy as well as increased participation by ICAO in international and regional spectrum management activities are made available; and

4. *Declares* that this resolution supersedes Resolution A36-25.

A38-8: Proficiency in the English language used for radiotelephony communications

Whereas to prevent accidents, ICAO introduced language provisions to ensure that air traffic personnel and pilots are proficient in conducting and comprehending radiotelephony communications in the English language, including requirements that the English language shall be available on request at all stations on the ground serving designated airports and routes used by international air services;

Recognizing that the language provisions reinforce the requirement to use ICAO standardized phraseology in all situations for which it has been specified;

Recognizing that Member States have made substantial efforts to comply with the language proficiency requirements;

Recognizing that some Member States encounter considerable difficulties in implementing the language proficiency requirements including the establishment of language training and testing capabilities;

Whereas in accordance with Article 38 of the Convention any Member State which finds it impracticable to comply in all respects with any international standard or procedure is obliged to give immediate notification to ICAO;

Whereas in accordance with Article 39 b) of the Convention any person holding a licence not satisfying in full the conditions laid down in the international standard relating to the class of licence or certificate held, shall have endorsed on or attached to the licence all the particulars in which this person does not satisfy such conditions; and

Whereas pursuant to Article 40 of the Convention no personnel having certificates or licences so endorsed shall participate in international navigation, except with the permission of the State or States whose territory is entered;

The Assembly:

1. *Urges* Member States to use ICAO standardized phraseology in all situations for which it has been specified;

2. *Directs* the Council to continue to support Member States in their implementation of the language proficiency requirements;

3. *Encourages* Member States to make use of the ICAO Aviation English Language Test Service (AELTS) to verify language testing instruments;

4. *Urges* Member States to make use of the ICAO Language Proficiency Requirements - Rated Speech Samples training aid;

5. *Urges* Member States to assist each other in their implementation of the language proficiency requirements; and

6. *Declares* that this resolution supersedes Resolution A37-10.

A38-11: Formulation and implementation of Standards and Recommended Practices (SARPs) and Procedures for Air Navigation Services (PANS) and notification of differences

Whereas Article 37 of the *Convention on International Civil Aviation* requires each Member State to collaborate in securing the highest practicable degree of uniformity in regulations and practices in all matters in which such uniformity will facilitate and improve air navigation;

Whereas Article 37 of the Convention requires the Organization to adopt and amend international standards and Recommended Practices and procedures and states the purpose of and the matters to be dealt with in that action, and Articles 38, 54, 57 and 90 contain additional relevant provisions;

Whereas in accordance with Article 38 of the Convention any Member State which finds it impractical to comply in all respects with any international standard or procedure or deems it necessary to adopt regulations or practices differing therefrom is obliged to give immediate notification to ICAO;

Whereas the Assembly deems it advisable to establish certain policies to be followed in complying with these provisions of the Convention;

Recognizing the effective implementation of SARPs and PANS promotes safe, secure and sustainable development of international civil aviation;

Recognizing that making differences information easily available to all stakeholders in a timely manner is important to promote safety, regularity and efficiency in international civil aviation;

Noting that many Member States experience difficulty in fulfilling their obligations under Articles 37 and 38 of the Convention and keeping pace with frequent amendments to Annexes;

Recognizing that up-to-date ICAO technical guidance material provides valuable assistance to Member States in the effective implementation of SARPs, PANS and Regional Plans;

Recognizing that substantial resources are required to develop and maintain all ICAO technical guidance material for SARPs and PANS;

Noting the increase of the number of notified differences to ICAO; and

Recognizing that there is a strong need for all available means to be sought and employed in encouraging and assisting Member States in overcoming their difficulties in implementation of SARPs and PANS;

The Assembly:

1. *Calls on* Member States to reaffirm their commitment to abide by the obligations under Articles 37 and 38 of the Convention;

2. *Resolves* that SARPs and PANS shall be amended as necessary to reflect changing requirements and techniques and thus, inter alia, to provide a sound basis for global and regional planning and implementation;

3. *Agrees* that subject to the foregoing clause, a high degree of stability in SARPs shall be maintained to enable the Member States to maintain stability in their national regulations. To this end amendments shall be limited to those significant to safety, regularity and efficiency and editorial amendments shall be made only if essential;

4. *Reiterates* that SARPs and PANS shall be drafted in clear, simple and concise language. SARPs shall consist of broad, mature and stable provisions specifying functional and performance requirements that provide for the requisite levels of safety, regularity and efficiency. Supporting technical specifications, when developed by ICAO, should be translated in all working languages of ICAO in a timely manner and shall be placed in separate documents to the extent possible;

5. *Instructs* the Council to utilize, to the maximum extent appropriate and subject to the adequacy of a verification and validation process, the work of other recognized standards making organizations in the development of SARPs, PANS and ICAO technical guidance material. Material developed by these other standards-making organizations may be deemed appropriate by the Council as meeting ICAO requirements; in this case such material should be referenced in ICAO documentation;

6. *Resolves* that to the extent consistent with the requirements of safety regularity and efficiency, SARPs specifying the provision of facilities and services shall reflect a proper balance between the operational requirements for such facilities and services and the economic implications of providing them;

7. *Instructs* the Council to consult Member States on proposals for the amendment of SARPs and PANS before the Council acts on them, except when the Council may deem urgent action to be necessary. Furthermore, subject to the adequacy of the verification and validation process, technical specifications may be acted upon by the Council without consultation with Member States. Such material shall however be made available to Member States upon request;

8. *Resolves* that the applicability dates of amendments to SARPs and PANS shall be so established as to allow Member States sufficient time for their implementation;

9. *Agrees* that no Annex or PANS document shall be amended more frequently than once per calendar year;

10. *Reminds* Member States of the requirement in Annex 15 to publish any significant differences in their Aeronautical Information Publication (AIP) and to include English text for those parts expressed in plain language;

11. *Encourages* Member States to use the Electronic Filing of Differences (EFOD) System when notifying their differences to ICAO;

12. *Instructs* the Secretary General to continue improving the EFOD system and assist Member States in transitioning from the paper-based processes to the use of the EFOD system;

13. *Directs* the Council to monitor and analyse the differences between the regulations and the practices of Member States and the SARPs and PANS with the aim of encouraging the elimination of those differences that are important for the safety, regularity and efficiency of international air navigation and taking appropriate actions;

14. *Instructs* the Council to explore possibilities to make differences information more easily available to all interested stakeholders and assess appropriate mechanism and form in which this information is made available;

15. *Resolves* that Member States shall be encouraged and assisted in the implementation of SARPs and PANS by all available means and provided as soon as possible with more guidance in respect of the notification and publication of differences;

16. *Calls on* all Member States able to do so to provide requesting States with technical cooperation in the form of financial and technical resources to enable those States to carry out their obligations under Articles 37 and 38 of the Convention;

17. *Instructs* ICAO to establish priorities for the continuing updating of the contents of present ICAO technical guidance material and the development of additional guidance material thus ensuring optimum value for Member States in their planning and implementation of SARPs and PANS;

18. *Resolves* that the associated practices in this Resolution constitute guidance intended to facilitate and ensure implementation of this Resolution; and

19. *Declares* that this resolution supersedes Resolution A37-15, Appendices A, D and E.

Associated practices

1. The Council should ensure that provisions of SARPs and PANS are completely consistent with each other. Furthermore, the Council should endeavour to improve the processing, presentation and usefulness of ICAO documents containing SARPs, PANS and other related provisions, especially for complex systems and their associated applications. To that end the Council should promote the development and upkeep of broad system-level, functional and performance requirements. The Council should continue seeking the most appropriate means of development, translation, processing and dissemination of technical specifications.

2. Member States should comment fully and in detail on the proposals for amendment of SARPs and PANS or at least should express their agreement or disagreement on their substance. They should be allowed at least three months for this purpose. Furthermore, Member States should receive at least 30 days of notification of the intended approval or adoption of detailed material on which they are not consulted.

3. Member States should be allowed a full three months for notifying disapproval of adopted SARPs amendments; in establishing a date for notifying disapproval the Council should take into account the time needed for transmission of the adopted amendments and for receipt of notifications from States.

4. The Council should ensure that, whenever practicable, the interval between successive common applicability dates of amendments to Annexes and PANS is at least six months.

5. The Council, prior to the adoption and approval of amendments to SARPs and PANS, should take into account feasibility of the implementation of SARPs and PANS by the intended applicability dates.

6. The Council, taking into account the definitions of terms “Standard” and “Recommended Practice”, should ensure that new Annex provisions, uniform application of which is recognized as necessary, are adopted as Standards, and that those new provisions, uniform application of which is recognized as desirable, are adopted as Recommended Practices.

7. The Council should urge Member States to notify the Organization of any differences that exist between their national regulations and practices and the provisions of SARPs as well as the date or dates by which they will comply with the SARPs. If a Member State finds itself unable to comply with any SARPs, it should inform ICAO of the reason for non-implementation, including any applicable national regulations and practices which are different in character or in principle.

8. Differences from SARPs received should be promptly made available to Member States.

9. In encouraging and assisting Member States in the implementation of SARPs and PANS, the Council should make use of all existing means of ICAO and strengthen partnerships with entities which provide resources and assistance towards development of international civil aviation.

10. Member States should establish internal processes and procedures by which they give effect to the implementation of provisions of SARPs and PANS.

11. ICAO should update and develop guidance material in accordance with the established priorities to adequately cover all technical fields.

A38-12: Consolidated statement of continuing ICAO policies and associated practices related specifically to air navigation

Whereas in Resolution A15-9 the Assembly resolved to adopt in each session for which a Technical Commission is established a consolidated statement of continuing policies related specifically to air navigation up to date as at the end of that session;

Whereas a statement of continuing policies and associated practices related specifically to air navigation as they existed at the end of the 37th Session of the Assembly was adopted by the Assembly in Resolution A37-15, Appendices A to W inclusive;

Whereas the Assembly has reviewed proposals by the Council for the amendment of the statement of continuing policies and associated practices in Resolution A37-15, Appendices A to W inclusive, and has amended the statement to reflect the decisions taken during the 38th Session;

Whereas a policy or associated practice that requires continued application for a period of more than three years should be regarded as a continuing policy or associated practice;

Whereas material which is contained in regulatory or readily available authoritative ICAO documents, such as Annexes, rules of procedures and directives to air navigation meetings should normally be excluded from the consolidated statements. This pertains, in particular, to the associated practices; and

Whereas the Assembly agreed to develop a new Resolution A38-11 based on Resolution A37-15 Appendices A, D and E, as a continuing policy in respect to formulation and implementation of Standards and Recommended Practices (SARPs), Procedures for Air Navigation Services (PANS) and notification of differences that would apply to all Annexes to the Convention and technical guidance material;

The Assembly:

1. *Resolves* that:

a) the Appendices attached to this resolution constitute the consolidated statement of continuing air navigation policies and associated practices of ICAO as they exist at the close of the 38th Session of the Assembly; and

b) the practices associated with the individual policies in the appendices constitute guidance intended to facilitate and ensure implementation of the respective policies; and

2. *Declares* that this resolution supersedes Resolution A37-15 with its Appendices, except for Appendices A, D and E which are superseded by the new Resolution A38-11.

APPENDIX A

Air navigation meetings of worldwide scope

Whereas the holding of worldwide air navigation meetings is an important function of ICAO and entails substantial expenditures of effort and money by the Member States and ICAO; and

Whereas it is necessary to ensure that maximum benefit is obtained from these meetings without imposing any undue burden upon the Member States or ICAO;

The Assembly resolves that:

1. meetings, convened by the Council, in which all Member States may participate on an equal basis shall be the principal means of progressing the resolution of problems of worldwide import, including the development of amendments to the Annexes and other basic documents in the air navigation field;

2. such meetings shall be convened only when justified by the number and importance of the problems to be dealt with and when there is the likelihood of constructive action on them; meetings convened on this basis may also be requested to conduct exploratory discussions on matters not mature for definite action;

3. the organization of such meetings shall be arranged so that they are best suited to carry out the assigned task and to provide proper coordination among the technical specialities involved; and

4. unless necessitated by extraordinary circumstances, not more than two such meetings shall be convened in a calendar year, and successive meetings dealing extensively with the same technical specialty shall be separated by at least twelve months.

Associated practices

1. Before deciding to refer a matter to a worldwide meeting, the Council should consider whether correspondence with States or use of machinery such as panels or air navigation study groups could dispose of it or facilitate subsequent action on it by a future meeting.

2. The agenda should be sufficiently explicit to define the task to be performed and to indicate the types of specialized expertise that will be needed at the meeting. In an agenda including more than one technical specialty the types of expertise called for should be kept to the minimum compatible with efficiency.

3. To facilitate the participation of all Member States, the Council should so plan the meeting programme as to keep to the minimum, consistent with efficiency, the demands upon the time of States' technical officials.

4. The planned duration of a meeting should allow adequate time for completion of the agenda, study of the report as drafted in the working languages of the meeting and approval of the report. Following the meeting, the Secretariat should make any necessary minor editorial amendments and typographical corrections to the meeting report.

5. The approved agenda and the main supporting documentation should be dispatched, normally by air, not less than ten months in advance of the convening date in the case of the agenda and not less than three months in the case of the main supporting documentation; other documentation should be dispatched as soon as possible.

APPENDIX B

Panels of the Air Navigation Commission (ANC)

Whereas panels of the Air Navigation Commission have proved a valuable medium for advancing the solution of specialized technical problems; and

Whereas it is necessary to ensure that maximum benefit is obtained from Air Navigation Commission panels without imposing any undue burden upon the Member States or ICAO;

The Assembly resolves that:

1. the Air Navigation Commission shall establish panels if necessary to advance the solution of specialized technical problems which cannot be solved adequately or expeditiously by the Air Navigation Commission through other established facilities;

2. the Air Navigation Commission shall ensure that the terms of reference and the work programmes of panels shall support the ICAO Strategic Objectives, be clear and concise with timelines and shall be adhered to;

3. the Air Navigation Commission shall review periodically the progress of panels and shall terminate panels as soon as the activities assigned to them have been accomplished. A panel shall be allowed to continue in existence only if its continuation is considered justified by the Air Navigation Commission; and

4. panel activity shall support a performance-based approach to SARPs development to the extent possible.

Associated practice

Reports should be clearly presented as the advice of a group of experts to the Air Navigation Commission so that they cannot be construed as representing the views of Member States.

APPENDIX C

Certificates of airworthiness, certificates of competency and licences of flight crews

Whereas Article 33 of the Convention does not explicitly define the purposes for which recognition is to be accorded to certificates and licences;

Whereas several interpretations exist as to whether or not there is any obligation on Member States to recognize certificates and licences issued or rendered valid by other Member States pending the coming into force of SARPs applicable to the aircraft or flight crew involved; and

Whereas with respect to certain categories of aircraft or flight crew licences, it may be many years before SARPs come into force or it may be found most practicable not to adopt SARPs for some categories or flight crew licences;

The Assembly resolves that:

1. certificates of airworthiness and certificates of competency and licences of the flight crew of an aircraft issued or rendered valid by the Member State in which the aircraft is registered shall be recognized as valid by other Member States for the purpose of flight over their territories, including landings and take-offs, subject to the provisions of Articles 32 (b) and 33 of the Convention; and

2. pending the coming into force of international Standards respecting particular categories of aircraft or flight crew, and certificates issued or rendered valid, under national regulations, by the Member State in which the aircraft is registered shall be recognized by other Member States for the purpose of flight over their territories, including landings and take-offs.

APPENDIX D

Qualified and Competent Aviation Personnel

Whereas the satisfactory implementation of SARPs and PANS is contingent upon having qualified and competent personnel;

Whereas difficulties are being experienced by Member States in these matters due to a lack of qualified personnel to support the existing and future air transportation system;

Whereas special effort is required to support Member States in meeting their human resource needs; and

Whereas learning activities conducted by ICAO are an effective means of promoting a common understanding and the uniform application of SARPs and PANS;

The Assembly resolves that:

1. ICAO shall assist Member States in achieving and maintaining competency of aviation personnel through the ICAO Aviation Training Programme;

2. the ICAO Aviation Training Programme shall be governed by the following principles:

a) qualification of aviation professionals is the responsibility of Member States;

b) the highest priority is placed on learning activities that support the implementation of SARPs;

c) cooperation with Member States and industry is essential to develop and implement learning activities to support the implementation of SARPs; and

d) priority shall be placed on cultivating the next generation of aviation professionals.

3. ICAO advises operators of training facilities but does not participate in the operation of such facilities; and

4. Member States assist each other to optimize access to learning activities for their aviation professionals.

Associated practices

1. The Council should assist Member States to harmonize aviation professionals' levels of competency. These efforts should be based on:

a) data analysis to determine priorities and needs;

b) identified training needs for the implementation of ICAO provisions; and c) a competency-based approach.

APPENDIX E

Formulation and Implementation of Regional Plans including Regional Supplementary Procedures

Whereas the Council establishes Regional Plans setting forth the facilities, services and Regional Supplementary Procedures to be provided or employed by Member States pursuant to Article 28 of the Convention;

Whereas the Regional Plans require amendment from time to time to reflect the changing needs of international civil aviation;

Whereas ICAO has established an approach to planning of facilities and services that centres on the Global ATM Operational Concept and the Global Air Navigation Plan; and

Whereas any serious deficiencies in the implementation of Regional Plans may affect the safety, regularity and efficiency of international air operations and, therefore, should be eliminated as quickly as practicable;

The Assembly resolves that:

1. Regional Plans shall be revised when it becomes apparent that they are no longer consistent with current and foreseen requirements of international civil aviation;

2. when the nature of a required change permits, the associated amendment of the Regional Plan shall be undertaken by correspondence between ICAO and Member States and International Organizations concerned; and

3. when amendment proposals are associated with the services and facilities provided by States and such amendment proposals:

a) do not represent changes to the requirements set by the Council in the Regional Plans;

b) do not conflict with established ICAO policy; and

c) do not involve issues which cannot be resolved at the regional level;

the Council may delegate authority for processing and promulgating such amendments to the regional level.

4. Regional Air Navigation (RAN) meetings, although important instruments in the determination of the facilities and services, shall be convened only to address issues which cannot be adequately addressed through the Planning and Implementation Regional Groups (PIRGs);

5. priority shall be given in the implementation programmes of Member States to the provision, and continuing operation of those facilities and services, the lack of which would likely have an adverse effect on international air operations;

6. the identification and investigation of and action by ICAO on significant deficiencies in the implementation of Regional Plans shall be carried out in the minimum practicable time; and

7. Planning and Implementation Regional Groups (PIRGs), using a project management approach, shall identify problems and shortcomings in Regional Plans and in the implementation thereof, along with suggested remedial measures.

Associated practices

1. The Council should ensure that the structure and format of regional plans is aligned with the Global Air Navigation Plan and is in support of a performance-based approach to planning.

2. In assessing the urgency of any revision of the Regional Plans the Council should take into account the time needed by Member States to arrange for the provision of any necessary additional facilities and services.

3. The Council should ensure that implementation dates in Regional Plans involving the procurement of new types of equipment are realistically related to the ready availability of suitable equipment.

4. The Council should ensure that web based regional plans are developed, with supporting planning tools, in order to improve efficiency and expedite the amendment cycle.

5. The Council should use the Planning and Implementation Regional Groups (PIRGs) it has established throughout the regions to assist in keeping up to date the Regional Plans and any complementary documents.

APPENDIX F

Regional air navigation (RAN) meetings

Whereas RAN meetings are important instruments in the determination of the facilities and services the Member States are expected to provide pursuant to Article 28 of the Convention;

Whereas these meetings entail substantial expenditures of effort and money by Member States and ICAO;

Whereas it is necessary to ensure that maximum benefit is obtained from these meetings without imposing any undue burden on Member States or ICAO; and

Considering that regional air navigation planning is normally accomplished by Planning and Implementation Regional Groups (PIRGs);

The Assembly resolves that:

1. RAN meetings shall be convened only to address issues which cannot be adequately addressed through PIRGs;

2. the convening of such meetings and their agenda shall be based on the existence or expectation of specific shortcomings in the Regional Plans of the respective areas;

3. the geographical area to be considered, account being taken of the existing and planned international air transport and international general aviation operations, the technical fields to be dealt with and the languages to be used shall be decided for each such meeting;

4. the organization best suited to deal with the agenda and to ensure effective coordination among the components of the meeting shall be used for each such meeting; and

5. meetings of limited technical and/or geographical scope shall be convened when specific problems, particularly those requiring urgent solution, need to be dealt with or when convening them will reduce the frequency with which full scale RAN meetings must be held.

Associated practices

1. The Council should endeavour to hold RAN meetings at sites within the areas concerned and should encourage the Member States within those areas to serve as host, either individually or jointly.

2. The approved agenda and the main supporting documentation should be made available, by electronic means, not less than ten months in advance of the convening date in the case of the agenda and not less than three months in the case of the main supporting documentation.

3. The Council should ensure that adequate guidance is made available to RAN meetings on operational and technical matters relevant to their agenda.

4. Each participating Member State should inform itself, in advance of a meeting, on the plans of its air transport operators and its international general aviation for future operations and, similarly, on the expected traffic by other aircraft on its registry and on the overall requirements of these various categories of aviation for facilities and services.

5. The Council, taking into account the requirement to improve still further existing safety levels, should foster the establishment, for and by RAN meetings, of up-to-date planning criteria which would aim to ensure that Regional Plans satisfy the operational requirements and are economically justified.

6. The Council should develop and maintain specific and detailed directives for consideration of implementation matters at RAN meetings.

APPENDIX G

Delimitation of air traffic services (ATS) airspaces

Whereas Annex 11 to the Convention requires a Member State to determine those portions of airspace over its territory within which air traffic services will be provided and, thereafter, to arrange for such services to be established and provided;

Whereas Annex 11 to the Convention also makes provision for a Member State to delegate its responsibility for providing air traffic services over its territory to another State by mutual agreement;

Whereas cooperative efforts between Member States could lead to more efficient air traffic management;

Whereas both the delegating and the providing State can reserve the right to terminate any such agreement at any time; and

Whereas Annex 11 to the Convention prescribes that those portions of the airspace over the high seas where air traffic services will be provided shall be determined on the basis of regional air navigation agreements, which are agreements approved by the Council usually on the advice of regional air navigation meetings;

The Assembly resolves, with reference to regional air navigation plans, that:

1. the limits of ATS airspaces, whether over States' territories or over the high seas, shall be established on the basis of technical and operational considerations with the aim of ensuring safety and optimizing efficiency and economy for both providers and users of the services;

2. established ATS airspaces should not be segmented for reasons other than technical, operational, safety and efficiency considerations;

3. if any ATS airspaces need to extend over the territories of two or more States, or parts thereof, agreement thereon should be negotiated between the States concerned, taking into account the need for cost-effective introduction and operation of CNS/ATM systems, and more efficient airspace management, in particular, in the upper airspace;

4. the providing State in implementing air traffic services within airspace over the territory of the delegating State shall do so in accordance with the requirements of the delegating State, which shall establish and maintain in operation such facilities and services for the use of the providing State as are mutually agreed to be necessary;

5. any delegation of responsibility by one State to another or any assignment of responsibility over the high seas shall be limited to technical and operational functions pertaining to the safety and regularity of the air traffic operating in the airspace concerned;

and, furthermore, *declares* that:

6. any Member State which delegates to another State the responsibility for providing air traffic services within airspace over its territory does so without derogation of its sovereignty; and

7. the approval by the Council of regional air navigation agreements relating to the provision by a State of air traffic services within airspace over the high seas does not imply recognition of sovereignty of that State over the airspace concerned.

Associated practices

1. Member States should seek the most efficient and economic delineation of ATS airspaces, the optimum location of points for transfer of responsibility and the most efficient coordination procedures in cooperation with the other States concerned and with ICAO.

2. Member States should consider, as necessary, establishing jointly a single air traffic services provider to be responsible for the provision of air traffic services within ATS airspace extending over the territories of two or more States or over the high seas.

3. The Council should encourage States providing air traffic services over the high seas to enter, as far as is practicable, into agreements with appropriate States providing air traffic services in adjacent airspaces, so that, in the event the required air traffic services over the high seas cannot be provided, contingency plans, which may require temporary modifications of ATS airspace limits, will be available to be put into effect with the approval of the ICAO Council until the original services are restored.

APPENDIX H

Provision of search and rescue services

Whereas in accordance with Article 25 of the Convention each Member State undertakes to provide such measures of assistance to aircraft in distress in its territory as it may find practicable and to collaborate in coordinated measures which may be recommended from time to time pursuant to the Convention;

Whereas Annex 12 to the Convention contains specifications relating to the establishment and provision of search and rescue services within the territories of Member States as well as within areas over the high seas;

Whereas Annex 12 to the Convention specifies that those portions of the high seas where search and rescue services will be provided shall be determined on the basis of regional air navigation agreements, which are agreements approved by the Council usually on the advice of regional air navigation meetings;

Whereas Annex 12 to the Convention recommends that search and rescue regions should, insofar as practicable, be coincident with corresponding flight information regions and, with respect to those areas over the high seas, maritime search and rescue regions;

Whereas Article 69 of the Convention specifies that, if the Council is of the opinion that the air navigation services of a Member State are not reasonably adequate for the safe operation of international air services, present or contemplated, the Council shall consult with the State directly concerned, and other States affected, with a view to finding means by which the situation may be remedied, and may make recommendations for that purpose; and

Whereas the air navigation services referred to in Article 69 of the Convention include, inter alia, search and rescue services;

The Assembly resolves that:

1. search and rescue regions, whether over States' territories or, in accordance with regional air navigation agreement, over an area greater than a State's sovereign airspace or over the high seas, shall be delimited on the basis of technical and operational considerations, including the desirability of coincident flight information regions, search and rescue regions, and, with respect to areas over the high seas, maritime search and rescue regions, with the aim of ensuring safety, and optimizing efficiency with the least overall cost;

2. States shall ensure the closest practicable cooperation between maritime and aeronautical search and rescue services where they serve the same area and, where practical, establish joint rescue coordination centres to coordinate aeronautical and maritime search and rescue operations;

3. if any search and rescue regions need to extend over the territories of two or more States, or parts thereof, agreement thereon should be negotiated between the States concerned;

4. the providing State in implementing search and rescue services over the territory of the delegating State shall do so in accordance with the requirements of the delegating State, which shall establish and maintain in operation such facilities and services for the use of the providing State as are mutually agreed to be necessary;

5. any delegation of responsibility by one State to another or any assignment of responsibility over the high seas shall be limited to technical and operational functions pertaining to the provision of search and rescue services in the area concerned;

6. remedies to any inadequacies in the provision of efficient search and rescue services, including over the high seas, should be sought through negotiations with States which may be able to give operational or financial assistance in search and rescue operations, with a view to concluding agreements to that effect;

and, furthermore, *declares* that:

7. any Member State which delegates to another State the responsibility for providing search and rescue services within its territory does so without derogation of its sovereignty; and

8. the approval by Council of regional air navigation agreements relating to the provision by a State of search and rescue services within areas over the high seas does not imply recognition of sovereignty of that State over the area concerned.

Associated practices

1. Member States should, in cooperation with other States and ICAO, seek the most efficient delineation of search and rescue regions and consider, as necessary, pooling available resources or establishing jointly a single search and rescue organization to be responsible for the provision of search and rescue services within areas extending over the territories of two or more States or over the high seas.

2. The Council should encourage States whose air coverage of the search and rescue regions for which they are responsible cannot be ensured because of a lack of adequate facilities, to request assistance from other States to remedy the situation and to negotiate agreements with appropriate States regarding the assistance to be provided during search and rescue operations.

APPENDIX I

Coordination and cooperation of civil and military air traffic

Whereas the airspace is a resource common to both civil and military aviation, and given that many air navigation facilities and services are provided and used by both civil and military aviation;

Whereas the Preamble of the *Convention on International Civil Aviation* stipulates that signatories thereto had "agreed on certain principles and arrangements in order that international civil aviation may be developed in a safe and orderly manner and that international air transport services may be established on the basis of equality of opportunity and operated soundly and economically";

Whereas Article 3 a) of the Convention states that "This Convention shall be applicable only to civil aircraft, and shall not be applicable to state aircraft" and Article 3 d) requires that "contracting States undertake, when issuing regulations for their state aircraft, that they will have due regard for the safety of navigation of civil aircraft";

Recognizing that growing civil air traffic and mission-oriented military air traffic would benefit greatly from a more flexible use of airspace used for military purposes and that satisfactory solutions to the problem of cooperative access to airspace have not evolved in all areas;

Whereas the flexible use of airspace by both civil and military air traffic may be regarded as the ultimate goal, improvement in civil/military coordination and cooperation offers an immediate approach towards more effective airspace management; and

Recalling that the ICAO Global ATM Operational Concept states that all airspace should be a usable resource, any restriction on the use of any particular volume of airspace should be considered transitory, and all airspace should be managed flexibly;

The Assembly resolves that:

1. the common use by civil and military aviation of airspace and of certain facilities and services shall be arranged so as to ensure the safety, regularity and efficiency of civil aviation as well as to ensure the requirements of military air traffic are met;

2. the regulations and procedures established by Member States to govern the operation of their state aircraft over the high seas shall ensure that these operations do not compromise the safety, regularity and efficiency of international civil air traffic and that, to the extent practicable, these operations comply with the rules of the air in Annex 2;

3. the Secretary General shall provide guidance on best practices for civil/military coordination and cooperation;

4. Member States may include, when appropriate, representatives of military authorities in their delegations to ICAO meetings; and

5. ICAO serves as an international forum that plays a role in facilitating improved civil/military cooperation, collaboration and the sharing of best practices, and to provide the necessary follow-up activities that build on the success of the Global Air Traffic Management Forum on Civil/Military Cooperation (2009) with the support of civil/military partners.

Associated practices

1. Member States should as necessary initiate or improve the coordination and cooperation between their civil and military air traffic services to implement the policy in Resolving Clause 1 above.

2. When establishing the regulations and procedures mentioned in Resolving Clause 2, the State concerned should coordinate the matter with all States responsible for the provision of air traffic services over the high seas in the area in question.

3. The Council should ensure that the matter of civil and military coordination and cooperation in the use of airspace is included, when appropriate, in the agenda of divisional and regional meetings, in accordance with Resolving Clauses 3, 4 and 5 above.

APPENDIX J

The provision of adequate aerodromes

Whereas major improvements to the physical characteristics of aerodromes are required at many locations;

Whereas in certain cases these improvements will involve considerable outlay and it would be inadvisable to plan such work without taking into account future developments;

Whereas States and aerodrome authorities will continue to need to know the general trends in aerodrome requirements which succeeding generations of aircraft will most likely produce;

Whereas many serious problems can be avoided if the operating requirements of new aircraft are such as to permit them to operate economically without further demands on the physical characteristics of aerodromes;

Whereas the operation of aerodromes has many advantages, environmental considerations have imposed limitations upon the operation of aircraft at some locations. In view of the capacity problems currently experienced globally, account should be taken of the introduction into service of newer quieter aircraft;

Whereas there is a growing trend for aerodromes to be operated by autonomous entities, the obligation of States to ensure safe aerodrome facilities and services remains unaffected; and

Whereas aerodrome certification is an essential means to ensure aerodrome safety and enhance efficiency, and that the results of the ICAO Universal Safety Oversight Audit Programme (USOAP) audits suggest that the level of implementation of aerodrome certification, including safety management systems (SMS), is not yet optimal;

The Assembly resolves that:

1. the technical requirements for aerodromes shall be kept under review by ICAO;

2. there is a need for future generations of aircraft to be designed so that they are capable of being operated efficiently, and with the least possible environmental disturbance, from aerodromes used for the operation of present-day aircraft;

3. States should take necessary measures, including the allocation of adequate resources, to improve the level of implementation of aerodrome certification, including SMS at aerodromes; and

4. States should place greater emphasis on the management of aerodrome operations, with runway safety given a high priority.

Associated practices

1. In the light of the results of the continuing review mentioned in Resolving Clause 1 above, the Council, taking into account the requirement to improve still further existing safety levels and efficiency, should:

a) develop additional guidance material on future developments;

b) develop procedures for the management of aerodrome operations; and c) keep Member States informed of developments.

2. The Council should continue to draw the attention of aircraft manufacturers and operators to the policy expressed in Resolving Clause 2.

APPENDIX K

Adequate conditions of employment for aviation ground personnel

Whereas conditions of employment that do not correspond to the qualifications and responsibilities of aviation ground services personnel constitute a major cause of difficulty in recruiting suitably qualified personnel and retaining them after completion of the training; and

Whereas this difficulty is impeding the satisfactory implementation of Regional Plans, SARPs and PANS;

The Assembly resolves that States should take the necessary steps to ensure that conditions of employment for personnel in the aviation ground services should be commensurate with the qualifications required and the responsibility carried by them.

APPENDIX L

Participation by States in the technical work of ICAO

Whereas the technical contributions of Member States are essential to attain satisfactory progress in the technical work of ICAO;

Whereas difficulties are from time to time experienced in obtaining prompt and adequate contributions from Member States to the technical work of ICAO; and

Whereas it is necessary to ensure that maximum benefit is obtained from this participation without imposing an undue burden on Member States and ICAO;

The Assembly resolves that there is a need for effective technical contributions from Member States to the technical work of ICAO.

Associated practices

1. The Council should encourage effective participation by Member States in the technical work of ICAO, paying due regard to the need to minimize the cost to ICAO and Member States of such participation.

2. Insofar as each may find it practicable, Member States should:

a) assist, by correspondence, in advancing ICAO technical projects;

b) attend ICAO meetings and participate actively in pre-meeting preparations, particularly by presenting advance documentation containing either specific proposals relative to items of the agenda or their views on documentation submitted to them;

c) participate in ICAO panel activities and ensure that their nominees are suitably qualified and are able to contribute effectively to the panel work;

d) undertake specialized studies as requested by ICAO; and

e) assist ICAO in its technical work through any other means the Council may devise.

APPENDIX M

The Headquarters' and Regional Offices' technical Secretariat

Whereas there is a continuing need to provide effective assistance to Member States in the implementation of Regional Plans, SARPs, PANS and SUPPS;

Whereas it is important that the technical Secretariat of Headquarters and the Regional Offices is effectively used to provide assistance to Member States in their implementation problems; and

Whereas it is important that, for the proper execution of their tasks, the members of the technical Secretariat of Headquarters and the Regional Offices are enabled to maintain their technical proficiency and are kept adequately informed of the latest developments in their particular fields;

The Assembly resolves that:

1. the resources of the Headquarters' and Regional Offices' technical Secretariat shall be effectively deployed to provide optimum assistance to Member States with their problems relating to continuous monitoring activities, the implementation of Regional Plans, SARPs, PANS and SUPPs; and

2. the members of the Headquarters' and Regional Offices' technical Secretariat shall be enabled to maintain their technical proficiency and to keep adequately informed on the latest technical developments.

Associated practices

1. The members of the Headquarters' and Regional Offices' technical Secretariat should be enabled to carry out frequent visits of adequate duration when such visits are necessary or are requested by Member States to assist them with their implementation problems.

2. To the maximum practicable extent, temporary assignment of specialized personnel from one Regional Office to another and from Headquarters to the Regional Offices should take place when temporary reinforcement in the Regional Offices is required.

3. The members of the Headquarters' and Regional Offices' technical Secretariat should be enabled to keep adequately up to date in their particular fields by, inter alia, attendance at selected technical meetings, visits to research and development organizations, witnessing trial applications, and evaluation of new equipment and techniques. However, such visits should not be allowed to take priority over the primary function of the Secretariat to serve ICAO and its several deliberative bodies. Furthermore, the travelling on such visits should be integrated as far as possible with travel necessary for the performance of other ICAO duties.

APPENDIX N

Cooperation among Member States in investigations of aircraft accidents

Whereas it is incumbent on the State in which an accident occurs to institute an inquiry into the circumstances of the accident in conformity with Article 26 of the Convention;

Whereas owing to the growing sophistication and complexity of modern aircraft, the conduct of an accident investigation may requires participation by experts from many specialized technical and operational fields and access to specially equipped facilities for investigation;

Whereas many Member States do not have such specialized technical and operational expertise and appropriate facilities;

Whereas it is essential for flight safety and accident prevention that accidents be thoroughly investigated and reported and that the effectiveness of the investigations should not be unduly hampered by considerations of cost;

Whereas the costs of salvage and investigation of major aircraft accidents may place a heavy financial burden on the resources of the State where the accident occurred; and

Mindful of the publication of the ICAO *Manual on Regional Accident and Incident Investigation Organization* (Doc 9946);

The Assembly resolves to recommend that Member States cooperate in the investigation of aircraft accidents, especially accidents in which the investigation requires highly specialized experts and facilities and that to this end Member States and regional accident and incident investigation organizations (RAIOs), to the extent possible, inter alia:

a) provide, on request by other Member States, expert assistance and facilities for the investigation of major aircraft accidents; and

b) afford opportunity to Member States seeking investigation experience to attend investigations of aircraft accidents, in the interest of developing and furthering investigation expertise.

Associated practices

1. Member States are encouraged to support the convening of regional accident investigation workshops with a view to exchanging information on each State's investigation legislation and procedures, on the sharing of knowledge and expertise in investigation management and techniques, on the availability of experts and facilities and on practices in dealing with encountered accident investigation difficulties.

2. Member States should be encouraged to facilitate the participation of investigators of accident investigation authorities as observers in investigations in other States for training purposes and orientation visits.

3. Member States and RAIOs are encouraged to assess their needs and capabilities in the field of aircraft accident investigation and prevention with a view to developing training curricula for basic accident investigation and prevention courses. The use of regional training centres for such courses should be fully explored as well as the incorporation of the TRAINAIR PLUS methodology which provides for internationally standardized and competency-based training.

4. Member States are encouraged to refer to the model Memorandum of Understanding (MOU) developed by ICAO in 2007 for use by States to encourage mutual cooperation during the investigation of aircraft accidents and serious incidents. The model MOU is available on the ICAO public website.

5. Member States are encouraged to consider, as necessary, the ICAO *Manual on Regional Accident and Incident Investigation Organization* (Doc 9946) which provides guidance on how to establish and manage a regional accident and incident investigation system within a region or subregion.

APPENDIX O

Human performance

Whereas the aims and objectives of ICAO as laid down by the Chicago Convention provide for fostering the development of international air transport ". . . so as to . . . promote safety of flight in international air navigation";

Whereas it is recognized that human performance, as influenced by physiological and cognitive capabilities and constraints, contributes significantly to the overall safety performance of the aviation system;

Whereas it is recognized that the safety and efficiency benefits associated with new technologies, systems and procedures can only be realized when they are designed to enhance the performance of the individuals who use them; and

Whereas it is recognized that implementation of the future aviation systems will result in changes in roles for aviation professionals requiring work across multi-disciplinary teams to support collaborative decision-making;

The Assembly resolves that:

1. Member States ensure the integration of human performance considerations in the planning, design, and implementation of new technologies, systems and processes as part of a safety management approach;

2. Member States promote and facilitate the integration of human performance elements within competency-based training programmes throughout the career of a professional; and

3. Member States include strategies which promote safe, consistent, efficient and effective operational performance of the individual and across teams of individuals to address safety priorities.

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International Civil Aviation Organization | Organisation de l'aviation civile internationale | Organización de Aviación Civil Internacional | Международная организация гражданской авиации | منظمة الطيران المدني الدولي | 国际民用航空组织

Tel.: +1 514-954-8219 ext. 6712

Ref.: E 3/5.15-13/57 2 July 2013

Subject: ICAO Position for the ITU WRC-15

Action required: To consider the ICAO Position when developing your State's position for WRC-15 and to support the ICAO Position during WRC-15

Sir/Madam,

1. I have the honour to inform you that the Council, at the fourth meeting of its 199th Session, held on 27 May 2013, approved the ICAO Position on issues of critical concern to aviation which are on the agenda of the International Telecommunication Union (ITU) World Radiocommunication Conference (2015) (WRC-15) as contained in Attachment B to this letter.

2. The ICAO Position will be submitted to the ITU WRC-15. In addition, ICAO will undertake, within the budget limits of the Organization, to present the ICAO Position at the WRC-15 preparatory activities within ITU and Regional Telecommunications Organizations. However, I wish to emphasize that active support from States is **the only way** to ensure that the results of WRC-15 reflect civil aviation's continued need for spectrum. In this regard, I invite your attention to Assembly Resolution A36-25 (*Support of the ICAO Policy on radio frequency spectrum matters*) and Recommendation 1/12 (*Development of the aeronautical frequency spectrum resource*) of the Twelfth Air Navigation Conference. Kindly ensure that your administration is involved, to the fullest extent possible, in your national preparations and regional negotiations for WRC-15, and that representatives from your civil aviation administration are included in your delegation to the conference.

3. May I request that the enclosed information (Attachment B) be considered for incorporation into your State's position for WRC-15 and that your delegation to the conference be prepared to support the ICAO Position on issues of concern to international civil aviation.

Accept, Sir/Madam, the assurances of my highest consideration.

for

Raymond Benjamin
Secretary General

Enclosures:

A — Summary of the main points addressed by the ICAO Position for ITU WRC-15
B — ICAO Position for the ITU WRC-15

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Summary of the main points addressed by the ICAO Position for the International Telecommunication Union (ITU) World Radiocommunication Conference 2015 (WRC-15)

Radio frequency spectrum is a scarce natural resource with finite capacity for which demand is constantly increasing. The requirements of civil aviation as well as other spectrum users continue to grow at a fast pace, thus creating an ever-increasing pressure to an already stretched resource. International competition between radio services obliges all spectrum users, aeronautical and non-aeronautical alike, to continually defend and justify retention of existing or addition of new frequency bands. The ICAO Position aims at protecting aeronautical frequency spectrum for all radiocommunication and radionavigation systems used for ground facilities and on board aircraft.

The ICAO Position addresses all radioregulatory aspects on aeronautical matters on the agenda for the WRC-15. The items of main concern to aviation include the following:

- identification of additional frequency bands for the International Mobile Telecommunications (IMT). Under this agenda item, the telecommunications industry is seeking up to 1200 MHz of additional spectrum in the 300 MHz to 6 GHz range for mobile and broadband applications. It is expected that a number of aeronautical frequency bands will come under pressure for potential repurposing, especially some of the Primary Surveillance Radar (PSR) bands. Existing frequency allocations which are vital for the operation of aeronautical very small aperture terminal (VSAT) ground-ground communication networks, especially in tropical regions, are also expected to come under pressure. Due to decisions made by a previous WRC, this has already become a problematic issue in Africa. WRC-15 agenda items 1.1 and 9.1.5 refer.

- potential radioregulatory means to facilitate the use of non-safety satellite service frequency bands for a very safety-critical application, the command and control link for remotely piloted aircraft systems (RPAS) in non-segregated airspace. The fixed satellite service bands in question are being used today to support RPAS in segregated airspace, however these frequency bands do not enjoy the freedom of interference typical of aeronautical safety allocations and there are no special measures in the Radio Regulations applicable to the protection of these frequency bands. WRC-15 agenda item 1.5 refers.

- review the continued use of the band 5 091 – 5 150 MHz by the fixed satellite service. A potential solution to this item may improve spectrum access for safety-critical aeronautical radionavigation and radiocommunication systems in this frequency band. WRC-15 agenda item 1.7 refers.

- possible aeronautical allocations to support wireless avionics intra-communications (WAIC). WAIC systems have been identified by the aerospace industry as a means to increase cost-efficiency and environmental friendliness, while maintaining required levels of safety, through the use of wireless technology, potentially making more efficient airframe designs possible. WRC-15 agenda item 1.17 refers.

In addition to WRC-15 agenda item 1.1, potential solutions to a number of other agenda items to be addressed during WRC-15 may negatively impact aeronautical spectrum. These include new allocations to the fixed and mobile satellite services (items 1.6 and 1.10), extended allocation to the earth exploration satellite service (items 1.11 and 1.12), a potential new allocation to the amateur service in the 5 MHz band (item 1.4), regulatory provisions and spectrum allocations to enable possible new maritime Automatic Identification System (AIS) technology applications (item 1.16).

Major threats to aviation include the possibility of harmful interference to essential aeronautical radionavigation and radiocommunication systems. This could have a direct and severe impact on the safety as well as the efficiency of flight operations.

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ICAO POSITION FOR THE INTERNATIONAL TELECOMMUNICATION UNION (ITU) WORLD RADIOCOMMUNICATION CONFERENCE 2015 (WRC-15)

SUMMARY

This paper reviews the agenda for the ITU WRC-15, discusses points of aeronautical interest and provides the ICAO Position for these agenda items.

The ICAO Position 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.

Support of the ICAO Position by Contracting States is required to ensure that the position is supported at the WRC-15 and that aviation requirements are met.

CONTENTS

Attachment

Agenda for ITU WRC-15

1. INTRODUCTION

1.1 The ICAO Position on issues of interest to international civil aviation to be decided at the 2015 ITU World Radiocommunication Conference (WRC-15) is presented below. The agenda of this Conference is contained in the attachment. The ICAO Position is to be considered in conjunction with sections 7-II and 8 of the *Handbook on Radio Frequency Spectrum Requirements for Civil Aviation, Volume I* (Doc 9718, Vol.1, 6th Edition - 2013) which incorporates the ICAO Spectrum Strategy and Policies and related information. Doc 9718 is available on http://legacy.icao.int/anb/panels/acp (see webpage: Repository). Also available at the above-mentioned website are the WRC-15 relevant ITU Resolutions referenced in the ICAO Position.

1.2 ICAO supports the working principle which was utilized in studies for WRC-07 and WRC-12. This working principle recognizes that the 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 aeronautical systems (or non-aeronautical systems) will be addressed in ITU.

2. ICAO AND THE INTERNATIONAL REGULATORY FRAMEWORK

2.1 ICAO is the specialized agency of the United Nations providing for the International regulatory framework for Civil Aviation. The Convention on International Civil Aviation is an international treaty providing required provisions for the safety of flights over the territories of the 191 ICAO Member States and over the high seas. It includes measures to facilitate air navigation, including international Standards and Recommended Practices, commonly referred to as SARPs.

2.2 The ICAO standards constitute rule of law through the ICAO Convention and form a regulatory framework for aviation, covering personnel licensing, technical requirements for aircraft operations, airworthiness requirements, aerodromes and systems used for the provision of communications, navigation and surveillance, as well as other technical and operational requirements.

3. SPECTRUM REQUIREMENTS FOR INTERNATIONAL CIVIL AVIATION

3.1 Air transport plays a major role in driving sustainable economic and social development in hundreds of nations. Since the mid-1970s, air traffic growth has consistently defied economic recessionary cycles, expanding two-fold once every 15 years. In 2012, air transport directly and indirectly supported the employment of 56.6 million people, contributing over $2 trillion to global Gross Domestic Product (GDP), and carried over 2.5 billion passengers and $5.3 trillion worth of cargo.

3.2 The safety of air operation is dependent on the availability of reliable communication and navigation services. Current and future communication, navigation and surveillance/air traffic management (CNS/ATM) provisions are highly dependent upon sufficient availability of radio frequency spectrum that can support the high integrity and availability requirements associated with aeronautical safety systems, and demand special conditions to avoid harmful interference to these systems. Spectrum requirements for current and future aeronautical CNS systems are specified in the ICAO Spectrum Strategy[1], as addressed by the Twelfth Air Navigation Conference, and as approved by the ICAO Council.

3.3 In support to the safety aspects related to the use of radio frequency spectrum by aviation, **Article 4.10** of the Radio Regulations states that "*ITU Member States recognize that the*

[1] The ICAO spectrum strategy is incorporated in the ICAO *Handbook on Radio Frequency Spectrum Requirements for Civil Aviation*, Volume 1 (Doc. 9718 – 6th Edition, to be published in 2013).

safety aspects of radionavigation and other safety services require special measures to ensure their freedom from harmful interference; it is necessary therefore to take this factor into account in the assignment and use of frequencies". In particular, compatibility of aeronautical safety services with co-band or adjacent band aeronautical non-safety services or non-aeronautical services must be considered with extreme care in order to preserve the integrity of the aeronautical safety services.

3.4 The continuous increase in air traffic movements as well as the additional requirement for accommodating new and emerging applications such as Unmanned Aircraft Systems (UAS[2]) is placing increased demand on both the aviation regulatory and air traffic management mechanisms. As a result the airspace is becoming more complex and the demand for frequency assignments (and consequential spectrum allocations) is increasing. While some of this demand can be met through improved spectral efficiency of existing radio systems in frequency bands currently allocated to aeronautical services, it is inevitable that these frequency bands may need to be increased or additional aviation spectrum allocations may need to be agreed to meet this demand.

3.5 The ICAO Position for the ITU WRC-15 was developed in 2012 and 2013 with the assistance of the Aeronautical Communications Panel (ACP) Working Group F (frequency) and was reviewed by the Air Navigation Commission (ANC) at the seventh meeting of its 191st session on 30 October 2012. Following the review by the ANC, it was submitted to ICAO Contracting States and relevant international organizations for comment. After final review of the ICAO Position and the comments by the ANC on 30 April 2013, the ICAO position was reviewed and approved by the ICAO Council on 27 May 2013. When the ICAO Position was established, studies on a number of agenda items for WRC-15 were still on-going in the ICAO Navigation Systems Panel (NSP), the ICAO Aeronautical Communications Panel (ACP), in the ITU and in regional telecommunication organizations. These studies are to be completed prior to the WRC-15 and, if/as necessary, the ICAO position will be refined or updated taking into account the results of this on-going work.

3.6 States and international organizations are requested to make use of the ICAO Position, to the maximum extent possible, in their preparatory activities for the WRC-15 at national level, in the activities of the regional telecommunication organizations[3] and in the relevant meetings of the ITU.

4. AERONAUTICAL ASPECTS ON THE AGENDA FOR WRC-15

Note 1.— The statement of the ICAO Position on an agenda item is given in a text box at the end of the section addressing the agenda item, after the introductory background material.

*Note 2.— No impact on aeronautical services has been identified from WRC-15 Agenda Items **1.2**, **1.3**, **1.8**, **1.9**, **1.13**, **1.14**, **1.15**, **1.18**, **3**, **5**, **6**, **7**, **9.2**, **9.3** and **10** which are therefore not addressed in this position.*

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[2] UAS is referred to in ICAO as Remotely Piloted Aircraft Systems (RPAS)

[3] African Telecommunication Union (ATU), Asia-Pacific Telecommunity (APT), European Conference of Postal and Telecommunications Administrations (CEPT), Inter-American Telecommunication Commission (CITEL), Arab Spectrum Management Group (ASMG) and the Regional Commonwealth in the Field of Communications (RCC).

WRC-15 Agenda Item 1.1

Agenda Item Title:
To consider additional spectrum allocations to the mobile service on a primary basis and identification of additional frequency bands for International Mobile Telecommunications (IMT) and related regulatory provisions, to facilitate the development of terrestrial mobile broadband applications, in accordance with Resolution 233 (WRC-12);

Discussion:

This agenda item seeks to identify additional spectrum for use by terrestrial mobile communication systems to facilitate the development of terrestrial broadband applications. While the agenda item is not specific about the required RF spectrum bandwidth or the frequency bands targeted, the United States and Europe have both declared that they are intending to make at least 500 MHz of additional spectrum available for international mobile telecommunications (IMT), ideally below 6 GHz. Resolution **233** (WRC-12) identifies, in the *considering*, a number of frequency bands below 6 GHz where studies have previously been undertaken in ITU-R. Two of these frequency bands (2 700 – 2 900 MHz and 3 400 – 3 700 MHz) are of concern to aviation. It has been assumed that frequency bands below 100 MHz (and probably below 400 MHz) will not be of interest due to the cost of implementation, variability in propagation and throughput capacity.

A number of aviation systems used for the assurance of safety of flight are operating below 6 000 MHz and it is therefore essential to ensure that any new allocation to the mobile service does not adversely impact the operation of these systems. Based on recent experience with the introduction of mobile systems in the frequency band below 2 690 MHz and the remediation that was required to avoid interference to primary surveillance radar systems in the adjacent frequency band (2 700 – 2 900 MHz), care needs to be taken not only with any proposal for co-frequency band sharing of aeronautical services with non-aeronautical services but also with proposals for the introduction of new allocations in adjacent frequency bands.

The following aeronautical systems operate in the frequency range 400 – 6 000 MHz:

406 – 406.1 MHz

Emergency Locator Transmitter: Emergency locator transmitters, referred to as emergency position-indicating radio beacons (EPIRB) in the ITU, when activated transmit a distress signal which can be received by the COSPAS/SARSAT satellites and suitably equipped aircraft and vessels to facilitate search and rescue operations. Whilst there have been no recent compatibility studies, Resolution **205** was updated at WRC-12 to call for regulatory, technical and operational studies with a view to identify any required regulatory action that can be identified in the Director's report to WRC-15.

960 – 1 215 MHz

Distance measuring equipment (DME): DME is the ICAO standard system for the determination of the position of an aircraft based on the distance between that aircraft and ~~a~~ ground-based DME beacons within radio line of sight. Studies in Europe with respect compatibility with adjacent frequency band (below 960 MHz) IMT systems, and within ICAO with regard to co-frequency band sharing of the aeronautical mobile (R) service (AM(R)S) within the frequency band 960 – 1 164 MHz, show that any co-frequency band sharing with IMT systems would be difficult.

1 030 & 1 090 MHz

Secondary surveillance radar (SSR): SSR is the ICAO standard system that operates on two frequencies (1 030 and 1 090 MHz), used to identify the position of an aircraft based on an aircrafts' response to an interrogation by the ground based element of the SSR system.

1 090 Extended Squitter (1 090ES): 1090 ES is an ICAO standard system to support automatic dependent surveillance-broadcast (ADS-B); automatically broadcasting the position and other parameters of the aircraft in order to allow other aircraft and ground facilities to track that aircraft.

Multilateration (MLAT): MLAT is the ICAO standard system used to identify the position of an aircraft based on an aircraft's transmission of a squitter or as response to an interrogation by a ground based SSR or by active MLAT.

Airborne collision avoidance system (ACAS): ACAS is the ICAO standard system operating on the same frequencies as SSR, used for the detection and avoidance of airborne conflict situations.

These systems provide for essential surveillance functions on a global basis. Although detailed studies would be required to fully assess any sharing proposals, the fact that two frequencies are used to support all of these safety-of-life systems would indicate that any sharing is unlikely to be acceptable to ICAO on safety grounds.

Universal access transceiver (UAT): UAT is an ICAO standardized system operating on 978 MHz intended to support automatic dependant surveillance-broadcast as well as ground uplink services to aircraft such as situational awareness and flight information services.

Global navigation satellite systems: The global allocation to the radionavigation satellite service in the frequency bands 1 164 – 1 215 MHz is intended to provide civil precision navigational services for various users, including aviation. Compatibility of the radionavigation satellite service and the aeronautical radionavigation service in the frequency range 960 – 1 215 MHz has been established through footnote **5.328A** and Resolutions **609** and **610**.

Aeronautical Communications Future Communication System: The frequency band 960 – 1 164 MHz was allocated to the AM(R)S for the development by ICAO of a significant component of the aeronautical future communication system. Report ITU-R **M.2235** presents compatibility studies of AM(R)S systems operating in the band 960 – 1 164 MHz with systems operating in the same frequency band, and in the adjacent frequency bands, both on-board the aircraft and on the ground.

1 215 – 1 350 MHz

Primary radar: This band, especially frequencies above 1 260 MHz, is extensively used for long-range primary surveillance radar to support air traffic control in the en-route and terminal environments. No recent studies have been undertaken with respect to compatibility with terrestrial mobile systems. Given the similarity between these radars and those operating in the frequency band 2 700 – 2 900 MHz, the results of studies in that frequency band should be applicable.

1 559 – 1 610 MHz

Global navigation satellite systems: These systems are used by the ICAO standardised satellite navigation systems for navigation in the en-route, terminal and airport environments. A number of recent studies have been undertaken within United States with respect to the compatibility between terrestrial mobile systems operating in an adjacent frequency band and satellite navigation systems. Those studies indicated that sharing was not possible.

1.5 / 1.6 GHz

Aeronautical mobile satellite communication systems: The frequency bands 1 545 – 1 555 and 1 646.5 – 1 656.5 MHz as well as the frequency band 1 610 – 1 626.5 MHz are used for the provision of ICAO standardised satellite communication services. A number of recent studies have been undertaken within Europe and United States with respect to the compatibility between terrestrial mobile systems and satellite systems in a frequency range that covers these assignments. Those studies indicated that sharing was not possible.

2 700 – 3 100 MHz

Approach primary radar: This band is extensively used to support air traffic control services at airports especially approach services. There have been a number of studies undertaken within the ITU, Europe and the United States on sharing with respect to compatibility with terrestrial mobile systems. The more recent studies are related to the introduction of mobile systems below 2 690 MHz and compatibility with radars operating above 2 700 MHz. These studies have shown significant compatibility issues which would suggest that co-frequency band sharing would be impractical. Additionally, previous technical studies in the ITU, in particular on co-channel compatibility between primary radars operating in the frequency range 2 700 – 3 100 MHz and mobile service showed that co-frequency compatibility between the terrestrial mobile service and radar systems was not feasible.

3 400 – 4 200 MHz and 4 500 – 4 800 MHz

Fixed Satellite Service (FSS) systems used for aeronautical purposes: FSS systems are used in the frequency range 3 400 – 4 200 MHz and the frequency band 4 500 – 4 800 MHz as part of the ground infrastructure for transmission of critical aeronautical and meteorological information (see Resolution **154** (WRC-12) and agenda item 9.1.5). FSS systems in the 3.4 – 4.2 GHz frequency range are also used for feeder links to support AMS(R)S systems. ITU-R Report **M.2109** contains sharing studies between IMT and FSS in the frequency range 3 400 – 4 200 MHz and frequency band 4 500 – 4 800 MHz and ITU-R Report **S.2199** contains studies on compatibility of broadband wireless access systems and FSS networks in the frequency range 3 400 – 4 200 MHz. Both studies show a potential for interference from IMT and broadband wireless access stations into FSS Earth stations at distances of up to several hundred km. Such large separation distances would impose substantial constraints on both mobile and satellite deployments. The studies also show that interference can occur when IMT systems are operated in the adjacent frequency band.

4 200 – 4 400 MHz

Radio altimeters: This frequency band is used by radio altimeters. Radio altimeters provide an essential safety-of-life function during all phases of flight, including the final stages of landing where the aircraft has to be maneuvered into the final landing position or attitude.

5 000 – 5 250 MHz

Microwave Landing System (MLS): The frequency band 5 030 – 5 091 MHz is to be used for the Microwave Landing System. MLS provides for precision approach and landing of aircraft. Future implementation of MLS is expected to be limited, mainly due to the prospect of GNSS (GBAS) offering equivalent capabilities, but where deployed, the MLS needs to be protected from harmful interference.

UAS Terrestrial and UAS Satellite communications: At WRC-12, an allocations to the AM(R)S was introduced and a footnoted aeronautical mobile satellite (R) service allocation was brought into the table of allocations in the frequency range 5 000-5 150 MHz with the view to provide spectrum for command and non-payload communications with unmanned aircraft systems. The development and implementation of these systems, taking into account the need to protect other uses in the frequency range 5 000 – 5 150 MHz is currently being considered in ICAO.

AeroMACS: Provisions for introducing systems for communications with aircraft on the surface of an airport (AeroMACS) were introduced in the Radio Regulations in 2007 in the frequency band 5 091 – 5 150 MHz. Currently ICAO is developing SARPs for implementing AeroMACS.

Aeronautical Telemetry: Provisions for introducing systems for Aeronautical telemetry were introduced in the Radio Regulations in 2007 in the frequency range 5 091 – 5 250 MHz. Aeronautical telemetry systems are currently being implemented.

5 350 – 5 470 MHz

Airborne Weather Radar: The frequency range 5 350 – 5 470 MHz is globally used for airborne weather radar. The airborne weather radar is a safety critical instrument assisting pilots in deviating from potential hazardous weather conditions and detecting wind shear and microbursts. This use is expected to continue for the long term.

5 850 – 6 425 MHz

Fixed Satellite Service (FSS) systems used for aeronautical purposes: The frequency range 5 850 – 6 425 MHz is used by aeronautical VSAT networks for transmission (E-s) of critical aeronautical and meteorological information.

As this agenda item could impact a variety of frequency bands used by aeronautical safety services below 6 GHz it will be important to ensure that agreed studies validate compatibility prior to considering additional allocations.

ICAO Position:

To oppose any new allocation to the mobile service in or adjacent to:

- frequency bands allocated to aeronautical safety services (ARNS, AM(R)S, AMS(R)S); or

- frequency bands used by fixed satellite service (FSS) systems for aeronautical purposes as part of the ground infrastructure for transmission of aeronautical and meteorological information or for AMS(R)S feeder links,

unless it has been demonstrated through agreed studies that there will be no impact on aeronautical services.

WRC-15 Agenda Item 1.4

Agenda Item Title:
To consider possible new allocation to the amateur service on a secondary basis within the band 5 250-5 450 kHz in accordance with Resolution 649 (WRC-12);

Discussion:

The frequency band 5 450 – 5 480 kHz is allocated on a primary basis to the aeronautical mobile (R) service (AM(R)S) in Region 2. The use of this band for long distance communications (HF) by aviation is subject to the provisions of Appendix **27**. Any allocation made to the amateur service in the frequency band 5 250 – 5 450 kHz under this agenda item must ensure the protection of aeronautical systems operating in the adjacent frequency band 5 450 – 5 480 kHz from harmful interference.

ICAO Position:

To ensure that any allocation made to the amateur service shall not cause harmful interference to aeronautical systems operating under the allocation to the aeronautical mobile (R) service in the adjacent frequency band 5 450 – 5 480 kHz in Region 2.

WRC-15 Agenda Item 1.5

Agenda Item Title:
To consider the use of frequency bands allocated to the fixed-satellite service not subject to Appendices 30, 30A and 30B for the control and non-payload communications of unmanned aircraft systems (UAS) in non-segregated airspaces, in accordance with Resolution 153 (WRC-12);

Discussion:

ICAO Standard systems to support safe and efficient aircraft operations on a global basis are developed in accordance with the provisions of the ITU Radio Regulations. Of significant importance to aviation is that the frequency bands that support radio communication and navigation for aircraft are allocated to recognized safety services (such as the AM(R)S, the AMS(R)S or the ARNS).

This agenda item calls for studies to determine whether a system operating under an allocation to the Fixed Satellite Service (FSS), which is regarded as a non-safety service, can be used to support unmanned aircraft system (UAS[4]) control and non-payload communications (CNPC[5]) which has been determined to be a safety application. If such use is found feasible, then any resultant technical and regulatory actions should be limited to the case of UAS using satellites, as studied, and not set a precedent that puts other aeronautical safety services at risk.

The Twelfth Air Navigation Conference (AN-Conf/12) was held in November 2012, and the main theme was to redraft the global Air Navigation Plan based on the concept of Aviation System Block Upgrades (ASBU). Worldwide ICAO Air Navigation Conferences are held approximately every 10 years, and their primary goal is to establish and promote a common vision or path to ensure a safe, coherent and harmonized modernization of the Air Transport System. There was substantive discussion on spectrum, resulting in two AN-Conf/12 Recommendations (1/12 and 1/13) relevant to this WRC-15 agenda item.

At WRC-12 no new satellite allocations were made to support beyond-line-of-sight (BLOS) UAS CNPC. However the aeronautical mobile satellite (R) service (AMS(R)S) in the frequency range 5 000 – 5 150 MHz, previously allocated through footnote **5.367**, is now a table allocation and the co-ordination requirements in the frequency band 5 030 – 5 091 MHz were changed from **9.21** to **9.11A**.

The requirement for BLOS (satellite) communications (54 MHz) cannot be fulfilled in the limited spectrum available in the frequency bands 1.5/1.6 GHz, and no AMS(R)S satellite system currently operates in the frequency range 5 000 – 5 150 MHz to support current/near-term UAS CNPC.

Existing systems operating in the FSS in the unplanned frequency bands 4/6 GHz, 12/14 GHz and 20/30 GHz have spectrum capacity available that can meet the requirements for BLOS communications and could be used for UAS CNPC provided that the principles detailed below are fulfilled. However the FSS is not recognised in the ITU as a safety service. Some of these systems have been notified for registration under article **11.41**.

Standards and Recommended Practices (SARPs) for CNPC are developed in ICAO. CNPC links must meet specific Required Communications Performance (RCP) to satisfy the aviation safety requirements as identified during this development. UAS CNPC links operated on frequencies in FSS allocations would have to be validated to meet those SARPs. Command and Control communication (C2) requirements should be differentiated from ATC communications requirements since technical

[4] UAS is referred to in ICAO as Remotely Piloted Aircraft Systems (RPAS)

[5] CNPC is referred to in ICAO as Command and Control (C2) or Command, Control and ATC Communications (C3).

and operational constraints, as well as technological solutions, may differ. Actual UAS operations with satellite-based CNPC systems using FSS allocations are performed to date in segregated airspace. This gives some indication that FSS satellite systems operating in the frequency bands 4/6 GHz, 12/14 GHz and 20/30 GHz may have the capability of supporting UAS CNPC in non-segregated airspace as well. However regulatory measures will be required to address the conditions for UA CNPC links. In addition regulatory measures will be required to address some of the safety related conditions as detailed below.

AMS(R)S is the appropriate type of service allocation to support the satellite component for UAS command and control and ATC relay in non-segregated airspace. However, WRC-15 AI 1.5 asks for studies for the use of FSS allocations for UAS applications.

Article 15 of the Radio Regulations states that special consideration shall be given to avoiding interference on distress and safety frequencies.

In order to satisfy the requirements for BLOS communications for UAS, the use of satellite CNPC links will have to comply with the following conditions:

1. That the technical and regulatory actions should be limited to the case of UAS using satellites, as studied, and not set a precedent that puts other aeronautical safety services at risk.

2. That all frequency bands which carry aeronautical safety communications need to be clearly identified in the Radio Regulations.

3. That the assignments and use of the relevant frequency bands have to be consistent with article **4.10** of the Radio Regulations which recognizes that safety services require special measures to ensure their freedom from harmful interference.

4. Knowledge that any assignment operating in those frequency bands:

   - is in conformity with technical criteria of the Radio Regulations,
   - has been successfully co-ordinated, including cases where co-ordination was not completed but the ITU examination of probability of harmful interference resulted in favourable finding, or any caveats placed on that assignment have been addressed and resolved such that the assignment is able to satisfy the requirements to provide BLOS communications for UAS; and
   - has been recorded in the International Master Frequency Register.

5. That interference to systems is reported in a transparent manner and addressed in the appropriate timescale.

6. That realistic worst case conditions, including an appropriate safety margin, can be applied during compatibility studies.

7. That any operational considerations for UAS will be handled in ICAO and not in the ITU.

ICAO Position:

Unmanned aircraft systems (UAS) have great potential for innovative civil applications, provided that their operation does not introduce risks to the safety of life.

Taking into account Recommendations 1/12 and 1/13 of the Twelfth Air Navigation Conference (November 2012) "*That ICAO … develop and implement a comprehensive aviation frequency spectrum strategy … which includes the following objectives: … clearly state in the strategy the need for aeronautical systems to operate in spectrum allocated to an appropriate aeronautical safety service*"; and "*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.*", in order to support the use of FSS systems for UAS CNPC links in non-segregated airspace, the technical and regulatory actions identified by studies under **Resolution 153** (WRC-12) must be consistent with the above Recommendations, and satisfy the following conditions:

1. That the technical and regulatory actions should be limited to the case of UAS using satellites, as studied, and not set a precedent that puts other aeronautical safety services at risk.

2. That all frequency bands which carry aeronautical safety communications need to be clearly identified in the Radio Regulations.

3. That the assignments and use of the relevant frequency bands have to be consistent with article **4.10** of the Radio Regulations which recognizes that safety services require special measures to ensure their freedom from harmful interference.

4. Knowledge that any assignment operating in those frequency bands:

- is in conformity with technical criteria of the Radio Regulations,
- has been successfully co-ordinated, including cases where co-ordination was not completed but the ITU examination of probability of harmful interference resulted in a favourable finding, or any caveats placed on that assignment have been addressed and resolved such that the assignment is able to satisfy the requirements to provide BLOS communications for UAS; and
- has been recorded in the International Master Frequency Register.

5. That interference to systems is reported in a transparent manner and addressed in the appropriate timescale.

6. That realistic worst case conditions, including an appropriate safety margin, can be applied during compatibility studies.

7. That any operational considerations for UAS will be handled in ICAO and not in the ITU.

WRC-15 Agenda Item 1.6

Agenda Item Title:
To consider possible additional primary allocations:

- **to the fixed-satellite service (Earth-to-space and space-to-Earth) of 250 MHz in the range between 10 GHz and 17 GHz in Region 1;**
- **to the fixed-satellite service (Earth-to-space) of 250 MHz in Region 2 and 300 MHz in Region 3 within the range 13 – 17 GHz;**

and review the regulatory provisions on the current allocations to the fixed-satellite service within each range, taking into account the results of ITU-R studies, in accordance with Resolutions 151 (WRC-12) and 152 (WRC-12), respectively;

Discussion:

This agenda item seeks to address the spectrum needs of the fixed satellite service to support projected future needs. Whilst the scope of this agenda item is limited in terms of frequency bands within which studies can take place there are a number of aeronautical systems such as Doppler navigation aids (13.25 – 13.4 GHz) and airport surface detection equipment/airborne weather radar (15.4 – 15.7 GHz) which need to be appropriately protected. Any allocation to the fixed satellite service should not adversely impact on the operation of aeronautical services in this frequency range.

ICAO Position:

To oppose any new fixed satellite service allocation unless it has been demonstrated through agreed studies that there will be no impact on aviation use of the relevant frequency band.

WRC-15 Agenda Item 1.7

Agenda Item Title:
To review the use of the band 5 091 – 5 150 MHz by the fixed-satellite service (Earth-to-space) (limited to feeder links of the non-geostationary mobile-satellite systems in the mobile-satellite service) in accordance with Resolution 114 (Rev.WRC-12);

Discussion:

In 1995 the allocation in the frequency band 5 091 – 5 150 MHz to the fixed satellite service (FSS) (Earth-to-space), limited to feeder links of the non-geostationary mobile satellite systems in the mobile satellite service, was added in order to address what at the time was perceived to be a temporary shortage of spectrum for such feeder links. To recognize the temporary nature of the allocation two clauses were added to the allocation at that time limiting the introduction of new assignments to the period up to 1 January 2008 and making the FSS secondary after the 1 January 2010. Subsequent conferences have modified these dates with the current dates being 1 January 2016 (no new frequency assignments) and 1 January 2018 (revert FSS to a secondary status) respectively.

Resolution **114** (WRC-12) calls for a review of allocations to both the aeronautical radionavigation service (ARNS) and the FSS in this band. ICAO is specifically invited to further review the detailed spectrum requirements and planning for international standard aeronautical radionavigation systems in the band. Initially this band was reserved to meet requirements for microwave landing system (MLS) assignments which could not be satisfied in the frequency band 5 030 – 5 091 MHz.

Aviation is implementing a new airport communication system under the recently allocated aeronautical mobile (R) service (AM(R)S) in the frequency band 5 091 – 5 150 MHz. Deployment and the capacity of this airport communication system is limited by the restrictions on the aggregate signal level permissible under the co-ordination arrangements established as part of agreeing to the AM(R)S allocation. Those arrangements allowed an increase in FSS satellite noise temperature ($\Delta Ts / Ts$) for the AM(R)S of 2% under the assumption that ARNS and aeronautical telemetry in the band would be contributing an additional 3% and 1% respectively. While the ARNS allocation should be maintained for the future, ARNS systems are not expected to operate in that band in the near-term, so as part of the review of the FSS allocation ICAO would wish to see a more flexible allocation of the $\Delta Ts / Ts$ between the various aeronautical services. Instead of limiting AM(R)S to 2% and ARNS to 3%, the regulations should be revised to restrict the combination of AM(R)S plus ARNS to a total of 5% $\Delta Ts / Ts$. This would allow increased flexibility for the AM(R)S while retaining the overall noise temperature increase caused by aeronautical systems operating in the band to 6%. Hence, the removal of the date limitation of the FSS can be supported, provided that stable sharing conditions with the ARNS and AM(R)S in the band are maintained and flexibility is improved in regards to $\Delta Ts / Ts$.

ICAO Position:

Support the removal of date limitations on the fixed satellite service (FSS) allocation in the frequency band 5091 – 5150 MHz subject to:

- the retention of the aeronautical protections contained in Resolution **114** (WRC-12).
- improving the flexibility for managing the allowed FSS satellite noise temperature increase by the aeronautical mobile (R) and aeronautical radionavigation services operating in the band 5 091-5 150 MHz.

WRC-15 Agenda Item 1.10

Agenda Item Title:
To consider spectrum requirements and possible additional spectrum allocations for the mobile-satellite service in the Earth-to-space and space-to-Earth directions, including the satellite component for broadband applications, including International Mobile Telecommunications (IMT), within the frequency range from 22 GHz to 26 GHz, in accordance with Resolution 234 (WRC-12);

Discussion:

A shortfall is predicted in the amount of mobile satellite spectrum available to support the satellite component of IMT, partly due to the failure to identify any spectrum that could be allocated to the mobile satellite service (MSS) below 16 GHz at WRC-12. This agenda item seeks to address these spectrum needs by identifying suitable spectrum for assignment to the MSS in the frequency range 22 – 26 GHz. Whilst the scope of this agenda item is limited in terms of frequency bands within which studies can take place, aviation does operate a number of airport surface detection systems in the frequency range 24.25 – 24.65 GHz in Regions 2 and 3 that need to be appropriately protected. Any allocation to the MSS should not adversely impact on the operation of aeronautical services in this frequency range.

ICAO Position:

To oppose any new mobile satellite service allocation unless it has been demonstrated through agreed studies that there will be no impact on aviation use in the 24.25 – 24.65 GHz frequency band in Regions 2 and 3.

WRC-15 Agenda Item 1.11

Agenda Item Title:
To consider a primary allocation for the Earth exploration-satellite service (Earth-to-space) in the 7-8 GHz range, in accordance with Resolution 650 (WRC-12);

Discussion:

Limited spectrum is available for tracking, telemetry and control systems operating in the Earth exploration-satellite service (EESS) and the available spectrum is currently in use by hundreds of satellites. This agenda item seeks to identify suitable additional spectrum for allocation to the Earth exploration-satellite service in the frequency range 7 – 8 GHz to complement the existing allocation at 8 025 – 8 400 MHz. Whilst the scope of this agenda item is limited in terms of frequency bands within which studies can take place, aviation does operate a number of airborne Doppler navigation systems in the frequency band 8 750 – 8 850 MHz that need to be appropriately protected. Any allocation to the EESS should not adversely impact on the operation of aeronautical services in the frequency band 8750 – 8850 MHz.

ICAO Position:

To oppose any new allocation to the Earth exploration-satellite service, unless it has been demonstrated through agreed studies that there will be no impact on aviation use in the frequency band 8 750 – 8 850 MHz.

WRC-15 Agenda Item 1.12

Agenda Item Title:
To consider an extension of the current worldwide allocation to the Earth exploration-satellite (active) service in the frequency band 9 300 – 9 900 MHz by up to 600 MHz within the frequency bands 8 700 – 9 300 MHz and/or 9 900 – 10 500 MHz, in accordance with Resolution 651 (WRC-12);

Discussion:
The frequency band 9 000 – 9 200 MHz is used by aeronautical radar systems (ground and airborne), including Airport Surface Detection Equipment (ASDE), Airport Surface Movement Radar (ASMR) and Precision Approach Radar (PAR) sometimes combined with Airport Surface Radar (ASR). They cater for short-range surveillance and precision functions up to a 50 km (approx. 25 NM) range. In aviation, these systems are used for precision monitoring, approach and surface detection functions and in airborne weather radar systems where their shorter wavelength is suitable for the detection of storm clouds. These radars are due to remain in service for the foreseeable future. The ongoing protection of the aeronautical uses of this frequency band needs to be assured.

Within ITU-R it has been argued that the impact on the aeronautical services has already been proven since the technical data is mainly identical to the outcome of studies performed prior to the allocation for the Earth exploration-satellite service (EESS) above 9 300 MHz by WRC-07. However the equipment types considered in the past were only un-modulated pulse Radars, rather than newer solid-state-based Radars that utilize pulse-compression modulation. The compatibility of these new Radar technologies with the EESS has not yet been analysed, however, they are being addressed in current ITU studies.

Whilst understanding that an increase in EESS synthetic aperture radar transmission bandwidth will increase the resolution with which objects can be measured, aviation would wish to understand the tangible benefits brought by such an increase in resolution before considering any allocation to the EESS. Additionally any proposals for the sharing of the aeronautical radionavigation frequency band 9 000 – 9 200 MHz by the EESS can only be considered on the basis of agreed studies, which take into account the present and expected future use of the band by aviation, and the constraints applied to this use. Such an allocation to EESS shall be subject to the provision that no harmful interference is caused to, nor protection is claimed from, or otherwise constraints are imposed on the operation and future development of aeronautical systems operating in the aeronautical radionavigation service in the frequency band 9 000 - 9 200 MHz. This provision protects the aeronautical utilization against harmful interference that may be caused when assignments are made with system characteristics different from those assumed in the compatibility analysis and interference mechanisms which were not foreseen in the compatibility analysis (for example the studies done for the 9 300 – 9 500 MHz allocation did not consider the radar systems with pulse compression).

ICAO Position:

Oppose any allocation to the Earth exploration-satellite service in the frequency band 9 000 – 9 200 MHz unless:-

- it has been demonstrated through agreed studies that there will be no impact on aviation use.
- no additional constraints are placed on the use of the frequency band by aeronautical systems

No change to Nos. **5.337**, **5.427**, **5.474** and **5.475**.

WRC-15 Agenda Item 1.16

Agenda Item Title:
To consider regulatory provisions and spectrum allocations to enable possible new Automatic Identification System (AIS) technology applications and possible new applications to improve maritime radiocommunication in accordance with Resolution 360 (WRC-12);

Discussion:

The maritime automatic identification system is fitted in search and rescue aircraft to allow co-ordination of search and rescue activities in which both vessels and aircraft are involved. It is essential to ensure that any change to the regulatory provisions and spectrum allocations resulting from this agenda item do not adversely impact on the capability of search and rescue aircraft to effectively communicate with vessels during disaster relief operations.

ICAO Position:

To ensure that any change to the regulatory provisions and spectrum allocations resulting from this agenda item do not adversely impact on the capability of search and rescue aircraft to effectively communicate with vessels during disaster relief operations.

WRC-15 Agenda Item 1.17

Agenda Item Title:
To consider possible spectrum requirements and regulatory actions, including appropriate aeronautical allocations, to support wireless avionics intra-communications (WAIC), in accordance with Resolution 423 (WRC-12);

Discussion:

The civil aviation industry is developing the future generation of aircraft. This future generation is being designed to enhance efficiency and reliability while maintaining, current required levels of safety as a minimum. The use of wireless technologies in the aircraft may reduce the overall weight of systems, reducing the amount of fuel required to fly and thus benefiting the environment.

Wireless Avionics Intra-Communications (WAIC) systems provide one way to derive these benefits. WAIC systems provide for radiocommunication between two or more points on a single aircraft and constitute exclusive closed on board networks required for the operation of an aircraft. WAIC systems do not provide air-to-ground, air-to-satellite or air-to-air communications. WAIC systems will only be used for safety-related aircraft applications.

Resolution **423** calls for consideration to be initially given to frequency bands currently allocated to aeronautical services (AMS, AM(R)S and ARNS) on a worldwide basis. If existing aeronautical bands cannot support the WAIC spectrum requirements, then new aeronautical allocations should be considered.

WAIC is a communication system which carries aeronautical safety related content and should therefore be seen as an application of the aeronautical mobile (route) service (AM(R)S). Initially the spectrum requirements for WAIC need to be identified to evaluate the possible use of existing AM(R)S allocations, and as such, if the spectrum requirements cannot be met then additional AM(R)S allocations are required.

Provided that technical studies show that WAIC systems will not cause harmful interference to existing or planned aeronautical systems in the aeronautical bands, ICAO supports any necessary additional AM(R)S allocations required to support the implementation of WAIC.

ICAO Position:

Support any necessary additional global aeronautical mobile (route) service allocation required to facilitate the implementation of WAIC, provided technical studies show that WAIC systems will not cause harmful interference to existing or planned aeronautical systems operating in frequency bands allocated to aeronautical safety services.

WRC-15 Agenda Item 4

Agenda Item Title:
In accordance with Resolution 95 (Rev.WRC-07), to review the resolutions and recommendations of previous conferences with a view to their possible revision, replacement or abrogation;

ICAO Position:

Resolutions:

Resolution No.	***Title***	***Action recommended***
18 *(Rev WRC-12)*	Relating to the procedure for identifying and announcing the position of ships and aircraft of States not parties to an armed conflict	No change
20 *(Rev. WRC-03)*	Technical cooperation with developing countries in the field of aeronautical telecommunications	No change
26 *(Rev. WRC-07)*	Footnotes to the Table of Frequency Allocations in Article 5 of the Radio Regulations	No change
27 *(Rev. WRC-12)*	Use of incorporation by reference in the Radio Regulations	No change
28 *(Rev. WRC-03)*	Revision of references to the text of ITU-R recommendations incorporated by reference in the Radio Regulations	No change
63 *(Rev. WRC-12)*	Protection of radiocommunication services against interference caused by radiation from industrial, scientific and medical (ISM) equipment	No change
67	Updating and rearrangement of the Radio Regulations	Modify as necessary based on the results of studies carried out under WRC-15. Agenda Item 9.1
95 *(Rev. WRC-07)*	General review of the resolutions and recommendations of world administrative radio conferences and world radiocommunication conferences	No change
114 *(Rev. WRC-12)*	Studies on compatibility between new systems of the aeronautical radionavigation service and the fixed-satellite service (Earth-to-space) (limited to feeder links of the non-geostationary mobile-satellite systems in the mobile-satellite service) in the frequency band 5 091 – 5 150 MHz	Modify as necessary based on the results of studies carried out under WRC-15. Agenda Item 1.7
151	Additional primary allocations to the fixed-satellite service in frequency bands between 10 and 17 GHz in Region 1	Delete after WRC-15
152	Additional primary allocations to the fixed-satellite service in the Earth-to-space direction in	Delete after WRC-15

Resolution No.	*Title*	*Action recommended*
	frequency bands between 13 – 17 GHz in Region 2 and Region 3	
153	To consider the use of frequency bands allocated to the fixed-satellite service not subject to Appendices 30, 30A and 30B for the control and non-payload communications of unmanned aircraft systems in non-segregated airspaces	Modify as necessary based on the results of studies carried out under WRC-15. Agenda Item 1.5
154	Consideration of technical and regulatory actions in order to support existing and future operation of fixed-satellite service earth stations within the band 3 400 – 4 200 MHz, as an aid to the safe operation of aircraft and reliable distribution of meteorological information in some countries in Region 1	Modify as necessary based on the results of studies carried out under WRC-15 Agenda Item 9.1.5. Based on the outcome of the Agenda Item, potentially extend the scope to other concerned regions (Caribbean, South America, Asia Pacific)
205 *(Rev. WRC-12)*	Protection of the systems operating in the mobile satellite service in the band 406 – 406.1 MHz	Modify as necessary based on the result of studies carried out under WRC-15. Agenda Item 9.1.1
207 *(Rev. WRC-03)*	Measures to address unauthorized use of and interference to frequencies in the bands allocated to the maritime mobile service and to the aeronautical mobile (R) service	No change
217 *(WRC-97)*	Implementation of wind profiler radars	No change
222 *(Rev. WRC-12)*	Use of the frequency bands 1 525 – 1 559 MHz and 1 626.5 – 1 660.5 MHz by the mobile-satellite service, and procedures to ensure long-term spectrum access for the aeronautical mobile-satellite (R) service	No change
225 *(Rev .WRC-12)*	Use of additional frequency bands for the satellite component of IMT	No change
233	Studies on frequency-related matters on International Mobile Telecommunications and other terrestrial mobile broadband applications	Delete after WRC-15
339 *(Rev. WRC-07)*	Coordination of NAVTEX services	No change
354 (WRC-07)	Distress and safety radiotelephony procedures for 2 182 kHz	No change
356 (WRC-07)	ITU maritime service information registration	No change
360	Consideration of regulatory provisions and spectrum allocations for enhanced Automatic Identification System technology applications	Modify as necessary based on the results of studies carried out

Resolution No.	*Title*	*Action recommended*
	and for enhanced maritime radiocommunication	under WRC-15. Agenda Item 1.16
405	Relating to the use of frequencies of the aeronautical mobile (R) service	No change
413 *(WRC-12)*	Use of the band 108 – 117.975 MHz by aeronautical service	No change
417 (WRC-12)	Use of the frequency band 960 – 1 164 MHz by the aeronautical mobile (R) service	No change
418 (*Rev. WRC-12*)	Use of the band 5 091 – 5 250 MHz by the aeronautical mobile service for telemetry applications	Modify as necessary based on the results of studies carried out under WRC-15. Agenda Item 1.7
422	Development of methodology to calculate aeronautical mobile-satellite (R) service spectrum requirements within the frequency bands 1 545 – 1 555 MHz (space-to-Earth) and 1 646.5 – 1 656.5 MHz (Earth-to-space)	Modify or suppress as necessary, subject to the completion of the work.
423	Consideration of regulatory actions, including allocations, to support Wireless Avionics Intra-Communications	Modify as necessary based on the results of studies carried out under WRC-15. Agenda Item 1.17
608 *(WRC-03)*	Use of the frequency band 1 215 – 1 300 MHz by systems of the radionavigation satellite service	Delete after studies completed
609 *(WRC-07)*	Protection of aeronautical radionavigation systems from the equivalent power flux-density produced by radionavigation satellite service networks and systems in the 1 164 – 1 215 MHz band	No change
610 *(WRC-03)*	Coordination and bilateral resolution of technical compatibility issues for radionavigation satellite networks and systems in the band 1 164 – 1 300 MHz, 1 559 – 1 610 MHz and 5 010 – 5 030 MHz	No change
612 (*Rev. WRC-12*)	Use of the radiolocation service between 3 and 50 MHz to support oceanographic radar operations	No change
644 *(Rev. WRC-12)*	Radiocommunication resources for early warning, disaster mitigation and relief operations	No change
705 *(MOB-87)*	Mutual protection of radio services operating in the band 70 – 130 kHz	No change
729 *(WRC-07)*	Use of frequency adaptive systems in the MF and HF bands	Delete after WRC-15
748 (*Rev. WRC-12*)	Compatibility between the aeronautical mobile (R) service and the fixed satellite service (Earth-to-space) in the band 5 091 – 5 150 MHz	Modify as necessary based on the results of studies carried out

Resolution No.	***Title***	***Action recommended***
		under WRC-15 Agenda Item 1.7
957	Studies towards review of the definitions of *fixed service*, *fixed station* and *mobile station*	Delete after WRC-15

Recommendations:

Recommendation No.		***Action recommended***
7 *(Rev. WRC-97)*	Adoption of standard forms for ship station and ship earth station licences and aircraft station and aircraft earth station licences	No change
9	Relating to the measures to be taken to prevent the operation of broadcasting stations on board ships or aircraft outside national territories	No change
71	Relating to the standardization of the technical and operational characteristics of radio equipment	No change
75 *(WRC-03)*	Study on the boundary between the out-of-band and spurious domains of primary radars using magnetrons	No change
401	Relating to the efficient use of aeronautical mobile (R) worldwide frequencies	No change
608 *(Rev. WRC-07)*	Guidelines for consultation meetings established in Resolution **609 (WRC-03)**	No change

WRC-15 Agenda Item 8

Agenda Item Title:
To consider and take appropriate action on requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, taking into account Resolution 26 (Rev. WRC-07).

Discussion:

Allocations to the aeronautical services are generally made for all ITU Regions and normally on an exclusive basis. These principles reflect the global process of standardization within ICAO for the promotion of safety and to support the global interoperability of radiocommunication and radionavigation equipment used in civil aircraft. In some instances, however, footnotes to the ITU Table of Frequency Allocations allocate spectrum in one or more countries to other radio services in addition or alternatively to the aeronautical service to which the same spectrum is allocated in the body of the table.

The use of country footnote allocations to non-aeronautical services in aeronautical bands is generally not recommended by ICAO, on safety grounds, as such use may result in harmful interference to safety services. Furthermore, this practice generally leads to an inefficient use of available spectrum to aeronautical services, particularly when the radio systems sharing the band have differing technical characteristics. It also may result in undesirable (sub-) regional variations with respect to the technical conditions under which the aeronautical allocations can be used. This can have a serious impact on the safety of aviation.

The following footnotes in aeronautical bands should be deleted for safety and efficiency reasons as discussed below:

a) In the frequency bands used for the ICAO instrument landing system (ILS), (marker beacons 74.8 – 75.2 MHz; localizer 108 – 112 MHz and glide path 328.6 – 335.4 MHz) and the VHF omni-directional radio range system (VOR); 108 – 117.975 MHz, Nos. **5.181**, **5.197** and **5.259** allow for the introduction of the mobile service on a secondary basis and subject to agreement obtained under No. **9.21** of the Radio Regulations when these bands are no longer required for the aeronautical radionavigation service. The use of both ILS and VOR is expected to continue. In addition, WRC-03, as amended by WRC-07, has introduced No. **5.197A** stipulating that the band 108 – 117.975 MHz is also allocated on a primary basis to the aeronautical mobile (R) service (AM(R)S), limited to systems operating in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution **413 (Rev. WRC-12)**. The use of the band 108 – 112 MHz by the AM(R)S shall be limited to systems composed of ground-based transmitters and associated receivers that provide navigational information in support of air navigation functions in accordance with recognized international aeronautical standards. As a result, access to these bands by the mobile service is not feasible, in particular since no acceptable sharing criteria that secure the protection of aeronautical systems have been established to date. Nos. **5.181**, **5.197** and **5.259** should now be deleted since they do not represent a realistic expectation for an introduction of the mobile service in these bands.

b) In the frequency band 1 215 – 1 300 MHz, which is used by civil aviation for the provision of radionavigation services through No. **5.331.** Footnote No. **5.330** allocates the band in a number of countries to the fixed and mobile service. Given the receiver sensitivity of aeronautical uses of the frequency band, ICAO does not support the continued inclusion of an additional service through country footnotes. ICAO would

therefore urge administrations to remove their name from the No. **5.330**.

c) In the frequency bands 1 610.6 – 1 613.8 MHz and 1 613.8 – 1 626.5 MHz, which is assigned to the aeronautical radionavigation service, No. **5.355** allocates the band on a secondary basis to the fixed service in a number of countries. Given that this band is allocated to a safety of life service, ICAO does not support the continued inclusion of an additional service through country footnotes. ICAO would therefore urge administrations to remove their name from the No. **5.355.**

d) In the frequency band 1 559 – 1 610 MHz, which is used for elements of the ICAO global navigation satellite system (GNSS), Nos. **5.362B** and **5.362C** allow the operation of the fixed service in some countries on a primary basis until 1 January 2010 and on a secondary basis until 1 January 2015. This band is allocated, on a worldwide, primary basis, to the aeronautical radionavigation service (ARNS) and to the radionavigation-satellite service (RNSS). The band already supports operation of two prime elements of the global navigation satellite system (GNSS), i.e. global navigation satellite system (GLONASS) and global positioning system (GPS), the standards for which have been adopted into ICAO SARPs. SARPs for other RNSS systems, such as the European Galileo system, are under development. Studies undertaken in preparation for WRC-2000 indicate that a geographical separation distance exceeding line-of-sight (in the order of 400 km) between aircraft using GNSS and stations of the fixed service is required to ensure safe operation of GNSS. This is a very severe restriction, which can prohibit the safe use of GNSS over wide areas around any fixed service installation. Were a fixed service to be introduced into this band then harmful interference situations could arise leading to disruption to GNSS, affecting the safety of aircraft in flight. Thus, the WRC-2000 agreement to terminate all use by the fixed service in this band in 2015 still constitutes a severe and unacceptable constraint on the safe and effective use of GNSS in some areas of the world. It is, therefore, recommended that deletion of these allocations be effective from 2015.

e) In the frequency band 3 400 – 4 200 MHz, the existing allocation to the fixed satellite service (FSS) (space-Earth) is used to provide aeronautical VSAT service, see discussion under agenda items 1.1 and 9.1.5. No. **5.430A** allocates this band also to the mobile service in a number of States in Region 1, including States in Africa. African States are recommended to withdraw their names from this footnote.

f) In the frequency band 4 200 – 4 400 MHz, which is reserved for use by airborne radio altimeters, No. **5.439** allows the operation of the fixed service on a secondary basis in some countries. Radio altimeters are a critical element in aircraft automatic landing systems and serve as a sensor in ground proximity warning systems. Interference from the fixed service has the potential to affect the safety of all-weather operations. Deletion of this footnote is recommended.

ICAO Position:

To support deletion of Nos. **5.181, 5.197** and **5.259**, as access to the frequency bands 74.8 – 75.2, 108 – 112 and 328.6 –335.4 MHz by the mobile service is not feasible and could create the potential for harmful interference to important radionavigation systems used by aircraft at final approach and landing as well as systems operating in the aeronautical mobile service operating in the frequency band 108 – 112 MHz.

To support deletion of No. **5.330** as access to the frequency band 1 215 – 1 300 MHz by the fixed and mobile services could potentially cause harmful interference to services used to support aircraft operations.

To support deletion of No. **5.355** as access to the frequency bands 1 610.6 – 1 613.8 and 1 613.8 – 1 626.5 MHz by the fixed services could potentially jeopardize aeronautical use of these frequency bands.

To support the deletion of Nos. **5.362B** and **5.362C** as of 2015 in order to eliminate harmful interference that has been caused by the fixed service to essential aeronautical radionavigation satellite functions in the frequency band 1 559 –1 610 MHz and to permit the full utilization of GNSS services to aircraft on a global basis.

To support the removal of States in the African region from No. **5.430A** to ensure the protection of the safety operation of the aeronautical VSAT in the frequency band 3 400 – 4 200 MHz, where it is allocated on primary basis to the mobile service.

To support the deletion of No. **5.439** to ensure the protection of the safety critical operation of radio altimeters in the frequency band 4 200 – 4 400 MHz.

Note 1.— Administrations indicated in the footnotes mentioned in the ICAO Position above which are urged to remove their country names from these footnotes are as follows:

*No. **5.181***	*Egypt, Israel and Syrian Arab Republic*
*No. **5.197***	*Syrian Arab Republic*
*No. **5.259***	*Egypt and Syrian Arab Republic*
*No. **5.330***	*Angola, Bahrain, Bangladesh, Cameroon, Chad, China, Djibouti, Egypt, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Nepal, Oman, Pakistan, the Philippines, Qatar, Saudi Arabia, Somalia, Sudan, South Sudan, the Syrian Arab Republic, Togo, the United Arab Emirates, and Yemen*
*No. **5.355***	*Bahrain, Bangladesh, Congo (Rep of the), Djibouti, Egypt, Eritrea, Iraq, Israel, Kuwait, Qatar, Syrian Arab Republic, Somalia, Sudan, South Sudan, Chad, Togo and Yemen*
*No. **5.362B***	*Algeria, Armenia, Azerbaijan, Belarus, Benin, Cameroon, Democratic People's Republic of Korea, Gabon, Georgia, Guinea, Guinea-Bissau, Jordan, Kazakhstan, Kyrgyzstan, Libya, Lithuania, Mali, Mauritania, Nigeria, Pakistan, Poland, Romania, Russian Federation, Saudi Arabia, Senegal, the Syrian Arab Republic, Tajikistan, Tanzania, Turkmenistan, Tunisia, Ukraine, and Uzbekistan*
*No. **5.362C***	*Chad, Congo (Rep of the), Eritrea, Iraq, Israel, Jordan, Qatar, Somalia, Sudan, South Sudan, the Syrian Arab Republic, Togo, and Yemen*
*No. **5.430A***	*Algeria, Saudi Arabia, Bahrain, Benin, Botswana, Burkina Faso, Cameroon, Congo (Rep. of the), Côte d'Ivoire, Egypt, French overseas departments and communities in Region 1, Gabon, Guinea, Israel, Jordan, Kuwait, Lesotho, Malawi, Mali, Morocco, Mauritania, Mozambique, Namibia, Niger, Oman, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Senegal, Sierra Leone, South Africa, Swaziland, Chad, Togo, Tunisia, Zambia and Zimbabwe*
*No. **5.439***	*Iran (Islamic Republic of)*

WRC-15 Agenda Item 9.1

Agenda Item Title:
To consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention:
On the activities of the Radiocommunication Sector since WRC-12.

Note: The subdivision of Agenda item 9.1 into sub-items, such as 9.1.1, 9.1.2, etc. was made at the first session of the Conference Preparatory Meeting for WRC-15 (CPM15-1) and is summarized in the BR Administrative Circular CA/201 of 19 March 2012.

Sub-item 1 (9.1.1);
Resolution 205 – Protection of the systems operating in the mobile-satellite service in the band 406 –406.1 MHz

Discussion:

This resolution calls for studies into the protection requirements of the distress and safety system operating at 406 MHz from interference and that the Director of the Radiocommunication Bureau to report any regulatory action required to WRC-15.

Emergency Locating Transmitters (ELT's) are an element of the COSPAS-SARSAT system. Mandatory carriage of ELT's for aircraft is specified in Annex 6 to the ICAO Convention. SARPs for ELTs are contained in Annex 10 to the Chicago Convention. The use of ELTs offers the possibility of dramatically shortening the time required to alert rescue forces to the distress and to assist in final "homing" by the rescue team. In the ITU, such beacons are named emergency position-indicating radio beacons (EPIRBs). ICAO supports the continued protection of this system through appropriate provisions in the Radio Regulations.

ICAO Position:

Support increased protection of COSPAS-SARSAT system in the frequency band 406 – 406.1 MHz.

Sub-item 5 (9.1.5);
Consideration of technical and regulatory actions in order to support existing and future operation of fixed-satellite service earth stations within the band 3 400 – 4 200 MHz, as an aid to the safe operation of aircraft and reliable distribution of meteorological information in some countries in Region 1 (Resolution 154 (WRC-12))

Discussion:

The efficient provision of air navigation services requires the implementation and operation of ground communications infrastructure with high availability, reliability and integrity in order to fulfil aviation performance requirements.
In the Africa and Indian Ocean region, the difficulty of fulfilling these requirements, given the extent of the airspace and weakness in terrestrial communication infrastructure, led, in 1997, the ICAO AFI Planning and Implementation Regional Group to approve the use of fixed satellite technology (VSAT) to support terrestrial aeronautical communications services in the frequency band 3.4 – 4.2 GHz. In

tropical regions, due to more pronounced rain attenuation at higher frequency bands, this frequency band remains the only viable option for satellite links with high availability.

Since the 90s, States and / or organizations in the AFI Region have developed and implemented networks of satellite-based VSAT systems in this fixed satellite service (FSS) band. These VSAT networks support all aeronautical communications services including the extension of VHF aeronautical mobile, navigation and surveillance systems.

Today, these VSAT systems constitute a real infrastructure spanning the entire African continent and beyond and the availability of the entire 3.4 – 4.2 GHz FSS frequency band is crucial for the AFI Region to ensure the continued growth of traffic while maintaining the required level of safety in this region.

Recommendation **724**, adopted by the WRC-07, indicates that satellite communication systems operating in the fixed satellite service may be the only medium to support the requirements of the ICAO communication, navigation, surveillance and air traffic management systems, where an adequate terrestrial communication infrastructure is not available.

WRC-07 allocated the frequency band 3.4 – 3.6 GHz to the mobile, except aeronautical mobile, service on a primary basis in some countries, including Region 1, subject to regulatory and technical restrictions (No. **5.430A**). The deployment of (non-aeronautical terrestrial) mobile service systems in vicinity of airports has led to an increased number of cases of interference into the FSS (VSAT) receivers. Consequently, some additional measures need to be adopted to improve the protection of the FSS links supporting aeronautical communications.

ICAO supports ITU-R studies on the appropriate regulatory and/or technical measures that Administrations in the AFI region should apply to facilitate protection of VSATs used for the transmission of aeronautical and meteorological information in the 3.4 – 4.2 GHz frequency band from other services operating in the band. This will ensure the continued growth of traffic while maintaining the required level of safety in this region.

Note: The problem can also occur in other regions. The 3.4 – 4.2 GHz frequency range is used by VSAT networks for aeronautical communications in tropical regions of Central/South America and the Asia Pacific as well as Africa. Hence there is a potential link to WRC-15 AI 1.1.

ICAO Position:

To support possible technical and regulatory measures to ensure protection of VSATs used for the transmission of aeronautical and meteorological information in the frequency range 3.4 – 4.2 GHz from other services operating in the same or adjacent frequency range.

Sub-item 6 (9.1.6);
Resolution 957 – Studies towards review of the definitions of *fixed service, fixed station* and *mobile station*

Discussion:

These three definitions are indirectly related to aeronautical services and hence any change in the definitions could have an impact on the interpretation of the definition of aeronautical mobile services. This Resolution calls for studies into whether a change in the definition of these terms is required and for the Director of the Radiocommunication Bureau to report to WRC-15.

ICAO Position:

Ensure that any change to the definitions as a result of a review of the studies referenced in Resolution **957,** do not adversely impact aviation.

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ATTACHMENT TO THE APPENDIX

RESOLUTION 807 (WRC-12)

Agenda for the 2015 World Radiocommunication Conference

The World Radiocommunication Conference (Geneva, 2012),

considering

a) that, in accordance with No. 118 of the ITU Convention, the general scope of the agenda for a world radiocommunication conference should be established four to six years in advance and that a final agenda shall be established by the Council two years before the conference;

b) Article 13 of the ITU Constitution relating to the competence and scheduling of world radiocommunication conferences and Article 7 of the Convention relating to their agendas;

c) the relevant resolutions and recommendations of previous world administrative radio conferences (WARCs) and world radiocommunication conferences (WRCs),

recognizing

a) that WRC-12 has identified a number of urgent issues requiring further examination by WRC-15;

b) that, in preparing this agenda, some items proposed by administrations could not be included and have had to be deferred to future conference agendas,

resolves

to recommend to the Council that a world radiocommunication conference be held in 2015 for a maximum period of four weeks, with the following agenda:

1 on the basis of proposals from administrations, taking account of the results of WRC-12 and the Report of the Conference Preparatory Meeting, and with due regard to the requirements of existing and future services in the bands under consideration, to consider and take appropriate action in respect of the following items:

1.1 to consider additional spectrum allocations to the mobile service on a primary basis and identification of additional frequency bands for International Mobile Telecommunications (IMT) and related regulatory provisions, to facilitate the development of terrestrial mobile broadband applications, in accordance with Resolution **233 (WRC-12)**;

1.2 to examine the results of ITU-R studies, in accordance with Resolution **232 (WRC-12)**, on the use of the frequency band 694-790 MHz by the mobile, except aeronautical mobile, service in Region 1 and take the appropriate measures;

1.3 to review and revise Resolution **646 (Rev.WRC-12)** for broadband public protection and disaster relief (PPDR), in accordance with Resolution **648 (WRC-12)**;

1.4 to consider possible new allocation to the amateur service on a secondary basis within the band 5 250-5 450 kHz in accordance with Resolution **649 (WRC-12)**;

1.5 to consider the use of frequency bands allocated to the fixed-satellite service not subject to Appendices **30**, **30A** and **30B** for the control and non-payload communications of unmanned aircraft systems (UAS) in non-segregated airspaces, in accordance with Resolution **153 (WRC-12)**;

1.6 to consider possible additional primary allocations:

1.6.1 to the fixed-satellite service (Earth-to-space and space-to-Earth) of 250 MHz in the range between 10 GHz and 17 GHz in Region 1;

1.6.2 to the fixed-satellite service (Earth-to-space) of 250 MHz in Region 2 and 300 MHz in Region 3 within the range 13-17 GHz;

and review the regulatory provisions on the current allocations to the fixed-satellite service within each range, taking into account the results of ITU-R studies, in accordance with Resolutions **151 (WRC-12)** and **152 (WRC-12)**, respectively;

1.7 to review the use of the band 5 091-5 150 MHz by the fixed-satellite service (Earth-to-space) (limited to feeder links of the non-geostationary mobile-satellite systems in the mobile-satellite service) in accordance with Resolution **114 (Rev.WRC-12)**;

1.8 to review the provisions relating to earth stations located on board vessels (ESVs), based on studies conducted in accordance with Resolution **909 (WRC-12)**;

1.9 to consider, in accordance with Resolution **758 (WRC-12)**:

1.9.1 possible new allocations to the fixed-satellite service in the frequency bands 7 150-7 250 MHz (space-to-Earth) and 8 400-8 500 MHz (Earth-to-space), subject to appropriate sharing conditions;

1.9.2 the possibility of allocating the bands 7 375-7 750 MHz and 8 025-8 400 MHz to the maritime-mobile satellite service and additional regulatory measures, depending on the results of appropriate studies;

1.10 to consider spectrum requirements and possible additional spectrum allocations for the mobile-satellite service in the Earth-to-space and space-to-Earth directions, including the satellite component for broadband applications, including International Mobile Telecommunications (IMT), within the frequency range from 22 GHz to 26 GHz, in accordance with Resolution **234 (WRC-12)**;

1.11 to consider a primary allocation for the Earth exploration-satellite service (Earth-to-space) in the 7-8 GHz range, in accordance with Resolution **650 (WRC-12)**;

1.12 to consider an extension of the current worldwide allocation to the Earth exploration-satellite (active) service in the frequency band 9 300-9 900 MHz by up to 600 MHz within the frequency bands 8 700-9 300 MHz and/or 9 900-10 500 MHz, in accordance with Resolution **651 (WRC-12)**;

1.13 to review No. **5.268** with a view to examining the possibility for increasing the 5 km distance limitation and allowing space research service (space-to-space) use for proximity operations by space vehicles communicating with an orbiting manned space vehicle, in accordance with Resolution **652 (WRC-12)**;

1.14 to consider the feasibility of achieving a continuous reference time-scale, whether by the modification of coordinated universal time (UTC) or some other method, and take appropriate action, in accordance with Resolution **653 (WRC-12)**;

1.15 to consider spectrum demands for on-board communication stations in the maritime mobile service in accordance with Resolution **358 (WRC-12)**;

1.16 to consider regulatory provisions and spectrum allocations to enable possible new Automatic Identification System (AIS) technology applications and possible new applications to improve maritime radiocommunication in accordance with Resolution **360 (WRC-12)**;

1.17 to consider possible spectrum requirements and regulatory actions, including appropriate aeronautical allocations, to support wireless avionics intra-communications (WAIC), in accordance with Resolution **423 (WRC-12)**;

1.18 to consider a primary allocation to the radiolocation service for automotive applications in the 77.5-78.0 GHz frequency band in accordance with Resolution **654 (WRC-12)**;

2 to examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations communicated by the Radiocommunication Assembly, in accordance with Resolution **28 (Rev.WRC-03)**, and to decide whether or not to update the corresponding references in the Radio Regulations, in accordance with the principles contained in Annex 1 to Resolution **27 (Rev.WRC-12)**;

3 to consider such consequential changes and amendments to the Radio Regulations as may be necessitated by the decisions of the Conference;

4 in accordance with Resolution **95 (Rev.WRC-07)**, to review the resolutions and recommendations of previous conferences with a view to their possible revision, replacement or abrogation;

5 to review, and take appropriate action on, the Report from the Radiocommunication Assembly submitted in accordance with Nos. 135 and 136 of the Convention;

6 to identify those items requiring urgent action by the Radiocommunication Study Groups in preparation for the next world radiocommunication conference;

7 to consider possible changes, and other options, in response to Resolution 86 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference, an advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks, in accordance with Resolution **86 (Rev.WRC-07)** to facilitate rational, efficient, and economical use of radio frequencies and any associated orbits, including the geostationary-satellite orbit;

8 to consider and take appropriate action on requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, taking into account Resolution **26 (Rev.WRC-07)**;

9 to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention:

9.1 on the activities of the Radiocommunication Sector since WRC-12;

9.2 on any difficulties or inconsistencies encountered in the application of the Radio Regulations; and

9.3 on action in response to Resolution **80 (Rev.WRC-07)**;

10 to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, in accordance with Article 7 of the Convention,

resolves further

to activate the Conference Preparatory Meeting,

invites the Council

to finalize the agenda and arrange for the convening of WRC-15, and to initiate as soon as possible the necessary consultations with Member States,

instructs the Director of the Radiocommunication Bureau

to make the necessary arrangements to convene meetings of the Conference Preparatory Meeting and to prepare a report to WRC-15,

instructs the Secretary-General

to communicate this Resolution to international and regional organizations concerned.

— END —