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Ref.: E 3/5-24/93 14 November 2024

Subject: Draft ICAO Position on items of interest to aviation on the agenda of the International Telecommunication Union (ITU) World Radiocommunication Conference (2027) (WRC-27)

Action required: Comments to reach Montréal by 14 February 2025

Sir/Madam,

1. I have the honour to inform you that the ICAO Air Navigation Commission at the sixth meeting of its 227th Session, held on 10 October 2024, considered proposals on the ICAO Position relating to the forthcoming International Telecommunication Union (ITU) World Radiocommunication Conference (2027) (WRC-27). The Commission undertook a preliminary review of the proposed ICAO Position, which had been developed by the Frequency Spectrum Management Panel (FSMP). The Commission agreed that the draft ICAO Position for WRC-27 be submitted to all ICAO Member States and relevant international organizations for comment and use in preparation for the Conference. The draft ICAO Position is contained in the attachment.

2. The Commission will undertake a final review of the draft ICAO Position in the second quarter of 2025, in light of comments received, and will make its recommendations on the subject to the ICAO Council. Following approval by Council, the ICAO Position for the WRC-27 will be dispatched to all Member States and relevant international organizations and submitted to the ITU WRC-27.

3. The agenda for WRC-27 includes a number of items, mainly of a technical nature, with implications to aviation. Emphasis is put on Section 4 below which summarizes the WRC-27 agenda items of major concern for the aviation community. An outcome of any of these items which is not in line with the ICAO Position, could negatively affect the level of safety provided by existing aeronautical systems and services. Section 5 summarizes other items for which the aviation community also needs to ensure there is no undue impact to aeronautical systems or services.

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4. WRC-27 agenda items of major concern for the aviation community include:

a) Studies on sharing and compatibility and development of technical conditions for the use of International Mobile Telecommunications (IMT) in the frequency bands 4 400-4 800 MHz, 7 125-8 400 MHz (or parts thereof), and 14.8-15.35 GHz taking into account existing primary services operating in these, and adjacent, frequency bands (Agenda Item 1.7);

b) possible primary allocations of the Earth exploration-satellite service (passive) in the frequency bands 4 200-4 400 MHz and 8 400-8 500 MHz in all regions (Agenda Item 1.19);

c) studies on possible new allocations to the mobile-satellite service for direct connectivity between space stations and International Mobile Telecommunications (IMT) user equipment to complement terrestrial IMT network coverage (Agenda Item 1.13); and

d) activities of the ITU Radiocommunication Sector since WRC-23 (Agenda Item 9.1).

5. Other issues that will be addressed at the WRC-27 for which aviation needs to ensure there is no undue impact to aeronautical systems or services include the following:

a) consider regulatory measures, and implementability thereof, to limit the unauthorized operations of non-geostationary-satellite orbit Earth stations in the fixed-satellite and mobile-satellite services and associated issues related to the service area of non-geostationary-satellite orbit satellite systems in the fixed-satellite and mobile-satellite services (Agenda Item 1.5);

b) consider appropriate regulatory actions to update Appendix 26 to the RR in support of aeronautical mobile (OR) high frequency modernization (Agenda Item 1.9);

c) consider technical and operational issues, and regulatory provisions, for space-to-space links among non-geostationary and geostationary satellites in the frequency bands 1 518-1 544 MHz, 1 545-1 559 MHz, 1 610-1 645.5 MHz, 1 646.5-1 660 MHz, 1 670-1 675 MHz and 2 483.5-2 500 MHz allocated to the mobile-satellite service (Agenda Item 1.11);

d) consider, based on the results of studies, possible new allocations to the mobile-satellite service and possible regulatory actions in the frequency bands 1 427-1 432 MHz (space-to-Earth), 1 645.5-1 646.5 MHz (space-to-Earth) (Earth-to-space), 1 880-1 920 MHz (space-to-Earth) (Earth-to-space) and 2 010-2 025 MHz (space-to-Earth) (Earth-to-space) required for the future development of low-data-rate non-geostationary mobile-satellite systems (Agenda Item 1.12);

e) consider studies on frequency-related matters, including possible new or modified space research service (space-to-space) allocations, for future development of communications on the lunar surface and between lunar orbit and the lunar surface (Agenda Item 1.15);

f) consider studies on the technical and regulatory provisions necessary to protect radio astronomy operating in specific Radio Quiet Zones, and in frequency bands allocated to the radio astronomy service on a primary basis globally, from aggregate radio-frequency interference caused by non-geostationary-satellite orbit systems (Agenda Item 1.16);

g) consider regulatory provisions for receive-only space weather sensors and their protection in the RR, taking into account the results of ITU Radiocommunication Sector studies (Agenda Item 1.17);

h) consider, based on the results of ITU Radiocommunication Sector studies, possible regulatory measures regarding the protection of the Earth exploration-satellite service (passive) and the radio astronomy service in certain frequency bands above 76 GHz from unwanted emissions of active services (Agenda Item 1.18);

i) review the resolutions and recommendations of previous conferences with a view to their possible revision, replacement or abrogation (Agenda Item 4);

j) 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 (Agenda Item 8);

k) provisional application of the RR for the introduction of new geostationary satellite networks into the global maritime distress and safety system (Agenda Item 9.2); and

l) recommend to the ITU, Council items for inclusion in the agenda for the next world radiocommunication conference, and items for the preliminary agenda of future conferences (Agenda Item 10).

6. I wish to emphasize that it is of utmost importance to civil aviation that the material contained in the attachment be considered for incorporation in the proposals of your State to the ITU. This support is vital to ensure that the aviation interests are safeguarded when the ITU Radio Regulations are amended. It is already evident that the ITU-R studies during the WRC-27 study cycle will be heavily loaded for the aviation community. Not only are there more items in total for that Conference than during previous cycles, the outcome of more of those items may also directly impact aviation, even though aviation is not seeking any new spectrum during this WRC. Technical preparatory studies for WRC-27 will be undertaken in various working parties of the ITU Radiocommunication Sector (ITU-R), many of which the aviation community has never had to participate in previously. Your active support in the upcoming meetings of the ITU-R will be essential and contribute significantly towards maintaining or improving aviation safety.

7. With a view to increasing the awareness of and support for the aviation requirements at the ITU WRC-27, the Regional Offices of ICAO and the regional planning groups will be involved in relevant coordination activities. In addition, the support from international organizations involved in aviation could provide the necessary source of support to the ICAO Position, both at a national level during the national preparatory activities for developing proposals for the conference, as well as at an international level, and in particular at the Conference and the ITU preparatory activities.

8. In this regard I would like to refer you to ICAO Assembly Resolution A41-7 (Support of the ICAO policy on radio frequency spectrum matters), which urges Member States, international organizations and other civil aviation stakeholders to support aviation requirements for spectrum and instructs ICAO to make sufficient resources available to enable increased participation in spectrum management activities.

9. To promote the ICAO Position and increase awareness of frequency spectrum issues, ICAO plans to organize four regional workshops with assistance from FSMP experts, the first one of these commencing at the Asia and Pacific (APAC) Regional Office in February 2025. ICAO will also undertake, within the budget limits of the Organization and wherever possible, to present the ICAO Position to regional telecommunication organizations, such as the 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). The active participation of aeronautical experts from ICAO Member States in support of this activity is required.

10. May I request that any comments you may wish to make on the attached draft ICAO Position for the WRC-27 be dispatched to reach me not later than 14 February 2025. To facilitate the processing of replies with substantive comments, I invite you to submit an electronic version in Word format to icaohq@icao.int. The ANC has asked me to specifically indicate that comments received after the due date may not be considered by the Commission and the Council. In this connection, should you anticipate a delay in your reply, please let me know in advance of the due date.

11. The subsequent work of the Air Navigation Commission and the Council would be greatly facilitated by specific comments on the proposed ICAO Position. In case you have no comments, your indication of support would be appreciated.

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

Juan Carlos Salazar
Secretary General

Enclosure:
Draft ICAO Position for the ITU WRC-27

ATTACHMENT to State letter E 3/5-24/93

DRAFT ICAO POSITION FOR THE INTERNATIONAL TELECOMMUNICATION UNION (ITU) WORLD RADIOCOMMUNICATION CONFERENCE 2027 (WRC-27)

SUMMARY

This paper reviews the agenda for the International Telecommunication Union (ITU) World Radiocommunication Conference 2027 (WRC-27), discusses points of aeronautical interest and provides the ICAO Position for these agenda items.

The goal of the ICAO Position is to ensure aeronautical access to appropriately protected spectrum for radiocommunication and radionavigation systems that support current and future safety-of-flight applications. In particular, it describes the safety considerations necessary to ensure adequate protection against harmful interference.

Support of the ICAO Position by Contracting States is required to ensure that the position is supported at the WRC-27 and that aviation requirements are met.

1. Introduction
2. ICAO and the international regulatory framework
3. Spectrum requirements for international civil aviation
4. Aeronautical aspects on the agenda for WRC-27

Attachment:
Agenda for ITU WRC-27

1. INTRODUCTION

1.1 The ICAO Position on issues of interest to international civil aviation to be addressed at the 2027 ITU World Radiocommunication Conference (WRC-27) 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 — *ICAO spectrum strategy, policy statements and related information* (Doc 9718, Third Edition, 2023). It should be noted that the Handbook contains a long-term policy based on a snapshot in time and, as such, it may lag behind the ICAO WRC Position. As a result, when there is conflict between the Handbook and a current ICAO WRC Position, the Position should be seen as being the guiding document.

1.2 ICAO supports the working principle within the ITU, as established during studies for WRC-07, that ICAO will ensure the compatibility of ICAO standard systems with existing or planned aeronautical systems operating in accordance with international aeronautical Standards. Compatibility of ICAO standard systems with non-ICAO standard aeronautical systems (or non-aeronautical systems) will be addressed in the 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 193 ICAO Contracting 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 the 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 Safely connecting people and business is of paramount importance in the operation of approximately 100 000 daily flights. Today, aviation is by far the world's safest and most efficient mode of long-range mass transportation. According to the International Air Transport Association (IATA), total passenger traffic is expected to reach 4.96 billion in 2024. Over the next 20 years, world-wide passenger traffic is expected to increase, on average, by 3.8 per cent per year, resulting in over 4 billion additional passenger flights in 2043 compared to 2023. Although safety levels that global air transport enjoys today represent an achievement built on the determination and efforts of the entire aviation community, continuous safety performance improvement is required to accommodate the continuing increase of passengers.

The aviation industry connects people and the world in a unique and critical way, adding immense value to the global economy. Air travel supports over US$3.5 trillion in world economic activity annually – about 4.1 per cent of the global gross domestic product. Moreover, the global economy counts on air cargo to deliver the US$8.3 trillion of trade that gets to customers by air. The airlines' revenue is projected to reach US$996 billion in 2024, marking 9.7 per cent year-over-year growth and reaching the highest nominal value in aviation history.

3.2 The safety of air operations is dependent on the availability of reliable communication, navigation and surveillance services. Current and future communication, navigation, and surveillance/air traffic management (CNS/ATM) systems are highly dependent upon the availability of sufficient, and suitably protected radio spectrum that can support the high integrity and availability requirements associated with aeronautical safety systems. Spectrum requirements for current and future aeronautical CNS systems are specified in the ICAO Spectrum Strategy[1], as addressed by the 13th Air Navigation Conference, and as approved by the ICAO Council.

3.3 Members of the United Nations recognize the importance of protecting the safety of the travelling public and the aircraft systems that make travel safe. In order to support the critical safety requirements related to radio frequency spectrum usage by the aviation community, the ITU provides the following provisions:

a) **The ITU Constitution, Article 40**: "*International telecommunication services must give absolute priority to all telecommunications concerning safety of life at sea, on land, in the air or in outer space, as well as to epidemiological telecommunications of exceptional urgency of the World Health Organization*"; and

b) **The ITU Radio Regulations, Article 4.10:** "*ITU Member States recognize that the 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*."

3.4 In particular, compatibility between systems used to safely operate aircraft and air traffic systems, and systems that do not provide critical safety communications in the same or adjacent radio frequency bands, must be considered with extreme care in order to preserve the travelling public's safety. Aeronautical safety applications are required to have continued operation through worst-case scenarios, so all factors which contribute to harmful interference should be considered in analyses involving those applications. Therefore, ICAO recommends any radio frequency compatibility studies conducted at the ITU-R should account for the worst-case technical and operational scenarios that may be encountered by safety-critical aeronautical systems from non-safety-critical systems. Additionally, ICAO recommends such studies include an aviation safety margin in order to address the risk that some factors cannot be foreseen.[2]

3.5 The continuous increase in air traffic movements as well as additional requirements for accommodating new and emerging applications, are placing an increased demand on both the aviation regulatory and air traffic management mechanisms. As a result, airspace management is becoming more complex and the demand for frequency assignments 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 need to be increased in size or additional aviation spectrum allocations may need to be agreed upon to meet this demand.

[1] The ICAO spectrum strategy is included in the ICAO *Handbook on Radio Frequency Spectrum Requirements for Civil Aviation*, Volume I — *ICAO spectrum strategy, policy statements and related information* (Doc 9718, 3rd Edition).

[2] Additional ICAO guidance for spectrum compatibility involving ICAO systems is included in the ICAO *Handbook on Radio Frequency Spectrum Requirements for Civil Aviation*, Volume I — *ICAO spectrum strategy, policy statements and related information* (Doc 9718, 3rd Edition).

3.6 The ICAO Position for the ITU WRC-27 was initially developed in 2024 with the assistance of the Frequency Spectrum Management Panel (FSMP) and was reviewed by the Air Navigation Commission at the [TBD] meeting of its [TBD] Session on [TBD] 2024. Following the review by the Commission, it was submitted to ICAO Contracting States and relevant international organizations for comment. After a further review of the ICAO Position in light of the comments received by the Commission on [TBD], the ICAO Position was reviewed and approved by the ICAO Council on [TBD].

3.7 States and international organizations are requested to take into account the ICAO Position, to the maximum extent possible, in their preparatory activities for the WRC-27 at the 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-27

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.— There are no WRC-27 Agenda Items where aviation is seeking direct action by the WRC.

*Note 3.— WRC-27 Agenda Items **1.5, 1.7, 1.9, 1.11, 1.12, 1.13, 1.15, 1.16, 1.17, 1.18, 1.19, 4, 8, 9** and **10** could potentially affect aviation use of spectrum and hence aviation should participate in studies to ensure there is no undue impact. As a result, they are included in this position.*

*Note 4.— No impact on aeronautical services has been identified from WRC-27 Agenda Items **1.1, 1.2, 1.3, 1.4, 1.6, 1.8, 1.10, 1.14**, **2**, **3**, **5**, **6**, and **7** which are therefore not addressed in this position.*

Note 5.— When in this document reference is made to "No. X.YYY", it means "No. X.YYY of the ITU Radio Regulations (RR)".

*Note 6.— Agenda items that may affect non-aeronautical service ground systems that may be used by aviation in some States as part of their ground infrastructure, such as fixed links, include **1.7, 1.13, 1.15,** and **1.19**. The use of the fixed service by air traffic services data link applications in the frequency bands 932-935 MHz, 941-944 MHz, 1 780-1 850 MHz, 7 125-8 500 MHz 14.8-15.35 GHz have not been addressed in this position but should be considered on a national basis.*

[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-27 Agenda Item 1.5

Agenda Item Title:

To consider regulatory measures, and implementability thereof, to limit the unauthorized operations of non-geostationary-satellite orbit Earth stations in the fixed-satellite and mobile-satellite services and associated issues related to the service area of non-geostationary-satellite orbit satellite systems in the fixed-satellite and mobile-satellite services, in accordance with Resolution 14 (WRC-23).

Discussion:

This agenda item seeks to identify:

- regulatory measures aimed at limiting unauthorized operations of non-geostationary-satellite orbit (GSO) Earth stations in the Earth-to-space direction within fixed-satellite and mobile-satellite services; and

- regulatory measures related to an administration's requests to exclude its territory from the service area of a non-GSO satellite system without adversely affecting the provision of service in the rest of the service area of the non-GSO satellite system.

Considering this agenda item is applicable to all non-GSO satellite fixed-satellite service (FSS) and mobile-satellite service (MSS) satellite systems, the scope would include:

- aeronautical mobile satellite (route) service (AMS(R)S) in the 117.975-137 MHz (ATC voice and data), 1 087.7-1 092.3 MHz (global flight tracking), 1 610-1 626.5 MHz (ATC voice and data), and 5 000-5 150 MHz (RPAS C2 Links) frequency bands; and

- WRC-23 No. **5.200** was updated to include AMS(R)S for 121.5 MHz aeronautical emergency frequency.

It is crucial to consider the technical and operational challenges associated with implementing territory-specific exclusions, particularly the potential negative impacts on non-GSO satellite system operations in adjacent regions where these services are authorized.

ITU-R coordination of non-GSO satellite systems with other services has traditionally been done by technical means, requiring coordination and protections at the border of different countries, as radio frequencies do not instantly stop at country borders. Should measures resulting from this agenda item be implemented, it could result in the obligation for non-GSO satellite FSS and MSS satellites to lower their transmission power in order to comply with the country exclusion. The aviation community utilizes several safety non-GSO satellite services that may be potentially affected, and it is imperative to maintain the integrity and availability of emergency and distress communication services, ensuring they remain free from operational constraints.

ICAO Position:

To ensure the consequences of this agenda item do not impose new regulatory and technical constraints, including but not limited to the creation of service area exclusions, for non-GSO satellite systems which could disrupt or otherwise negatively impact the provision of AMS(R)S, and aeronautical emergency frequencies used by international civil aviation.

WRC-27 Agenda Item 1.7

Agenda Item Title:

To consider studies on sharing and compatibility and develop technical conditions for the use of International Mobile Telecommunications (IMT) in the frequency bands 4 400-4 800 MHz, 7 125-8 400 MHz (or parts thereof), and 14.8-15.35 GHz taking into account existing primary services operating in these, and adjacent, frequency bands, in accordance with Resolution 256 (WRC-23).

Discussion:

This agenda item seeks, based on sharing and compatibility studies, to identify additional spectrum for international mobile telecommunications (IMT) in one or more of the following frequency bands 4 400-4 800 MHz (in Region 1 and Region 3), 7 125-8 400 MHz (in Region 2 and Region 3), 7 125-7 250 MHz and 7 750-8 400 MHz (in Region 1), and 14.8-15.35 GHz. Those studies need to ensure the protection of services to which the frequency band is allocated on a primary basis, including protection of stations operating in international waters or airspace which cannot be registered in the Master International Frequency Register (MIFR), without imposing additional regulatory or technical constraints on those services, and on services in adjacent bands.

The adjacent frequency band 4 200-4 400 MHz is allocated globally to both the aeronautical mobile (route) service (AM(R)S) and aeronautical radionavigation service (ARNS) on a primary basis and used by the wireless avionics intra-communication (WAIC) and radio altimeters respectively.

Pursuant to No. **5.438**, the ARNS in frequency band 4 200-4 400 MHz is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground. Radio altimeters provide an accurate, independent, and absolute measurement of the minimum distance to the Earth's surface below an aircraft. Radio altimeters are integrated into several safety critical aircraft functions. Such systems include, but are not limited to the:

- flight control system;
- automated landing;
- terrain awareness warning system;
- airborne collision avoidance systems; and
- the wind shear detection and recovery applications.

These systems combined, enable and enhance several safety and navigation functions throughout all phases of flight on all commercial aircraft and a wide range of other civil aircraft. Further, as the radio altimeter is the only sensor onboard the aircraft capable of providing a direct measurement of the clearance height above the terrain and any obstacles which may protrude above the terrain, it is a crucial component to enable the flight crew to maintain situational awareness. Measurements from the radio altimeters are displayed on the flight deck instrumentation to the flight crew and, at lower altitudes, a separate aircraft system uses radio altimeter outputs to provide aural callouts to the flight crew of the height above terrain.

ICAO is particularly concerned about the potential impacts of IMT identification in the band adjacent to the aeronautical systems in the 4 200-4 400 MHz frequency band given the issues raised by ICAO State letter 21/22, which was further underscored at the 41st Session of the ICAO Assembly.

Pursuant to No. **5.436**, the AM(R)S usage in the frequency band 4 200-4 400 MHz is reserved exclusively for WAIC systems. WAIC systems provide safety related wireless communication between two points onboard a single aircraft. WAIC systems do not provide air-to-ground, air-to-satellite or air-to-air communications and are only used for aircraft communications involving safety and regularity of flight, allowing greater flexibility and redundancy to the existing internal aircraft wiring. One example of WAIC systems is to provide sensor information used to monitor the health of an aircraft structure and critical systems, and to communicate this information to a central onboard entity.

The frequency band 15.4-15.7 GHz is allocated to the primary aeronautical radionavigation service and used for ground-based primary surveillance radar systems including airport surface detection equipment (ASDE) and precision approach radar (PAR). The main purpose of these systems is to provide surveillance to support precision approach to runways by aircraft and to provide alerts of potential conflicts between aircraft or aircraft and vehicles. These functions are critical to maintaining public and aircraft safety. The 15.4-15.7 GHz frequency band is also identified by ICAO for use by the following systems, that may be impacted by IMT out-of-band emissions due to the considered bandwidths:

- On-board weather radar is a safety-critical instrument assisting pilots in deviating from potentially hazardous weather conditions and detecting wind shear and microbursts. It supports the safe passage of an aircraft in the vicinity of turbulent weather conditions and provides timely warnings of rapidly changing weather conditions as an aid to in-flight route planning.

- Ground mapping radar support maintaining contact with geographic features, such as shorelines, as a supplement to navigational orientation.

- Detect and Avoid (DAA) systems are critical components of remotely piloted aircraft systems (RPAS). They contribute to mitigate the risk of separation loss and prevent collisions with the ground and other aircraft. It should be noted that DAA can either be located on-board aircraft or on the ground.

ICAO Position:

To oppose any new identification for IMT in the frequency band 4 400-4 800 MHz that reduces the protection of, or imposes additional regulatory or technical constraints, on radio altimeters and Wireless Avionics Intra-Communications operating in the frequency band 4 200-4 400 MHz.

To ensure the results of this agenda item would not reduce the protection of, or impose additional regulatory or technical constraints, on ground-based air traffic surveillance systems, airborne weather radar, and DAA radars, operating in the frequency band 15.4-15.7 GHz.

WRC-27 Agenda Item 1.9

Agenda Item Title:

To consider appropriate regulatory actions to update Appendix 26 to the Radio Regulations in support of aeronautical mobile (OR) high frequency modernization, in accordance with Resolution 411 (WRC23).

Discussion:

This agenda item seeks to introduce new classes of emission and wideband systems into the aeronautical mobile (off-route) service (AM(OR)S) in the frequency ranges between 3 025 kHz and 18 030 kHz regulated by Appendix **26** to the RR and to identify any potential changes required to that Appendix. This agenda item shall not modify any existing area allotments while taking into account that the current use of narrowband systems shall remain unchanged and not be impacted by any revision of Appendix **26** resulting from this agenda item.

Aeronautical HF safety communications operate under allocations to the aeronautical mobile (route) service (AM(R)S) in line with Appendix **27** to the RR. Many of those allocations to the AM(R)S in the frequency range 2 850-22 000 kHz are adjacent to allocations to the AM(OR)S. Hence, any change to the waveform or bandwidth (with or without any concatenation of channels) that affect the waveform, the unwanted emissions, and/or total power radiated compared to current AM(OR)S operations could potentially affect aviation's use of systems operating under the allocation to AM(R)S in the frequency range 2.850-22 MHz.

HF is the only terrestrial service with means of providing ubiquitous global communication coverage for aircraft and is still the long-range system required by many aviation regulators for the provision of safety and regularity of flight communications in oceanic, polar and other remote areas. Access to the various frequency bands in the range 2 850-22 000 kHz assigned to the aeronautical mobile (route) service (AM(R)S) is therefore essential and defined in Appendix **27** to the RR.

ICAO Position:

To ensure the results of this agenda item would not reduce the protection of, or impose additional regulatory or technical constraints, on internationally recognized aeronautical HF safety communications in line with Appendix **27** to the RR.

WRC-27 Agenda Item 1.11

Agenda Item Title:

To consider the technical and operational issues, and regulatory provisions, for space-to-space links among non-geostationary and geostationary satellites in the frequency bands 1 518-1 544 MHz, 1 545-1 559 MHz, 1 610-1 645.5 MHz, 1 646.5-1 660 MHz, 1 670-1 675 MHz and 2 483.5-2 500 MHz allocated to the mobile-satellite service, in accordance with Resolution 249 (Rev.WRC23).

Discussion:

This agenda item seeks to identify whether any or all the following frequency bands could be used to support space-to-space links between non-GSO and GSO satellites subject to the condition that other mobile satellite and other systems operating under an appropriate allocation in the concerned frequency bands are protected:

- 1 518-1 544 MHz
- 1 545-1 559 MHz
- 1 610-1 645.5 MHz
- 1 646.5-1 660 MHz
- 1 670-1 675 MHz
- 2 483.5-2 500 MHz

The frequency bands 1 525-1 559 and 1 626.5-1 660.5 MHz are allocated to MSS and are used for aviation SATCOM air-ground communications for ATC and other regularity of flight functions. Additionally, improved satellite communications functionality combined with increasing aircraft data requirements has resulted in greater satellite communication usage for some aircraft operators, providing broadband connectivity during all phases of flight and in all areas. Furthermore, satellite communication can be used at airports given its coverage and capacity benefits.

In the frequency bands 1 525-1 559 and 1 626.5-1 660.5 MHz, protection of MSS should also be ensured, noting that No. **5.357A** provides additional priority considerations to AMS(R)S in the bands 1 545-1 555 MHz and 1 646.5-1 656.5 MHz. Likewise, No. **5.362A** provides similar priority considerations to AMS(R)S in the frequency bands 1 555-1 559 MHz and 1 656.5-1 660.5 MHz in one State.

The frequency band 1 610-1 626.5 MHz is allocated to the AMS(R)S on a primary basis per No. **5.367**, subject to agreement obtained under No. **9.21**, and is used for aviation satellite communications.

The adjacent frequency band 1 559-1 610 MHz is allocated on a primary basis to the ARNS and radionavigation satellite service (RNSS), used by aviation global navigation satellite system (GNSS) receivers for aircraft navigation, and to sustain a wide range of communications, navigations and surveillance systems, including Automatic Dependent Surveillance-Broadcast (ADS-B) systems, controller-pilot data link communication, automatic dependent surveillance-contract, terrain avoidance and warning systems and other systems.

ICAO Position:

To ensure the results of this agenda item would not reduce the protection of, or impose additional regulatory or technical constraints, on safety related aeronautical satellite communication for AMS(R)S in the frequency bands 1 545-1 555 MHz and 1 646.5-1 656.5 MHz, and in No. **5.362A** the frequency bands 1 555-1 559 MHz and 1 656.5-1 660.5 MHz as well as frequency band 1 610-1 626.5 MHz, and the aviation radionavigation satellite service receivers in the adjacent frequency band 1 559-1 610 MHz.

WRC-27 Agenda Item 1.12

Agenda Item Title:

To consider, based on the results of studies, possible new allocations to the mobile-satellite service and possible regulatory actions in the frequency bands 1 427-1 432 MHz (space-to-Earth), 1 645.5-1 646.5 MHz (space-to-Earth) (Earth-to-space), 1 880-1 920 MHz (space-to-Earth) (Earth-to-space) and 2 010-2 025 MHz (space-to-Earth) (Earth-to-space) required for the future development of low-data-rate non-geostationary mobile-satellite systems, in accordance with Resolution 252 (WRC-23).

Discussion:

This agenda item considers low data-rate non-GSO MSS systems in the following frequency bands:

- 1 427-1 432 MHz (space-to-Earth)
- 1 645.5-1 646.5 MHz (space-to-Earth and Earth-to-space)
- 1 880-1 920 MHz (space-to-Earth and Earth-to-space)
- 2 010-2 025 MHz (space-to-Earth and Earth-to-space)

According to No. **5.343**, in Region 2, use of the radio frequency band 1 435-1 535 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service. Aeronautical Mobile Telemetry is used by the aviation industry to certify commercial aircraft.

The frequency band 1 626.5-1 660.5 MHz is allocated to the MSS (Earth-to-space) where No. **5.357A** provides priority in the frequency band 1 646.5-1656.5 MHz to accommodate the spectrum requirements of AMS(R)S. The frequency band 1 626.5-1 660.5 MHz is used for aviation satellite communications (air-ground communications) for ATC and regularity of flight functions, ensuring the safe operation of flights. Furthermore, it is important that the potential future use of the band 1 645.5-1 646.5 MHz by low data-rate non-GSO MSS systems should consider the adjacent band co-existence with current and future aviation safety systems specified above.

ICAO Position:

To ensure that the results of this agenda item do not reduce the protection of, or impose additional regulatory or technical constraints on, aeronautical mobile-satellite (R) communications provided under the mobile satellite service allocations in the frequency band 1 646.5-1 656.5 MHz where No. **5.357A** applies.

WRC-27 Agenda Item 1.13

Agenda Item Title:

To consider studies on possible new allocations to the mobile-satellite service for direct connectivity between space stations and International Mobile Telecommunications (IMT) user equipment to complement terrestrial IMT network coverage, in accordance with Resolution 253 (WRC-23).

Discussion:

Report ITU-R M.2077 identified a shortfall of spectrum available for the satellite component of IMT and systems beyond IMT-2000 of more than 144 MHz (space-to-Earth) and more than 19 MHz (Earth-to-space)[4]. This agenda item seeks to identify additional allocations to the MSS in the frequency range 694-2 700 MHz, taking into account the IMT frequency arrangements[5].

Recommendation ITU-R M.1036-7, as referenced in Resolution **253 (WRC-23)**, contains IMT frequency arrangements for the frequency ranges 470-960 MHz, 1 427-1 518 MHz, 1 710-2 200 MHz, 2 300-2 400 MHz, 2 500-2 690 MHz.

However, Resolution **253** does not formally limit the scope of the study to frequency bands identified to IMT. Consequently, ICAO identifies the following civil aviation safety systems in the range 694-2 700 MHz and adjacent to it.

960 – 1 164 MHz	Airborne collision avoidance system (ACAS), ADS-B, distance measuring equipment (DME), L-band digital aeronautical communication system (LDACS), multilateration (MLAT) systems, secondary surveillance radar (SSR) & universal access transceiver (UAT)
1 164-1 215 MHz	DME and GNSS
1 215-1 300 MHz	GNSS and primary surveillance radar
1 300-1 370 MHz	primary surveillance radar
1 525-1 559 MHz[6]*	satellite communication
1 559-1 626.5 MHz	GNSS
1 610-1 626.5 MHz	satellite communication
1 626.5-1 660.5 MHz[7]*	satellite communication
2 700-2 900 MHz	primary surveillance (airport surveillance) radars and weather radar

From the information provided above it can be noted that a number of key aeronautical safety systems operate in or adjacent to the frequency range 694-2 700 MHz and all of these systems will have to be taken into account, where appropriate, in studies done in response to this agenda item as the satellite transmission may change the radio frequency coexistence environment for aviation systems. As an example, the WRC-23 decisions on high altitude platform station (HIBS) have included specific measures for the protection of aeronautical radionavigation radars operating in the band 2 700-2 900 MHz. In addition, the introduction of MSS for direct connectivity between space stations and IMT user equipment has been authorized in some countries. ITU-R studies that support WRC-27 Agenda Item 1.13 should bring clarity to any potential impact to aviation systems.

[4] Systems beyond IMT-2000 is a concept and telecommunication standard that was evolving within ITU (see Report ITU-R M.2077, Traffic forecasts and estimated spectrum requirements for the satellite component of IMT-2000 and systems beyond IMT-2000 for the period 2010 to 2020).

[5] The IMT frequency arrangements are addressed in the most recent version of Recommendation ITU-R M.1036.

[6] Subject to RR 5.357A and RR 5.362A.

[7] Subject to RR 5.357A and RR 5.362A.

ICAO Position:

To oppose any new allocations made, or regulatory actions taken, under Resolution 253 (WRC-23) that overlap the frequencies used by civil aviation systems operating in parts of the frequency range 694-2 700 MHz.

To ensure the results of this agenda item for bands adjacent to aeronautical systems operating in parts of the frequency range 694-2 700 MHz would not reduce the protection of, or impose additional regulatory or technical constraints, on the multiple civil aviation systems operating in parts of the frequency range 694-2 700 MHz, or the primary surveillance and weather radar adjacent to the upper end of 694-2 700 MHz frequency range.

WRC-27 Agenda Item 1.15

Agenda Item Title:

To consider studies on frequency-related matters, including possible new or modified space research service (space-to-space) allocations, for future development of communications on the lunar surface and between lunar orbit and the lunar surface, in accordance with Resolution 680 (WRC-23).

Discussion:

This agenda item seeks new or modified space research service (space-to-space) allocations, for future development of communications on the lunar surface and between lunar orbit and the lunar surface, in the following ranges or portions thereof:

- 390-406.1 MHz, 420-430 MHz and 440-450 MHz, limited to outside the shielded zone of the Moon;
- 2 400-2 690 MHz, 3 500-3 800 MHz, 5 150-5 570 MHz, 5 570-5 725 MHz, 5 775-5 925 MHz, 7 190-7 235 MHz, 8 450-8 500 MHz, and 25.25-28.35 GHz.

The following frequency bands/ranges are used by aviation:

- 2 400-2 690 MHz is separated from the ARNS frequency band 2 700-2 900 MHz, used by aviation airport surveillance radars and the meteorological ground-based radars, by 10 MHz frequency gap. The civil aviation system may therefore be impacted by out-of-band emissions.
- 3 500-3 800 MHz, in-band to the FSS (space-to-Earth) 3 400-4 200 MHz frequency band, is used by satellite downlinks of ATC (Very small aperture terminal) and MSS feeder links.
- The frequency band 5 150-5 570 MHz is adjacent to the 5 091-5 150 MHz band which is used by aeronautical mobile airport communication systems (AeroMACS), limited to airport surface use. In addition, the frequency band 5 150-5 570 MHz is in-band to the aeronautical mobile service allocated in part of the world on a primary basis per No. **5.446C**, limited to aeronautical telemetry transmissions from aircraft stations.
- 5 250-5 725 MHz is in the radio location service (RLS) and is used by meteorological ground-based radars.
- 5 350-5 470 MHz is in-band to the ARNS frequency band and used by airborne weather radar, airborne ground mapping radars and associated airborne beacons.

ICAO Position:

To ensure that ITU-R studies appropriately account for the protection of systems used for the provision of aeronautical services, in particular those operating in the frequency ranges 2 700-2 900 MHz, 3 600-4 200 MHz, 5 350-5 470 MHz.

To ensure that the proposed methods to satisfy this agenda item would not create constraints on the aviation systems used to support the safe operation of international civil aviation.

WRC-27 Agenda Item 1.16

Agenda Item Title:

To consider studies on the technical and regulatory provisions necessary to protect radio astronomy operating in specific Radio Quiet Zones (RQZs), and in frequency bands allocated to the radio astronomy service on a primary basis globally, from aggregate radio-frequency interference caused by non-geostationary-satellite orbit systems, in accordance with Resolution 681 (WRC-23).

Discussion:

Resolution **681** (**WRC-23**) asks for studies regarding the protection of radioastronomy from unwanted emissions from a single non-GSO satellite system or multiple non-GSO satellite systems operating the adjacent and nearby the adjacent frequency bands listed: 10.7-10.95 GHz, 42-42.5 GHz, 74-76 GHz, 95-100 GHz, 116-119.98 GHz, 123-130 GHz. The Resolution also asks for studies on new coexistence measures between non-GSO satellite systems and radio astronomy (RAS) stations in RQZs for the Square Kilometre Array Observatory in South Africa and the Atacama Large Millimeter/submillimeter Array (ALMA) in Chile.

Civil aviation is a user of these non-GSO constellations when operated in the AMS(R)S and RNSS. This use is expected to grow in the coming years, with the development of non-GSO systems aiming to provide aeronautical services. These non-GSO constellation usually provide a global coverage.

In particular, the following aeronautical services rely on non-GSO constellations:

- AMS(R)S:
  - 117.975-137 MHz (Space-based VHF)
  - 1 087.7-1 092.3 MHz (Satellite-based ADS-B) Earth-to-Space
  - 1 610-1 626.5 MHz (satellite communications)
  - 5 000-5 150 MHz (Satellite-based C2 Link in the 5 030-5 091 MHz band)
- RNSS:
  - 1 164-1 215 MHz
  - 1 215-1 350 MHz
  - 1 559-1 610 MHz

Existing coordination, at the national level, between radio astronomy observatories with air traffic is adequate in addressing unwanted emissions from a single non-GSO satellite system or multiple non-GSO satellite systems operating the adjacent and nearby the adjacent frequency bands, and an implementation of an international coordination framework for air traffic would be unnecessary.

Resolution **681** (WRC-23) also asks for studies on how the aggregate interference from unwanted emissions from multiple non-GSO satellite systems operating in the adjacent and nearby frequency bands to those in Table 1 of Resolution **681** (WRC-23) affect RAS. Notably, “nearby frequency bands” are not defined.

ICAO Position:

To ensure that any measures as part of this agenda item related to RQZs would not impose operational and development constraints on non-GSO satellite systems operating in AMS(R)S and RNSS frequency bands.

WRC-27 Agenda Item 1.17

Agenda Item Title:

To consider regulatory provisions for receive-only space weather sensors and their protection in the Radio Regulations, taking into account the results of ITU Radiocommunication Sector studies, in accordance with Resolution 682 (WRC23).

Discussion:

Space weather observations from ground-based networks of receive-only space weather sensor systems are becoming more and more important for the detection of solar activity that can harmfully affect the operation of international civil aviation. Solar events, such as large solar flares and coronal mass ejections, produce magnetic storms that can present serious aviation safety risks. These events can cause major disruptions to the communications, navigation and surveillance (CNS) systems that are critical for maintaining the safety of the airspace.

Data from receive-only space weather sensors are provided to space weather forecast and warning centres around the world for many applications. Space weather advisories that could impact international air navigation are provided to aircraft operators and used to plan mitigations for any relevant potential risks. In addition, there are experimental research activities and other users of space weather sensor data that are not used by aviation.

While receive-only space weather sensors systems may operate in a variety of frequency bands, these may not be the same between different countries as there is not a harmonized approach to the use of receive-only space weather sensors worldwide. Further, the scope of this agenda item only includes receive-only space weather sensors and, by definition, those cannot cause harmful interference. Active space weather sensors are not within the scope of this agenda item; however, care needs to be taken to ensure the scope doesn't change.

In conclusion, space weather contributes to sustainability of aviation CNS systems. Limited to receive-only sensors, the consideration would be focused on the protection of the meteorological aids service (MetAids) (space weather) receiver and thus should be supported by international civil aviation stakeholders.

ICAO Position:

To support the appropriate radio regulatory changes for receive-only space weather sensors (excluding active sensors) while ensuring, based on the ITU-R studies as called for by Resolution **682 (WRC-23),** any changes would not impose any technical or regulatory constraints on aviation safety systems.

WRC-23 Agenda Item 1.18

Agenda Item Title:

To consider, based on the results of ITU Radiocommunication Sector studies, possible regulatory measures regarding the protection of the Earth exploration-satellite service (passive) and the radio astronomy service in certain frequency bands above 76 GHz from unwanted emissions of active services, in accordance with Resolution 712 (WRC-23).

Discussion:

This agenda item seeks to strengthen the regulatory measures regarding the protection of systems operating in the Earth exploration satellite and radio astronomy services in various frequency bands above 76 GHz from unwanted emissions of active services in those frequency bands.

Aviation operates a number of foreign object debris (FOD) detection (radar) systems in the frequency range 92-100 GHz, which is adjacent to one of the proposed Earth exploration satellite service (EESS) (passive) bands identified in Resolution **712** (**WRC-23**). These radars are used to detect debris on runways that could, if not removed, cause damage to an aircraft either during landing or potentially, more seriously, while taking off as in the case of the Concorde at Charles de Gaulle airport in 2000. It is important that these FOD detection systems are able to operate with optimal performance in order to help prevent runway accidents from FOD. Therefore, studies undertaken as part of this agenda item must consider the technical and operational characteristics of FOD detection systems that are contained in ITU-R Report M.2501-0 (12/2021) "*Technical and operational characteristics of the foreign object debris detection system operating in the frequency range 92-100 GHz*" and Recommendation M.2162 (12/2023) "*Technical and operational characteristics of radiolocation systems operating in the frequency range 92-100 GHz and radionavigation systems operating in the frequency range 95-100 GHz*".

ICAO Position:

To ensure that the studies undertaken in response to this agenda item take into account FOD detection systems operating in the radiolocation service (RLS) in frequency band 92-94 GHz.

To ensure any action taken because of this agenda item in the frequency band 86-92 GHz would not impose any technical or operational constraints on FOD detection systems in the frequency band 92-94 GHz.

WRC-27 Agenda Item 1.19

Agenda Item Title:

To consider possible primary allocations in all Regions to the Earth exploration-satellite service (passive) in the frequency bands 4 200-4 400 MHz and 8 400-8 500 MHz, in accordance with Resolution 674 (WRC-23).

Discussion:

This agenda item seeks to study and consider a new primary allocation in all Regions to the EESS (passive) in the frequency bands 4 200-4 400 MHz and 8 400-8 500 MHz, without protection from existing services in these frequency bands and in adjacent bands. Sea surface temperature measurements systems provide data for weather models that help predict significant meteorological events such as hurricanes and storms.

The frequency band 4 200-4 400 MHz is allocated globally to both the AM(R)S and ARNS on a primary basis and used by the WAIC and radio altimeters respectively.

Pursuant to No. **5.438**, the ARNS in frequency band 4 200-4 400 MHz is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground. Radio altimeters provide an accurate, independent, and absolute measurement of the minimum distance to the Earth's surface below an aircraft. Radio altimeters are integrated into several safety critical aircraft functions. Such systems include, but are not limited to the:

- flight control system;
- automated landing;
- terrain awareness warning system;
- airborne collision avoidance systems; and
- the wind shear detection and recovery applications.

These systems combined enable and enhance several safety and navigation functions throughout all phases of flight on all commercial aircraft and a wide range of other civil aircraft. Further, as the radio altimeter is the only sensor onboard the aircraft capable of providing a direct measurement of the clearance height above the terrain and any obstacles which may protrude above the terrain, it is a crucial component to enable the flight crew to maintain situational awareness. Measurements from the radio altimeters are displayed on the flight deck instrumentation to the flight crew and, at lower altitudes, a separate aircraft system uses radio altimeter outputs to provide aural callouts to the flight crew of the height above terrain.

Pursuant to No. **5.436**, the AM(R)S usage in the frequency band 4 200-4 400 MHz is reserved exclusively for WAIC systems. WAIC systems provide safety related wireless communication between two points onboard a single aircraft. WAIC systems do not provide air-to-ground, air-to-satellite or air-to-air communications and are only used for aircraft communications involving safety and regularity of flight, allowing greater flexibility and redundancy to the existing internal aircraft wiring. One example of WAIC systems is to provide sensor information used to monitor the health of an aircraft structure and critical systems, and to communicate this information to a central onboard entity.

ICAO recognizes the benefits for weather forecasting that are provided by sea surface temperature measurements. Such information allows better predictions for hurricanes and other weather patterns that civil aviation uses for safe and efficient flight.

ICAO Position:

To ensure any changes would not impose any technical, regulatory, or operational constraints, on radio altimeters or WAIC in the frequency band 4 200-4 400 MHz, while recognizing the benefit for civil aviation by providing sea surface temperature measurements for weather forecasting.

WRC-27 Agenda Item 4

Agenda Item Title:

In accordance with Resolution 95 (Rev.WRC-19), 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-23)*	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-23)*	Footnotes to the Table of Frequency Allocations in Article **5** of the Radio Regulations.	No change
27 *(Rev. WRC-19)*	Use of incorporation 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
76 *(Rev. WRC-23)*	Protection of geostationary fixed-satellite service and geostationary broadcasting-satellite service networks from the maximum aggregate equivalent power flux-density produced by multiple non-geostationary fixed-satellite service systems in frequency bands where equivalent power flux-density limits have been adopted.	No change
95 *(Rev. WRC-19)*	General review of the resolutions and recommendations of world administrative radio conferences and world radiocommunication conferences.	No change
114 *(Rev. WRC-15)*	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.	No change
140 *(Rev. WRC-23)*	Measures and studies associated with the equivalent power flux-density (EPFD) limits in the band 19.720.2 GHz.	No change
154 *(WRC-15)*	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.	No change

Resolution No.	***Title***	***Action recommended***
155 *(Rev. WRC-19)*	Regulatory provisions related to Earth stations on board unmanned aircraft which operate with geostationary-satellite networks in the fixed-satellite service in certain frequency bands not subject to a plan of Appendices 30, 30A and 30B for the control and non-payload communications of unmanned aircraft systems in non-segregated airspaces.	No change
156 *(Rev WRC-23)*	Use of the frequency bands 19.7-20.2 GHz and 29.5-30.0 GHz by Earth stations in motion communicating with geostationary space stations in the fixed-satellite service.	No change
165 *(WRC-23)*	Use of the frequency band 21.4-22 GHz by high-altitude platform stations in the fixed service in Region 2.	No change
166 *(WRC-23)*	Use of the frequency band 24.25-27.5 GHz by high-altitude platform stations in the fixed service in Region 2.	No change
167 *(WRC-23)*	Use of the frequency band 31-31.3 GHz by high-altitude platform stations in the fixed service.	No change
168*(WRC-23)*	Use of the frequency band 38-39.5 GHz by high-altitude platform stations in the fixed service.	No change
205 *(Rev. WRC-19)*	Protection of the systems operating in the mobile satellite service in the band 406-406.1 MHz.	No change
207 *(Rev. WRC-15)*	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
221 *(Rev. WRC-23)*	Use of high-altitude platform stations as International Mobile Telecommunications base stations in the frequency bands 1 710-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz.	No change
222 *(Rev. WRC-23)*	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
229 *(Rev. WRC-19)*	Use of the frequency bands 5 150-5 250 MHz, 5 250-5 350 MHz and 5 470-5 725 MHz by the mobile service for the implementation of wireless access systems including radio local area networks.	No change
249 *(Rev WRC-23)*	Study of technical and operational issues and regulatory provisions for space-to-space transmissions in the Earth-to-space direction in the frequency bands 1 518-1 544 MHz, 1 545-1 559 MHz, 1 610-1 645.5 MHz, 1 646.5-1 660 MHz, 1 670-1 675 MHz and 2 483.5-2 500 MHz.	Subject to WRC-27 Agenda Item 1.11

Resolution No.	***Title***	***Action recommended***
251 *(Rev WRC-23)*	Studies to consider a possible primary allocation in the frequency bands [694-960 MHz, or parts thereof, in Region 1], 890-942 MHz, or parts thereof, in Region 2, and [3 400-3 700 MHz, or parts thereof, in Region 3] to the aeronautical mobile service for the use of International Mobile Telecommunications (IMT) user equipment in terrestrial IMT networks by non-safety applications.	Modify or suppress as necessary based on the results of studies at preliminary WRC-31 Agenda Item 2.5
339 *(Rev. WRC-07)*	Coordination of NAVTEX services.	No change
354 *(Rev. WRC-23)*	Distress and safety radiotelephony procedures for 2 182 kHz.	No change
356 *(WRC-07)*	ITU maritime service information registration.	No change
405 *(Geneva 1979)*	Relating to the use of frequencies of the aeronautical mobile (R) service.	Subject to WRC-23 Agenda Item 1.9.
413 *(Rev. WRC-23)*	Use of the band 108-117.975 MHz by aeronautical service.	No change
417 *(Rev. WRC-12)*	Use of the frequency band 960-1 164 MHz by the aeronautical mobile (R) service.	No change
418 (*Rev. WRC-15*)	Use of the band 5 091-5 250 MHz by the aeronautical mobile service for telemetry applications.	No change
422 *(WRC-12)*	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).	Suppress as a result of the approval of Recommendation ITU-R M.2091.
424 *(Rev. WRC-23)*	Use of wireless avionics intra-communications in the frequency band 4 200-4 400 MHz.	No change
425 *(Rev. WRC-19)*	Use of the frequency band 1 087.7-1 092.3 MHz by the aeronautical mobile-satellite (R) service (Earth-to-space) to facilitate global flight tracking for civil aviation.	No change
608 *(Rev. WRC-19)*	Use of the frequency band 1 215-1 300 MHz by systems of the radionavigation satellite service.	No change
609 *(Rev. 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 *(Rev. WRC-19)*	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 0105 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
660 (*WRC-19*)	Use of the frequency band 137-138 MHz by non-geostationary satellites with short-duration missions in the space operation service.	No change
705 *(Rev. WRC-15)*	Mutual protection of radio services operating in the band 70-130 kHz.	No change

Resolution No.	***Title***	***Action recommended***
729 *(Rev. WRC-07)*	Use of frequency adaptive systems in the MF and HF bands.	No change
748 (*Rev. WRC-19*)	Compatibility between the aeronautical mobile (R) service and the fixed satellite service (Earth-to-space) in the band 5 091-5 150 MHz.	No change
762 *(WRC-15)*	Application of power flux density criteria to assess the potential for harmful interference under 11.32A for fixed-satellite and broadcasting-satellite service networks in the 6 GHz and 10/11/12/14 GHz bands not subject to a plan.	No change
406 (WRC-23)	Use of the frequency band 117.975-137 MHz by the aeronautical mobile-satellite (R) service.	No change
213 (WRC-23)	Use of high-altitude platform stations as International Mobile Telecommunications base stations in the frequency band 694-960 MHz, or portions thereof.	No change
218 (WRC-23)	Use of high-altitude platform stations as International Mobile Telecommunications base stations in the frequency band 2 500-2 690 MHz, or portions thereof.	TBD
674 (WRC-23)	Studies on possible allocations to the Earth exploration-satellite service (passive) in the bands 4 200-4 400 MHz and 8 400-8 500 MHz.	Subject to WRC-27 Agenda Item 1.19
123 (WRC-23)	Use of the frequency bands 17.7-18.6 GHz, 18.8-19.3 GHz and 19.7-20.2 GHz (space-to-Earth) and 27.5-29.1 GHz and 29.5-30 GHz (Earth-to-space) by aeronautical and maritime Earth stations in motion communicating with non-geostationary space stations in the fixed-satellite service.	TBD
676 (WRC-23)	Prevention and mitigation of harmful interference to the radionavigation-satellite service in the frequency bands 1 164-1 215 MHz and 1 559-1 610 MHz.	Modify to remove formal recognition that Administrations can deny access to RNSS.
411 (WRC-23)	Consideration of appropriate regulatory actions to update Appendix 26 in support of modernization of high-frequency spectrum use in the aeronautical mobile (OR) service.	Subject to WRC-27 Agenda Item 1.9
680 (WRC-23)	Studies on frequency-related matters, including possible new or modified space research service (space-to-space) allocations, for future development of communications on the lunar surface and between lunar orbit and the lunar surface.	Subject to WRC-27 Agenda Item 1.15
253 (WRC-23)	Studies on possible new allocations to the mobile-satellite service for direct connectivity between space stations and International Mobile Telecommunications (IMT) user equipment to complement terrestrial IMT network coverage.	Subject to WRC-27 Agenda Item 1.13
910 (WRC-23)	[Studies on the possible [frequency bands] for [non-beam and beam] wireless power transmission (WPT) to avoid harmful interference to the radiocommunication services caused by WPT]	Modify or suppress as necessary based on the results of studies at preliminary WRC-31 Agenda Item 2.2

Resolution No.	*Title*	*Action recommended*
683 (WRC-23)	Study of technical and operational issues and regulatory provisions to support inter-satellite service transmissions in the frequency bands 3 700-4 200 MHz and 5 925-6 425 MHz for non-geostationary-satellite space stations communicating with geostationary-satellite space stations.	Modify or suppress as necessary based on the results of studies at preliminary WRC-31 Agenda Item 2.4
684 (WRC-23)	Studies on possible new allocations to the radionavigation-satellite service (space-to-Earth) in the frequency bands [5 030-5 150 MHz and 5 150-5 250 MHz] or parts thereof.	Modify or suppress as necessary based on the results of studies at preliminary WRC-31 Agenda Item 2.9
686 (WRC-23)	Possible secondary allocation to the Earth exploration-satellite service (active) in the frequency bands [3 000-3 100 MHz] and [3 300-3 400 MHz].	Modify or suppress as necessary based on the results of studies at preliminary WRC-31 Agenda Item 2.12
722 (WRC-23)	Studies on the coexistence between spaceborne synthetic aperture radars operating in the Earth exploration-satellite service (active) and radiodetermination service in the frequency band [9 200-10 400 MHz].	Modify or suppress as necessary based on the results of studies at preliminary WRC-31 Agenda Item 2.13
256 (WRC-23)	Sharing and compatibility studies and development of technical conditions for the use of International Mobile Telecommunications (IMT) in the frequency bands 4 400-4 800 MHz, 7 125-8 400 MHz (or parts thereof), and 14.8-15.35 GHz for the terrestrial component of IMT.	Subject to WRC-27 Agenda Item 1.7

Recommendations:

Recommendation No.	***Title***	***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 *(Rev. WRC-15)*	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-07)**.	No change

WRC-27 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-19).

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 carefully reviewed by administrations in order to preserve the safety and efficiency of aeronautical services for the 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 omnidirectional 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 RR 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. ICAO encourages administrations listed in Nos. **5.181**, **5.197** and **5.259** to review their use and if no longer required, to remove their country's name from these footnotes.

b) Nos. **5.201** and **5.202** allocate the frequency bands 132-136 MHz and 136-137 MHz in some States to the aeronautical mobile (off-route) service (AM(OR)S). Since these frequency bands are heavily utilized for ICAO-standard VHF voice and data communications, ICAO encourages those concerned administrations to review their use and if no longer required, to remove their country's name from these footnotes.

c) 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 encourage administrations to review their use and if no longer required, to remove their country's name from No. **5.330**.

d) In the frequency band 1 525-1 530 MHz, which is used by civil aviation for the provision of satellite services No. **5.352A** specifies that stations in the mobile-satellite service, except stations in the maritime mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed service in a number of countries that were notified prior to 1 April 1998. As of August 2020, the ITU Master International Frequency Register shows out of 20 administrations listed in this footnote, only 4 Administrations have fixed stations notified prior to 1 April 1998. ICAO would therefore encourage Administrations listed in the footnote to review their use of fixed service assignments in 1 525-1 530 MHz, and if no longer required, to remove their country's name from No. **5.352A**.

e) In the frequency bands 1 540-1 559 MHz, 1 610.6-1 613.8 MHz and 1 613.8-1 626.5 MHz, within which some portions are assigned to or used by the aeronautical mobile-satellite (R) service, No. **5.355** also allocates the band on a secondary basis to the fixed service in a number of countries. Given that portions of these bands are utilized by a safety-of-life service, ICAO does not support the continued use of No **5.355** country footnote. ICAO encourages those concerned administrations to review their use and if no longer required, to remove their country's name from No. **5.355**.

f) In the frequency bands 1 550-1 559 MHz, 1 610-1 645.5 MHz and 1 646.5-1 660 MHz which are assigned to mobile-satellite services, including in some portions assignment to or use by the aeronautical mobile-satellite (R) service, No. **5.359** also allocates the bands to the fixed service on a primary basis in a number of countries. Given that portions of these bands are utilized by a safety-of-life service, ICAO does not support the continued use of No. **5.359** country footnote. ICAO would therefore encourage those concerned administrations to review their use and if no longer required, to remove their country's name from No. **5.359**.

g) In the frequency band 4 200-4 400 MHz, which is reserved for use by airborne radio altimeters and wireless avionics intra-communications (WAIC), 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 terrain awareness warning systems. WAIC provides aircraft safety communications between points on an airframe. Interference from the fixed service has the potential to affect the safety of both of these systems. ICAO would therefore encourage those concerned administrations to review their use and if no longer required, to remove their country's name from No. **5.439**.

ICAO Position:

To encourage administrations listed in the footnotes to review 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 difficult 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 in the frequency band 108-112 MHz.

To encourage administrations listed in the footnotes to review Nos. **5.201 and 5.202**, as use by the AM(OR)S of the frequency bands 132-136 MHz and 136-137 MHz in some States may cause harmful interference to current and future aeronautical safety communications.

To encourage administrations listed in the footnote to review 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 encourage administrations listed the footnote to review No. **5.352A** as access to the frequency bands 1 525-1 530 MHz by the fixed services could potentially constrain aeronautical use of this frequency band.

To encourage administrations listed in the footnote to review No. **5.355** as access to the frequency bands 1 540-1 559, 1 610.6-1 613.8 and 1 613.8-1 626.5 MHz by the fixed services could potentially constrain aeronautical use of these frequency bands.

To encourage administrations listed in the footnote to review No. **5.359** as access to the frequency bands 1 550-1 559 MHz, 1 610-1 645.5 MHz and 1 646.5-1 660 MHz by the fixed services could potentially jeopardize aeronautical use of those frequency bands.

To encourage administrations listed in the footnote to review No. **5.439** to ensure the protection of the safety critical operation of radio altimeters and WAIC systems in the frequency band 4 200-4 400 MHz.

ICAO would encourage administrations to take appropriate actions under this agenda item to remove their country’s name from these footnotes if no longer required.

Note.— 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 the Syrian Arab Republic*

No. ***5.197*** *The Syrian Arab Republic*

No. ***5.201*** *Saudi Arabia, Armenia, Azerbaijan, Bahrain, Egypt, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq (Republic of), Japan, Kazakhstan, Mali, Mongolia, Mozambique, Uzbekistan, Papua New Guinea, Poland, Qatar, Kyrgyzstan, Romania, Senegal, Somalia, Tajikistan and Turkmenistan*

No. ***5.202*** *Saudi Arabia, Armenia, Azerbaijan, Bahrain, the United Arab Emirates, the Russian Federation, Georgia, Iran (Islamic Republic of), Jordan, Mali, Oman, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Romania, Senegal, Tajikistan and Turkmenistan*

No. ***5.259*** *Egypt and the Syrian Arab Republic*

No. ***5.330*** *Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, China, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Nepal, Oman, Pakistan, Palestine*, the Philippines, Qatar, the Syrian Arab Republic, Somalia, Sudan, South Sudan, Chad, Togo and Yemen*

** Pursuant to Resolution 99 (Rev. Dubai, 2018) of the Plenipotentiary Conference and taking into account the Israeli-Palestinian Interim Agreement of 28 September 1995.*

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. ***5.352A*** *Algeria, Saudi Arabia, Egypt, Guinea, India, Israel, Italy, Jordan, Kuwait, Mali, Morocco, Mauritania, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Viet Nam and Yemen*

No. ***5.359*** *Germany, Saudi Arabia, Armenia, Azerbaijan, Belarus, Cameroon, the Russian Federation, Georgia, Guinea, Guinea-Bissau, Jordan, Kazakhstan, Kuwait, Lithuania, Mauritania, Uganda, Uzbekistan, Pakistan, Poland, the Syrian Arab Republic, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, Tajikistan, Tunisia and Turkmenistan*

No. ***5.439*** *Iran (Islamic Republic of)*

WRC-27 Agenda Item 9.1

Agenda Item Title:

Activities of the ITU Radiocommunications sector since WRC-23;

Discussion:

This agenda item seeks to identify any issue with or use of the RR that requires urgent action.

On agenda item 1.8[8] WRC-23 "*decided to suspend any further action on Resolution 155 (Rev.WRC-19) until decided by a future competent WRC. To this effect, a new item has been agreed by this conference to study, as a matter of urgency, necessary measures to facilitate the operation of Earth stations on board unmanned aircraft used for control and non-payload communication operated in non-segregated airspace using satellite links by the aeronautical mobile satellite (route) service (AMS(R)S) in suitable frequency bands in order to decide on the appropriate course of action to be taken for WRC-31*".

This agenda item is one of the vehicles by which a WRC-31 agenda item could be established to determine whether sufficient AMS(R)S spectrum had been identified for the provision of unmanned aircraft beyond line-of-sight command and control links (C2 Links). Given that the ICAO Standards and Recommended Practices for Annex 10, Volume VI, Part I, were published in July 2021, and further amendment to this Volume of the Annex is expected in the near future, then this can be used as the rationale for urgency.

ICAO Position:

To support ITU-R studies, as a matter of urgency, on necessary measures to facilitate the operation of Earth stations on board unmanned aircraft used for control and non-payload communication operated in non-segregated airspace using satellite links by the aeronautical mobile satellite (route) service (AMS(R)S) in suitable frequency bands in order to decide on the appropriate course of action to be taken for WRC-31.

[8] WRC-23 Agenda Item 1.8: to consider, on the basis of ITU R studies in accordance with Resolution 171 (WRC 19), appropriate regulatory actions, with a view to reviewing and, if necessary, revising Resolution 155 (Rev.WRC 19) and No. 5.484B to accommodate the use of fixed-satellite service networks by control and non-payload communications of unmanned aircraft systems.

WRC-27 Agenda Item 9.2

*Note.— If coordination under Resolution **365** (WRC-23) has been successfully completed, then ICAO has the following position.*

Resolution Title:

Provisional application of the Radio Regulations for the introduction of new geostationary satellite networks into the global maritime distress and safety system under **Resolution 365 (WRC-23)**.

Discussion:

WRC-23 has provisionally identified specific frequency band options for the use of geostationary satellite networks within the Global Maritime Distress and Safety System (GMDSS). Some frequency bands under consideration are 1 614.4225-1 618.725 MHz or 1 616.3-1 620.38 MHz.

These frequency bands are in a portion of the 1 610-1 626.5 MHz AMS(R)S frequency band, subject to agreement under No **9.21** under RR **5.367**. WRC-23 decided to have a conditional allocation to MSS in order to provide GMDSS service. This allocation will not be made permanent until the ITU Radiocommunication Bureau (BR) confirms that the notifying Administration of the system proposed for GMDSS has successfully completed the requisite ITU satellite coordination procedures. If this confirmation is received in time, WRC-27 will have the opportunity to evaluate and potentially finalize the provisional measures taken at WRC-23.

ICAO Position:

To ensure that any decision at WRC-27 following report from the Director of the BR requested by Resolution **365** (WRC-23), would not have negative impact on AMS(R)S in the frequency band 1 610-1 626.5 MHz.

WRC-27 Agenda Item 10

The table below lists provisional WRC-31 Agenda Items that ICAO may have an interest in dependent on the decisions made at WRC-27. These have been identified as they have a potential concern for changes to aviation systems and/or the regulatory conditions they may operate under.

Provisional WRC-31 Agenda No.	***Title***	***Resolution No.***
2.2	[to consider the possible [frequency bands] for [non-beam and beam] wireless power transmission to avoid harmful interference to the radiocommunication services caused by wireless power transmission, in accordance with Resolution **910 (WRC-23)**]	Resolution **910 (WRC-23)**
2.4	to consider, based on the results of ITU Radiocommunication Sector studies, support for inter-satellite service allocations in the frequency bands 3 700-4 200 MHz and 5 925-6 425 MHz, and associated regulatory provisions, to enable links between non-geostationary orbit satellites and geostationary orbit satellites, in accordance with Resolution **683 (WRC-23)**	Resolution **683 (WRC-23)**
2.5	to consider a possible primary allocation in the frequency bands [694-960 MHz, or parts thereof, in Region 1], 890-942 MHz, or parts thereof, in Region 2, and [3 400-3 700 MHz, or parts thereof, in Region 3] to the aeronautical mobile service for the use of International Mobile Telecommunications (IMT) user equipment in terrestrial IMT networks by non-safety applications, in accordance with Resolution **251 (Rev.WRC-23)**	Resolution **251 (Rev.WRC-23)**
2.9	to consider possible allocations to the radionavigation-satellite service (space-to-Earth) in the frequency bands [5 030-5 150 MHz and 5 150-5 250 MHz] or parts thereof in accordance with Resolution **684 (WRC-23)**	Resolution **684 (WRC-23)**
2.13	to consider studies on coexistence between spaceborne synthetic aperture radars operating in the Earth exploration-satellite service (active) and the radiodetermination service in the frequency band 9 200-10 400 MHz, with possible actions as appropriate, in accordance with Resolution **722 (WRC-23)**	Resolution **722 (WRC-23)**

In particular, Agenda Item 2.9 considers possible allocations to the radionavigation-satellite service (space-to-Earth) in the frequency bands [5 030-5 150 MHz and 5 150-5 250 MHz] or parts thereof in accordance with Resolution **684 (WRC-23)** and it is critical to note that the frequency band 5 000-5 150 MHz has a strong importance for ICAO as follows.

- The frequency band 5 000-5 150 MHz is allocated to AMS(R)S. This frequency band is for RPAS C2 Links, supporting communication, navigation and surveillance functionalities of RPAS.
- The frequency band 5 030-5 091 MHz is allocated to AM(R)S. This frequency band is for terrestrial C2 Link systems for RPAS, supporting the core communication, navigation and surveillance functionalities of RPAS.

- The frequency band 5 091-5 150 MHz is allocated to aeronautical mobile service. In this frequency band, the AM(R)S is limited to airport surface application and is used for AeroMACS system which facilitates ground communications in airport areas. The frequency band is also allocated to the aeronautical mobile service and is used for aeronautical mobile telemetry.

In addition, it should be noted that the experience on other RNSS frequency bands has highlighted increasing intentional interference to RNSS receivers caused by jammers and spoofers as discussed in ICAO State letter 3/4-24/54. As a consequence, the sharing of this frequency range between RNSS and aeronautical systems is unsuitable since interference targeting RNSS would have consequential impact on aeronautical systems.

ICAO Position:

To ensure that any new agenda item approved for WRC-31 will provide sufficient guarantees that civil aviation systems will be protected.

To oppose the inclusion of preliminary Agenda Item 2.9 into the WRC-31 Agenda, because of the inherent interference risk that intentional jammers to the RNSS would cause to aviation safety systems operating in the same frequency band used by civil aviation systems.

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ATTACHMENT*

Agenda for the 2027 World Radiocommunication Conference

The World Radiocommunication Conference (Dubai, 2023),

considering

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

b) Article 13 of the ITU Constitution, relating to the competence and scheduling of WRCs, and Article 7 of the Convention, relating to their agendas;

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

recognizing

a) that this conference has identified a number of urgent issues requiring further examination by WRC-27;

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 WRC be held in 2027 for a period of four weeks, with the following agenda:

1 on the basis of proposals from administrations, taking into account of the results of WRC-23 and the Report of the Conference Preparatory Meeting, and with due regard to the requirements of existing and future services in the frequency bands under consideration, to consider and take appropriate action in respect of the following items:

1.1 to consider the technical and operational conditions for the use of the frequency bands 47.2-50.2 GHz and 50.4-51.4 GHz (Earth-to-space), or parts thereof, by aeronautical and maritime Earth stations in motion communicating with space stations in the fixed-satellite service and develop regulatory measures, as appropriate, to facilitate the use of the frequency bands 47.2-50.2 GHz and 50.4-51.4 GHz (Earth-to-space), or parts thereof, by aeronautical and maritime Earth stations in motion communicating with geostationary space stations and non-geostationary space stations in the fixed-satellite service, in accordance with Resolution **176 (Rev.WRC-23)**;

1.2 to consider possible revisions of sharing conditions in the frequency band 13.75-14 GHz to allow the use of uplink fixed-satellite service Earth stations with smaller antenna sizes, in accordance with Resolution **129 (WRC-23)**;

* The text of the resolution included in this Annex has been copied from the ITU Radio Regulations, Edition of 2024, Volume III.

1.3 to consider studies relating to the use of the frequency band 51.4-52.4 GHz to enable use by gateway Earth stations transmitting to non-geostationary-satellite orbit systems in the fixed satellite service (Earth-to-space), in accordance with Resolution **130 (WRC-23)**;

1.4 to consider a possible new primary allocation to the fixed-satellite service (space-to-Earth) in the frequency band 17.3-17.7 GHz and a possible new primary allocation to the broadcasting-satellite service (space-to-Earth) in the frequency band 17.3-17.8 GHz in Region 3, while ensuring the protection of existing primary allocations in the same and adjacent frequency bands, and to consider equivalent power flux-density limits to be applied in Regions 1 and 3 to non-geostationary-satellite systems in the fixed-satellite service (space-to-Earth) in the frequency band 17.3-17.7 GHz, in accordance with Resolution **726 (WRC-23)**;

1.5 to consider regulatory measures, and implementability thereof, to limit the unauthorized operations of non-geostationary-satellite orbit Earth stations in the fixed-satellite and mobile-satellite services and associated issues related to the service area of non-geostationary-satellite orbit satellite systems in the fixed-satellite and mobile-satellite services, in accordance with Resolution **14 (WRC-23)**;

1.6 to consider technical and regulatory measures for fixed-satellite service satellite networks/systems in the frequency bands 37.5-42.5 GHz (space-to-Earth), 42.5-43.5 GHz (Earth-to-space), 47.2-50.2 GHz (Earth-to-space) and 50.4-51.4 GHz (Earth-to-space) for equitable access to these frequency bands, in accordance with Resolution **131 (WRC-23)**;

1.7 to consider studies on sharing and compatibility and develop technical conditions for the use of International Mobile Telecommunications (IMT) in the frequency bands 4 400-4 800 MHz and 7 125-8 400 MHz (or parts thereof), and 14.8-15.35 GHz taking into account existing primary services operating in these, and adjacent, frequency bands, in accordance with Resolution **256 (WRC-23)**;

1.8 to consider possible additional spectrum allocations to the radiolocation service on a primary basis in the frequency range 231.5-275 GHz and possible new identifications for radiolocation service applications in frequency bands within the frequency range 275-700 GHz for millimetric and sub-millimetric wave imaging systems, in accordance with Resolution **663 (Rev.WRC-23)**;

1.9 to consider appropriate regulatory actions to update Appendix **26** to the Radio Regulations in support of aeronautical mobile (OR) high frequency modernization, in accordance with Resolution **411** (**WRC-23)**;

1.10 to consider developing power flux-density and equivalent isotropically radiated power limits for inclusion in Article **21** of the Radio Regulations for the fixed-satellite, mobile-satellite and broadcasting-satellite services to protect the fixed and mobile services in the frequency bands 71-76 GHz and 81-86 GHz, in accordance with Resolution **775 (Rev.WRC-23)**;

1.11 to consider the technical and operational issues, and regulatory provisions, for space-to-space links among non-geostationary and geostationary satellites in the frequency bands 1 518- 1 544 MHz, 1 545-1 559 MHz, 1 610-1 645.5 MHz, 1 646.5-1 660 MHz, 1 670-1 675 MHz and 2 483.5-2 500 MHz allocated to the mobile-satellite service, in accordance with Resolution **249 (Rev.WRC-23)**;

1.12 to consider, based on the results of studies, possible new allocations to the mobile-satellite service and possible regulatory actions in the frequency bands 1 427-1 432 MHz (space-to-Earth), 1 645.5-1 646.5 MHz (space-to-Earth) (Earth-to-space), 1 880-1 920 MHz (space-to-Earth) (Earth-to- space) and 2 010-2 025 MHz (space-to-Earth) (Earth-to-space) required for the future development of low-data-rate non-geostationary mobile-satellite systems, in accordance with Resolution **252 (WRC-23)**;

1.13 to consider studies on possible new allocations to the mobile-satellite service for direct connectivity between space stations and International Mobile Telecommunications (IMT) user equipment to complement terrestrial IMT network coverage, in accordance with Resolution **253 (WRC-23)**;

1.14 to consider possible additional allocations to the mobile-satellite service, in accordance with Resolution **254 (WRC-23)**;

1.15 to consider studies on frequency-related matters, including possible new or modified space research service (space-to-space) allocations, for future development of communications on the lunar surface and between lunar orbit and the lunar surface, in accordance with Resolution **680 (WRC-23)**;

1.16 to consider studies on the technical and regulatory provisions necessary to protect radio astronomy operating in specific Radio Quiet Zones, and in frequency bands allocated to the radio astronomy service on a primary basis globally, from aggregate radio-frequency interference caused by non-geostationary-satellite orbit systems, in accordance with Resolution **681 (WRC-23)**;

1.17 to consider regulatory provisions for receive-only space weather sensors and their protection in the Radio Regulations, taking into account the results of ITU Radiocommunication Sector studies, in accordance with Resolution **682 (WRC-23)**;

1.18 to consider, based on the results of ITU Radiocommunication Sector studies, possible regulatory measures regarding the protection of the Earth exploration-satellite service (passive) and the radio astronomy service in certain frequency bands above 76 GHz from unwanted emissions of active services, in accordance with Resolution **712 (WRC-23)**;

1.19 to consider possible primary allocations in all Regions to the Earth exploration-satellite service (passive) in the frequency bands 4 200-4 400 MHz and 8 400-8 500 MHz, in accordance with Resolution **674 (WRC-23)**,

2 to examine the revised ITU Radiocommunication Sector Recommendations incorporated by reference in the Radio Regulations communicated by the Radiocommunication Assembly, in accordance with *further resolves* of Resolution **27 (Rev.WRC-19)**, and to decide whether or not to update the corresponding references in the Radio Regulations, in accordance with the principles contained in *resolves* of that Resolution;

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-19)**, 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 ITU 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, in response to Resolution 86 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference, on advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks, in accordance with Resolution **86 (Rev.WRC-07)**, in order to facilitate the 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-23)**;

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

9.1 on the activities of the ITU Radiocommunication Sector since WRC-23[1];

9.2 on any difficulties or inconsistencies encountered in the application of the Radio Regulations[2]; and

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

10 to recommend to the ITU Council items for inclusion in the agenda for the next world radiocommunication conference, and items for the preliminary agenda of future conferences, in accordance with Article 7 of the ITU Convention and Resolution **804 (Rev.WRC-23)**,

further resolves

to activate the Conference Preparatory Meeting (CPM),

invites the ITU Council

to finalize the agenda and arrange for the convening of WRC-27, and to initiate as soon as possible the necessary consultations with Member States,

instructs the Director of the Radiocommunication Bureau

1 to make the necessary arrangements to convene meetings of the CPM and to prepare a report to WRC-27;

2 to submit a draft report on any difficulties or inconsistencies encountered in the application of the Radio Regulations, as referred to in agenda item 9.2, to the second session of the CPM and to submit the final report at least five months before the next WRC,

instructs the Secretary-General

to communicate this Resolution to international and regional organizations concerned.

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[1] This WRC's standing agenda sub-item is strictly limited to the Report of the Director on ITU-R activities since the last WRC; and any topics outside 1.1-1.19 as listed above shall be strictly avoided, particularly those topics which require any changes/amendments to the Radio Regulations.

[2] This WRC's standing agenda sub-item is strictly limited to the Report of the Director on any difficulties or inconsistencies encountered in the application of the Radio Regulations and the comments from administrations. Administrations are invited to inform the Director of the Radiocommunication Bureau of any difficulties or inconsistencies encountered in the Radio Regulations.