



PUBLIC NOTICE

Federal Communications Commission
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Washington, D.C. 20554

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DA 26-835
August 11, 2026

**OFFICE OF INTERNATIONAL AFFAIRS SEEKS COMMENT ON
RECOMMENDATIONS APPROVED BY THE WORLD RADIOCOMMUNICATION
CONFERENCE ADVISORY COMMITTEE**

OIA Docket No. 24-30

On August 4, 2026, the World Radiocommunication Conference Advisory Committee (WRC-27 Advisory Committee, or WAC) approved and provided for Commission consideration of its draft recommendations on issues that will be considered by the 2027 World Radiocommunication Conference (WRC-27). Based upon an initial review of the draft recommendations forwarded to the Commission, the Office of International Affairs, in coordination with other Commission Bureaus and Offices, tentatively concludes that we can generally support most of the content found in Attachment A (the WRC-27 Advisory Committee draft recommendations dated August 4, 2026).

We seek comment on the draft recommendations provided in Attachment A. In addition, we seek comment on National Telecommunications and Information Administration (NTIA) draft proposals in Attachment B. The comments provided by interested parties will assist the FCC in its upcoming consultations with the U.S. Department of State and NTIA in the development of U.S. positions for WRC-27. The proposed recommendations that are attached to this Public Notice may evolve in the course of interagency discussions as we approach WRC-27 and, therefore, do not constitute any final U.S. Government positions on any issue.

The deadline for comments on the proposed recommendations is August 24, 2026. It is necessary that all comments be received by August 24, 2026, in order to allow sufficient time to finalize U.S. positions before commencement of regional WRC-27 preparatory meetings.

All comments are to reference OIA Docket No. 24-30 and to specific recommendations by specific WAC document numbers. Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments on or before August 24, 2026.

Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). See Electronic Filing of Documents in Rulemaking Proceedings, 63 FR 24121 (1998).

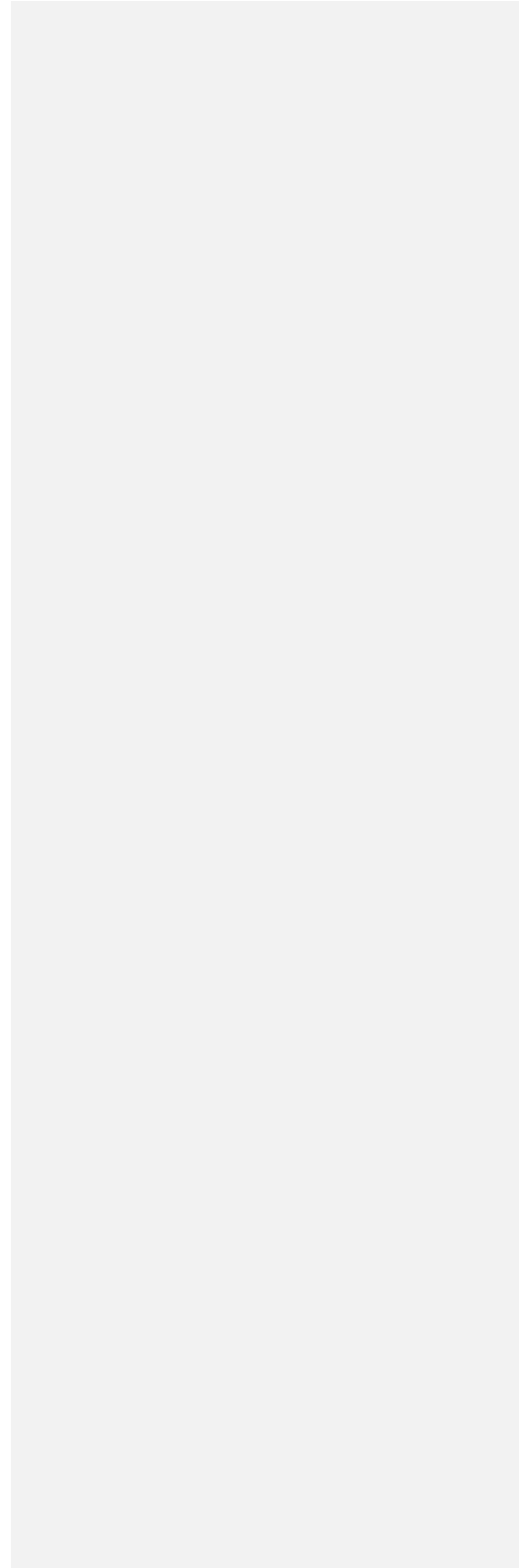
Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <http://apps.fcc.gov/ecfs/>.

Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing. Filings can be sent by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20701. U.S. Postal Service first-class, Express, and Priority mail must be addressed to 45 L Street, N.E., Washington DC 20554.

People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer and Governmental Affairs Bureau at 202-418-0530 (voice), 1-888-835-5322 (tty). In addition, one copy of each pleading must be sent to: Gregory Baker, Designated Federal Official, Global Strategy and Negotiation Division, Office of International Affairs, 45 L Street, N.E., Washington, D.C. 20554; email: WRC-27@fcc.gov. The complete texts of these recommendations are available by accessing the FCC's WRC-27 web site at: www.fcc.gov/wrc-27. For further information, please contact Gregory Baker at (202) 919-0758 or by email at: WRC-27@fcc.gov.

Attachment A



WRC-27 Agenda Item 1.7

IWG-2 members were not able to reach consensus on a proposal for WRC-27 Agenda Item 1.7 (4 GHz) and, therefore, forwards two views on how the FCC could handle this matter.

View A is supported by ASRI, Boeing, and Lockheed Martin.

View B is supported by AT&T, CTIA, Ericsson, Intel, GSMA, Nokia, Qualcomm, T-Mobile, and Verizon.

WAC_27_053

VIEW A

United States of America

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 1.7

AGENDA ITEM 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, 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)**;

BACKGROUND:

WRC-27 will consider the possibility of making available specific mid-band spectrum frequencies 4.4 - 4.8 GHz and 7.125 – 8.4 GHz, either on a regional or global basis, and the 14.8 – 15.35 GHz band, through an identification for the terrestrial component of International Mobile Telecommunications (IMT), in accordance with Resolution **256 (WRC-23)**:

- 4 400-4 800 MHz (or parts thereof) in Regions 1 and 3;
- 7 125-8 400 MHz (or parts thereof) in Regions 2 and 3;
- 7 125-7 250 MHz and 7 750-8 400 MHz (or parts thereof) in Region 1; and
- 14.8-15.35 GHz.

Under WRC-27 agenda item 1.7, it is important to recognize that the operations of incumbent services in the candidate frequency bands, and adjacent bands, under existing primary allocations must be protected.

The remainder of this background material focuses on the 4 400-4 800 MHz frequency band:

Administrations, including the United States, are actively pursuing measures to enable improved coexistence between IMT systems operating below 4 200 MHz and radio altimeters in the 4 200 – 4 400 MHz band. These measures include the development of enhanced interference rejection capabilities and associated equipment standards, as well as retrofit and upgrade initiatives which are directly tied to coexistence capabilities above 4 400 MHz. However, these efforts remain ongoing, are implemented on a national or regional basis, and do not ensure globally harmonized performance across the international aviation fleet.

Efforts to ensure aircraft globally are sufficiently equipped with interference tolerant radio altimeters are dependent on the completion of international standards within ICAO, with implementation timelines extending beyond the WRC-27 study period.

These elements reinforce the need to ensure that any consideration of identification of the 4 400–4 800 MHz band for IMT does not outpace the ability of safety-of-life aeronautical systems to achieve robust and globally harmonized interference tolerance.

It is within the interest of the United States to ensure continued global operational aviation safety. Even in administrations where improvements to radio altimeter interference tolerance are being pursued, development, standardization, and deployment timelines extend well beyond WRC-27, with applicability limited to aircraft operating under those administrations.

Consequently, consideration of the 4 400-4 800 MHz frequency range is premature until the global aviation fleet has sufficient time to enable a pathway that allows for protection of radio altimeters through robust coexistence techniques which include improved interference tolerance capabilities for the radio altimeter.

In addition to the aforementioned adjacent band considerations, the Radio Regulations provide that the frequency band 4 400-4 940 MHz may be used in Region 2 (and in Australia) for aeronautical mobile telemetry (AMT) within the Mobile Services allocation for flight testing of aircraft in accordance with Resolution **416 (WRC-07)**. No. **5.440A**. There are exceptions for certain administrations listed in No. **5.440A**. In the United States, the frequency band 4 400 – 4 940 MHz is used and relied on extensively for AMT operations by both government and commercial operators to transmit critical real-time telemetry from aircraft stations to ground-based receive stations for the testing of aircraft, both conventional fixed wing and rotor craft as well as, increasingly, for the testing of uncrewed aircraft systems.

In parallel, existing domestic statute and ongoing domestic efforts demonstrate that administrations already have mechanisms to nationally identify IMT within the mobile service allocation within the 4 400–4 800 MHz frequency range.

Proposal:

NOC PP/1.7/1

ARTICLES

Reasons: No Change (NOC) to the Table of Frequency Allocations for 4 400-4 800 MHz globally.

A NOC position is appropriate for Region 2 for WRC-27 because the scope of Resolution **256 (WRC-23)** limits consideration of possible identification of this frequency band for IMT to Region 1 and Region 3.

More broadly a global NOC is justified given the ongoing safety concerns in the adjacent 4 200-4 400 MHz frequency band, which is used by radio altimeter systems operating under the aeronautical radionavigation service. Interference tolerance capabilities of radio altimeters are currently under development within the International Civil Aviation Organization and are expected to be published well after the WRC, with the subsequent implementation occurring several years thereafter.

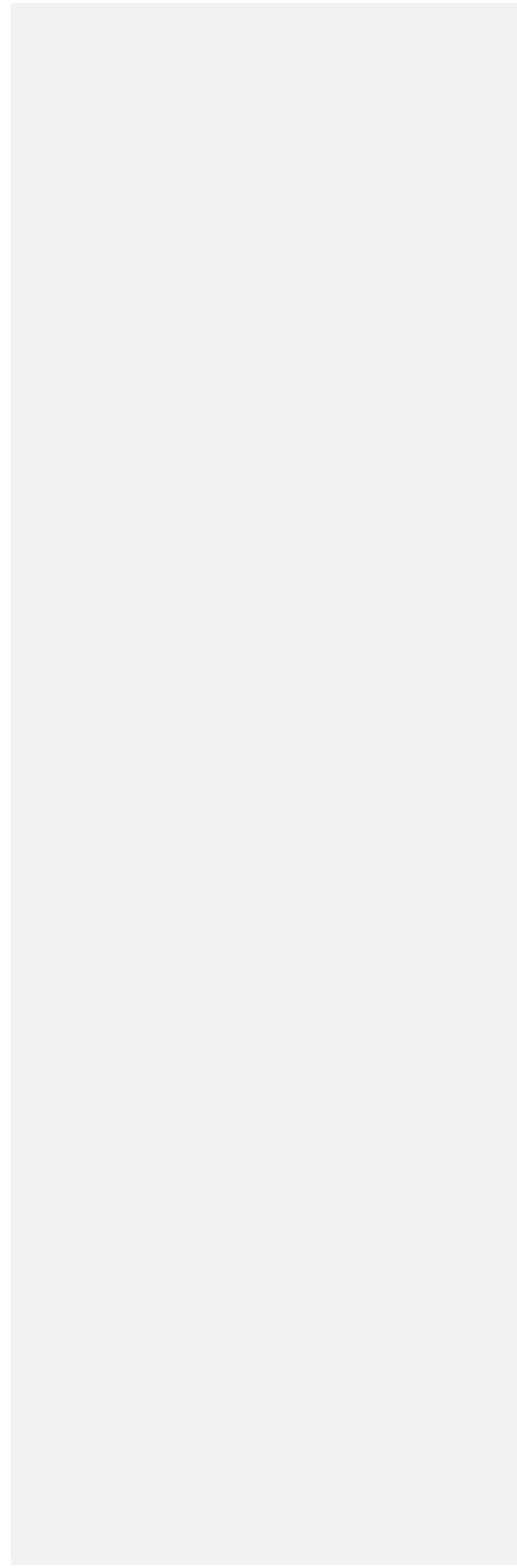
Additionally, several studies conducted within ITU-R Working Party 5D, based on existing altimeter characteristics, indicate a high potential for harmful interference in the absence of anticipated improved interference rejection performance. Maintaining a NOC position will enable the protection of the safety-of-life radio altimeter systems while providing sufficient time for the development, standardization, and deployment of enhanced interference tolerance capabilities prior to any global or regional identification of this band for IMT.

NOC PP/1.7/2

APPENDICES

Reasons: No change is proposed to the Appendices.

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SUP PP/1.7/3

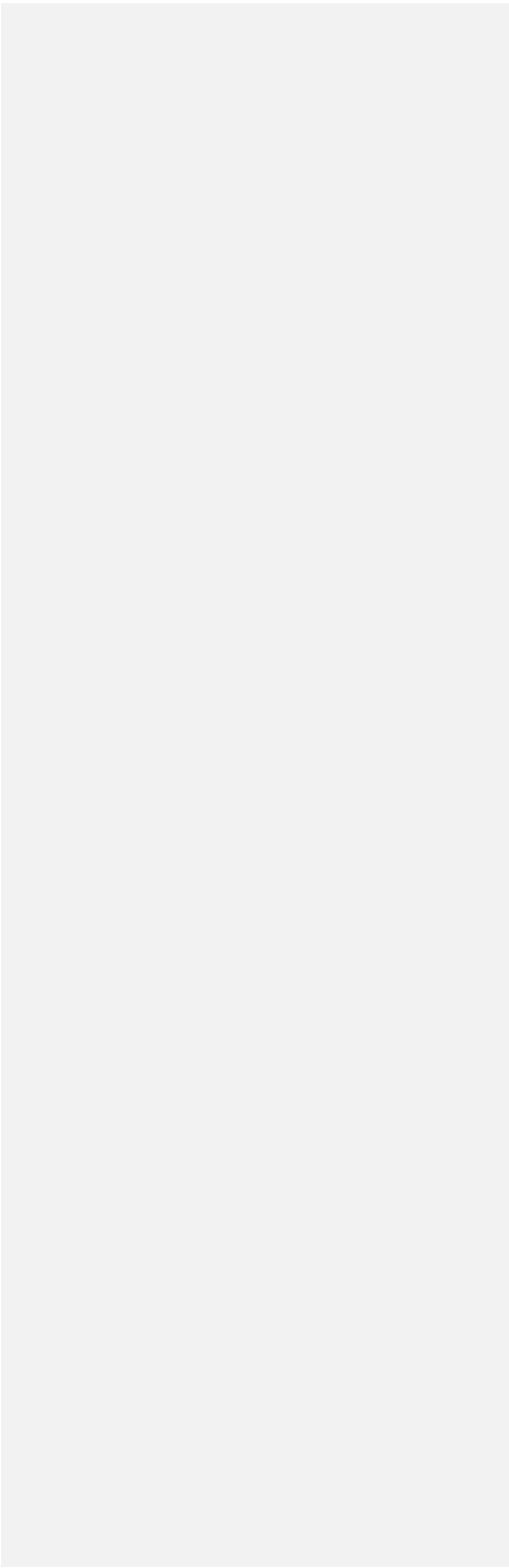
RESOLUTION 256 (WRC-23)

**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**

Reasons: Consequential action.

WAC_27_053

VIEW B



United States of America

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 1.7

Agenda Item 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, 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).*

BACKGROUND

WRC-27 will consider the possibility of making available specific mid-band spectrum frequencies 4.4 – 4.8 GHz and 7.125 – 8.4 GHz, either on a regional or global basis, and the 14.8 – 15.35 GHz band, through an identification for the terrestrial component of International Mobile Telecommunications (IMT), in accordance with Resolution 256 (WRC-23):

- 4 400-4 800 MHz (or parts thereof) in Regions 1 and 3;
- 7 125-8 400 MHz (or parts thereof) in Regions 2 and 3;
- 7 125-7 250 MHz and 7 750-8 400 MHz (or parts thereof) in Region 1; and
- 14.8-15.35 GHz.

Today, the early vision for 6G, also known as IMT-2030, is starting to emerge as communications and broader vertical ecosystems embark on foundational technology research preparing for the next decade of innovations. Commercial deployments are expected later in the decade.

Contiguous spectrum bandwidths other than those currently available are necessary to address growing and intensifying consumer data and ubiquitous connectivity demands. As such, discussions have already started to identify the most desirable frequency bands to address these needs. While no single frequency range satisfies all of the spectrum needs, the upper mid-band range (below 10 GHz) is well-suited to bolster current offerings and facilitate next generations of wireless technologies. Of note, mid-band spectrum will be the core enabling infrastructure to fueling AI innovation. Over the past two World Radiocommunication Conferences, the 4 GHz band has become globally harmonized in over 50 countries bolstering 5G and emerging 6G standards¹, with a growing ecosystem of equipment and devices.

¹ 3GPP Band n79 (4.4 GHz to 5.0 GHz).

In July 2025, President Trump signed The One Big Beautiful Bill Act (OBBBA) into U.S. law that creates a spectrum pipeline by instructing the Federal Communications Commission (FCC) and the National Telecommunications and Information Administration (NTIA) to identify 800 megahertz of spectrum for commercial licensed use. The OBBBA specifies that the FCC auction at least 300 megahertz for non-Federal use; and NTIA, in consultation with the FCC, identify an additional 500 megahertz of Federal use spectrum within the 1.3 – 10.5 GHz range, excluding 3.1 – 3.45 GHz and 7.4 – 8.4 GHz, for reallocation to non-Federal use, shared Federal and non-Federal use, or a combination thereof, for competitive bidding for full power commercial licensed use cases. In December 2025, the President released a Presidential Memoranda calling for the start of the process to open the 7.125-7.4 GHz band for full-power commercial licensed use cases in the United States.

Under WRC-27 agenda item 1.7, it is important to recognize that the incumbent services in the candidate bands, and adjacent bands, provide important systems for public safety, aviation and other uses operating under the existing primary allocations, and such operations must be protected.

With respect to the aeronautical mobile service (AMS) and the maritime mobile service (MMS), we consider it appropriate to apply current practice, i.e., to facilitate IMT use through bilateral/multilateral coordination with the administrations concerned, noting that this frequency band is already allocated to the mobile service (MS) globally.

PROPOSALS

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations
(See No. 2.1)

MOD PP/1.7/1

Supports: USA

3 600-4 800 MHz

Allocation to services		
Region 1	Region 2	Region 3
3 600-3 800 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.433B 5.434A 5.434B 5.435A	3 600-3 700 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.434 Radiolocation 5.433	3 600-3 700 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.435
	3 700-4 200 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.435B	
3 800-4 200 FIXED FIXED-SATELLITE (space-to-Earth) Mobile		
4 200-4 400	AERONAUTICAL MOBILE (R) 5.436 AERONAUTICAL RADIONAVIGATION 5.438 5.437 5.439 5.440	
4 400-4 500	FIXED MOBILE 5.440A	
4 500-4 800	FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE 5.440A ADD 5.IMT	

Reason(s): The identification of sufficient mid-band frequency spectrum for IMT is essential to be able to address digitalization (e.g., sustainable smart cities, industries) and reduce the digital divide in the Americas.

ADD PP/1.7/2

Supports: USA

5.IMT The frequency band 4 500-4 800 MHz, or portions thereof, is identified for the implementation of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Such use shall be in accordance with Resolution **223 (Rev.WRC-27)**. (WRC-27)

Reason(s): The identification of sufficient mid-band frequency spectrum for IMT is essential to be able to address digitalization (e.g., sustainable smart cities, industries) and reduce the digital divide in the Americas.

MOD PP/1.7/2

Supports: USA

RESOLUTION 223 (REV.WRC-27)

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Additional frequency bands identified for International Mobile TelecommunicationsThe World Radiocommunication Conference (Shanghai, 2027),

Deleted: Dubai, 2023

considering

a) that International Mobile Telecommunications (IMT), including IMT-2000, IMT-Advanced, ~~IMT-2020~~ and IMT-2030, is the ITU vision of global mobile access;

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b) that IMT systems provide telecommunication services on a worldwide scale regardless of location, network or terminal used;

c) that IMT provides access to a wide range of telecommunication services supported by fixed telecommunication networks (e.g. public switched telephone network (PSTN)/integrated services digital network (ISDN), high bit rate Internet access), and to other services which are specific to mobile users;

d) that the technical characteristics of IMT are specified in ITU Radiocommunication Sector (ITU-R) and ITU Telecommunication Standardization Sector (ITU-T) Recommendations, including Recommendations ITU-R M.1457, ~~ITU-R M.2012~~ and ITU-R M.2150, which contain the detailed specifications of the terrestrial radio interfaces of IMT;

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e) that the evolution of IMT is being studied within ITU-R;

f) that the review of IMT-2000 spectrum requirements at WRC-2000 concentrated on the frequency bands below 3 GHz;

g) that at WARC-92, 230 MHz of spectrum was identified for IMT-2000 in the frequency bands 1 885-2 025 MHz and 2 110-2 200 MHz, including the frequency bands 1 980-2 010 MHz and 2 170-2 200 MHz for the satellite component of IMT-2000, in No. **5.388** and under the provisions of Resolution **212 (Rev.WRC-23)**;

h) that since WARC-92 there has been a tremendous growth in mobile communications including an increasing demand for broadband multimedia capability;

i) that the frequency bands identified for IMT are currently used by mobile systems or applications of other radiocommunication services;

- j)* that Recommendation ITU-R M.1308 addresses the evolution of existing mobile communication systems to IMT-2000, and that Recommendation ITU-R M.1645 addresses the evolution of the IMT systems and maps out their future development;
- k)* that harmonized worldwide frequency bands for IMT are desirable in order to achieve global roaming and the benefits of economies of scale;
- l)* that the frequency bands 1 710-1 885 MHz, 2 500-2 690 MHz and 3 300-3 400 MHz are allocated to a variety of services in accordance with the relevant provisions of the Radio Regulations;
- m)* that the frequency band 2 300-2 400 MHz is allocated to the mobile service on a co-primary basis in the three ITU Regions;
- n)* that the frequency band 2 300-2 400 MHz, or portions thereof, is used extensively in a number of administrations by other services including the aeronautical mobile service (AMS) for telemetry in accordance with the relevant provisions in the Radio Regulations;
- o)* that IMT has already been deployed or is being considered for deployment in some countries in the frequency bands 1 710-1 885 MHz, 2 300-2 400 MHz and 2 500-2 690 MHz and equipment is readily available;
- p)* that the frequency bands 1 710-1 885 MHz, 2 300-2 400 MHz and 2 500-2 690 MHz, or parts thereof, are identified for use by administrations wishing to implement IMT;
- q)* that technological advancement and user needs will promote innovation and accelerate the delivery of advanced communication applications to consumers;
- r)* that changes in technology may lead to the further development of communication applications, including IMT;
- s)* that timely availability of spectrum is important to support future applications;
- t)* that IMT systems are envisaged to provide increased peak data rates and capacity that may require a larger bandwidth;
- u)* that ITU-R studies forecasted that additional spectrum may be required to support the future services of IMT and to accommodate future user requirements and network deployments;
- v)* that the frequency band 1 427-1 429 MHz is allocated to the mobile, except aeronautical mobile, service in all three Regions on a primary basis;
- w)* that the frequency band 1 429-1 525 MHz is allocated to the mobile service in Regions 2 and 3 and to the mobile, except aeronautical mobile, service in Region 1 on a primary basis;
- x)* that the frequency band 1 518-1 559 MHz is allocated in all three Regions to the mobile-satellite service (MSS) on a primary basis¹;
- y)* that WRC-15 identified the frequency band 1 427-1 518 MHz for use by administrations wishing to implement terrestrial IMT systems;

¹ See Table 21-4 for applicable pfd limits.

z) that there is a need to ensure the continued operations of the MSS in the frequency band 1 518-1 525 MHz;

aa) that appropriate technical measures to facilitate adjacent frequency band compatibility between the MSS in the frequency band 1 518-1 525 MHz and IMT in the frequency band 1 492-1 518 MHz need to be studied;

ab) Report ITU-R RA.2332, on compatibility and sharing studies between the radio astronomy service and IMT systems in the frequency bands 608-614 MHz, 1 330-1 400 MHz, 1 400-1 427 MHz, 1 610.6-1 613.8 MHz, 1 660-1 670 MHz, 2 690-2 700 MHz, 4 800-4 990 MHz and 4 990-5 000 MHz;

ac) that WRC-15, WRC-19 and this conference have identified the frequency band 3 300-3 400 MHz for use by administrations wishing to implement terrestrial IMT systems in Nos. **5.429B**, **5.429D** and **5.429F**;

ad) that the frequency band 3 100-3 400 MHz is allocated worldwide on a primary basis to the radiolocation service;

ae) that a number of administrations use the frequency band 3 300-3 400 MHz, or portions thereof, which is allocated to the fixed and mobile services on a primary basis in No. **5.429**;

aebis) that radio altimeter systems operate in the frequency band 4 200-4 400 MHz on a worldwide basis and are an essential component of aeronautical safety-of-life systems, including precision approach, landing, ground proximity and collision avoidance systems;

af) that the frequency band 4 ~~400-4 990~~ MHz is allocated worldwide to the mobile and fixed services on a primary basis;

Deleted: 8

afbis) that the frequency band 4 500-4 800 MHz was identified for use by administrations wishing to implement the terrestrial component of IMT in No. **5.IMT**;

ag) that the frequency band 4 800-4 990 MHz is identified for use by administrations wishing to implement terrestrial IMT systems in countries listed in Nos. **5.441A** and **5.441B**;

ah) that appropriate technical measures may be considered by administrations at a national level to facilitate adjacent frequency band compatibility between radio astronomy receivers in the frequency band 4 990-5 000 MHz and IMT systems in the frequency band 4 800-4 990 MHz;

ai) that Report ITU-R M.2481 addresses in-band and adjacent-band coexistence and compatibility studies between IMT systems in the frequency band 3 300-3 400 MHz and radiolocation systems in the frequency band 3 100-3 400 MHz, and that further studies were carried out in preparation for this conference;

aj) that the development of new ITU-R Recommendations and/or Reports could provide guidance to support administrations planning to implement IMT, to ensure co-existence with the radiolocation service operating in neighbouring countries in the frequency band 3 300-3 400 MHz,

emphasizing

- a) that flexibility must be afforded to administrations:
 - to determine, at a national level, how much spectrum to make available for IMT from within the identified frequency bands;
 - to develop their own transition plans, if necessary, tailored to meet their specific deployment of existing systems;
 - to have the ability for the identified frequency bands to be used by all services having allocations in those frequency bands;
 - to determine the timing of availability and use of the frequency bands identified for IMT, in order to meet particular user demand and other national considerations;
- b) that the particular needs of developing countries must be met;
- c) that Recommendation ITU-R M.819 describes the objectives to be met by IMT-2000 in order to meet the needs of developing countries,

noting

- a) Resolutions **224 (Rev.WRC-23)** and **225 (Rev.WRC-23)**, which also relate to IMT;
- b) that the sharing implications between services sharing the frequency bands identified for IMT in No. **5.384A**, as relevant, will need further study in ITU-R;
- c) that studies regarding the availability of the frequency band 2 300-2 400 MHz for IMT are being conducted in many countries, the results of which could have implications for the use of those frequency bands in those countries;
- d) that, due to differing requirements, not all administrations may need all of the IMT frequency bands identified at WRC-07, or, due to the usage by and investment in existing services, may not be able to implement IMT in all of those frequency bands;
- e) that the spectrum for IMT identified by WRC-07 may not completely satisfy the expected requirements of some administrations;
- f) that currently operating mobile communication systems may evolve to IMT in their existing frequency bands;
- g) that services such as the fixed service, the mobile service (second-generation systems), the space operation service, the space research service and the AMS are in operation or planned in the frequency band 1 710-1 885 MHz, or portions thereof;
- h) that in the frequency band 2 300-2 400 MHz, or portions thereof, there are services such as the fixed, mobile, amateur and radiolocation services which are currently in operation or planned to be in operation in the future;
- i) that services such as the broadcasting-satellite service (BSS), the BSS (sound), the MSS (in Region 3) and the fixed service (including multipoint distribution/communication systems) are in operation or planned in the frequency band 2 500-2 690 MHz, or portions thereof;
- j) that the identification of several frequency bands for IMT allows administrations to choose the best frequency band or parts thereof for their circumstances;

k) that further study of the technical and operational measures regarding adjacent frequency band compatibility between IMT systems operating below 3 400 MHz and fixed-satellite service earth stations operating above 3 400 MHz may be required;

l) that ITU-R has identified additional work to address further developments in IMT;

m) that the IMT terrestrial radio interfaces as defined in Recommendations ITU-R M.1457, ITU-R M.2012 and ~~ITU-R M.2150~~ are expected to evolve within the framework of ITU-R beyond those initially specified, in order to provide enhanced services and services beyond those envisaged in the initial implementation;

n) that the identification of a frequency band for IMT does not establish priority in the Radio Regulations and does not preclude the use of the frequency band for any application of the services to which it is allocated;

o) that the provisions of Nos. **5.317A**, **5.384A**, **5.388**, **5.429B**, **5.429D**, **5.429F**, **5.IMT.5.441A** and **5.441B** do not prevent administrations from having the choice to implement other technologies in the frequency bands identified for IMT, based on national requirements,

recognizing

that, for some administrations, the only way of implementing IMT would be spectrum refarming, requiring significant financial investment,

resolves

1 to invite administrations planning to implement IMT to make available, based on user demand and other national considerations, additional frequency bands or portions of the frequency bands above 1 GHz identified in Nos. **5.341B**, **5.384A**, **5.429B**, **5.429D**, **5.429F**, **5.IMT.5.441A** and **5.441B** for the terrestrial component of IMT; due consideration should be given to the benefits of harmonized utilization of the spectrum for the terrestrial component of IMT, taking into account the services to which the frequency band is currently allocated;

2 to acknowledge that the differences in the texts of Nos. **5.341B**, **5.384A** and **5.388** do not confer differences in regulatory status;

3 that, in the frequency bands 4 800-4 825 MHz and 4 835-4 950 MHz, in order to identify potentially affected administrations when applying the procedure for seeking agreement under No. **9.21** for IMT stations in relation to aircraft stations, a coordination distance from an IMT station to the border of another country equal to 300 km (for land path)/450 km (for sea path) applies;

4 that in the frequency band 4 800-4 990 MHz, in order to identify potentially affected administrations when applying the procedure for seeking agreement under No. **9.21** for IMT stations in relation to fixed-service stations or other ground-based stations of the mobile service, a coordination distance from an IMT station to the border of another country equal to 70 km applies;

5 that the power flux-density (pfd) limits in No. **5.441B** shall not apply to the following countries: Armenia, Brazil, Cambodia, China, Russian Federation, Kazakhstan, Lao P.D.R., Uzbekistan, South Africa, Viet Nam and Zimbabwe,

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invites the ITU Radiocommunication Sector

- 1 to continue providing guidance to ensure that IMT can meet the telecommunication needs of developing countries and rural areas;
- 2 to continue providing guidance to administrations planning to facilitate the implementation of IMT in the frequency band 3 300-3 400 MHz, taking into account *considering aj*;
- 3 to include the results of the studies mentioned in *invites the ITU Radiocommunication Sector* above in one or more ITU-R Recommendations and Reports, as appropriate;

invites administrations

considering the implementation of the terrestrial component of IMT in the 4 500-4 800 MHz frequency band to take into account the ongoing standardization activities of radio altimeters operating in the 4 200-4 400 MHz frequency band, and take all practical measures to ensure the continued safety-of-life operation of radio altimeters operating in the 4 200-4 400 MHz frequency band from harmful interference, noting considering *aebis*,

instructs the Secretary-General

to bring this Resolution to the attention of International Civil Aviation Organization (ICAO).

Reason(s): The identification of sufficient mid-band frequency spectrum for IMT is essential to be able to address digitalization (e.g., sustainable smart cities, industries) and reduce the digital divide in the Americas.

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UNITED STATES OF AMERICA
PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 10

Discontinuation of agenda item 2.6 on the preliminary WRC-31 agenda and the suppression of corresponding Resolution 255 (WRC-23)

Background:

Preliminary WRC-31 agenda item 2.6 considers the identification of the frequency bands [102-109.5 GHz, 151.5-164 GHz, 167-174.8 GHz, 209-226 GHz and 252-275 GHz] for the terrestrial component of International Mobile Telecommunications, in accordance with Resolution 255 (WRC-23). Research and development of potential IMT applications and enabling technologies in these bands is ongoing (see Report ITU-R M.2541). The United States therefore does not support inclusion of preliminary agenda item 2.6 in the WRC-31 agenda. This position is specific to WRC-31 and does not prejudge continued technical work within the ITU-R or possible consideration of a future WRC agenda item when a sufficiently mature technical basis and demonstrated spectrum need has been established.

1. PROPOSALS

2. SUP USA/10 (IMT 100+ GHZ)/1

3. RESOLUTION 814 (WRC-23)

Preliminary agenda for the 2031 World Radiocommunication Conference*

Reasons: This Resolution must be suppressed, as WRC-27 will create a new Resolution that will include the agenda for WRC-31. The United States proposes that *resolves* 2.6 from Resolution 814 (WRC-27) not be included in that agenda.

4. SUP USA/10 (IMT 100+ GHZ)/2

5. RESOLUTION 255 (WRC-23)

Studies on frequency-related matters for International Mobile Telecommunications (IMT) identification in the frequency bands [102-109.5 GHz, 151.5-164 GHz, 167-174.8 GHz, 209-226 GHz and 252-275 GHz] for the future development of IMT

Reason: Consequential to non-inclusion of resolves 2.6 from the preliminary WRC-31 agenda.

WAC_27_055

United States of America
PROPOSALS FOR THE WORK OF THE CONFERENCE
The U.S. Preliminary Proposal for Agenda item 1.3

A Proposal for WRC-27 Agenda Item 1.3 was approved by the WAC in spring of 2026. This submission completes the proposal by including the needed modification to Resolution 750. No other changes are proposed to the other elements of the WAC-approved proposal.

MOD USA/1.3/9

RESOLUTION 750 (REV.WRC-~~27~~)

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Compatibility between the Earth exploration-satellite service (passive) and relevant active servicesThe World Radiocommunication Conference ([Shanghai, 2027](#)),

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considering

- a) that primary allocations have been made to various space services such as the fixed-satellite service (Earth-to-space), the space operation service (Earth-to-space) and the inter-satellite service and/or to terrestrial services such as the fixed service, the mobile service and the radiolocation service, hereinafter referred to as “active services”, in frequency bands adjacent or nearby to frequency bands allocated to the Earth exploration-satellite service (EESS) (passive), subject to No. **5.340**;
- b) that unwanted emissions from active services have the potential to cause unacceptable interference to EESS (passive) sensors;
- c) that, for technical or operational reasons, the general limits in Appendix 3 may be insufficient in protecting the EESS (passive) in specific frequency bands;
- d) that, in many cases, the frequencies used by EESS (passive) sensors are chosen to study natural phenomena producing radio emissions at frequencies fixed by the laws of nature, and therefore shifting frequency to avoid or mitigate interference problems is not possible;
- e) that the frequency band 1 400-1 427 MHz is used for measuring soil moisture, and also for measuring sea-surface salinity and vegetation biomass;
- f) that long-term protection of the EESS in the frequency bands 23.6-24 GHz, 31.3-31.5 GHz, 50.2-50.4 GHz, 52.6-54.25 GHz and 86-92 GHz is vital to weather prediction and disaster management, and measurements at several frequencies must be made simultaneously in order to isolate and retrieve each individual contribution;
- g) that, in many cases, the frequency bands adjacent to or nearby passive service frequency bands are used and will continue to be used for various active service applications;
- h) that it is necessary to ensure equitable burden-sharing for achieving compatibility between active and passive services operating in adjacent or nearby frequency bands,

noting

- a) that some of the compatibility studies between relevant active and passive services operating in adjacent and nearby frequency bands are documented in Report ITU-R SM.2092 and in Report ITU-R S.2463;
- b) that the compatibility studies between International Mobile Telecommunications (IMT) systems in the frequency bands 1 375-1 400 MHz and 1 427-1 452 MHz and EESS (passive) systems in the frequency band 1 400-1 427 MHz are documented in Report ITU-R RS.2336;

- c) that Report ITU-R F.2239 provides the results of studies covering various scenarios between the fixed service, operating in the frequency bands 81-86 GHz and/or 92-94 GHz, and the EESS (passive), operating in the frequency band 86-92 GHz;
- d) that Recommendation ITU-R RS.2017 provides the interference criteria for satellite passive remote sensing,

noting further

that, for the purpose of this Resolution:

- point-to-point communication is defined as radiocommunication provided by a link, for example a radio-relay link, between two stations located at specified fixed points;
- point-to-multipoint communication is defined as radiocommunication provided by links between a single station located at a specified fixed point (also called “hub station”) and a number of stations located at specified fixed points (also called “customer stations”),

recognizing

- a) that studies documented in Report ITU-R SM.2092 do not consider point-to-multipoint communication links in the fixed service in the frequency bands 1 350-1 400 MHz and 1 427-1 452 MHz;
- b) that, in the frequency band 1 427-1 452 MHz, mitigation measures, such as channel arrangements, improved filters and/or guardbands, may be necessary in order to meet the unwanted emission limits for IMT stations in the mobile service specified in Table 1 of this Resolution;
- c) that, in the frequency band 1 427-1 452 MHz, IMT mobile stations typically perform better than the equipment specifications as stated by relevant standards organizations, which may be taken into account in meeting the limits specified in Table 1 (see also sections 4 and 5 of Report ITU-R RS.2336),

resolves

- 1 that unwanted emissions of stations brought into use in the frequency bands and services listed in Table 1 below shall not exceed the corresponding limits in that table, subject to the specified conditions;
- 2 to urge administrations to take all reasonable steps to ensure that unwanted emissions of active service stations in the frequency bands and services listed in Table 2 below do not exceed the recommended maximum levels contained in that table, noting that EESS (passive) sensors provide worldwide measurements that benefit all countries, even if these sensors are not operated by their country;
- 3 that the Radiocommunication Bureau shall not make any examination or finding with respect to compliance with this Resolution under either Article 9 or 11.

TABLE 1

EESS (passive) frequency band	Active service frequency band	Active service	Limits of unwanted emission power from active service stations in a specified bandwidth within the EESS (passive) frequency band ¹
...			
52.6-54.25 GHz	51.4-52.4 GHz	Fixed-satellite (E-to-s) ⁴	For earth stations operating in GSO FSS networks, in order to protect non-GSO EESS (passive) space stations: –37 dBW in any 100 MHz of the EESS (passive) band for FSS earth stations with elevation angles lower than 75° –52 dBW in any 100 MHz of the EESS (passive) band for FSS earth stations with elevation angles equal to or higher than 75° For earth stations operating with a GSO FSS space station whose nominal geocentric orbital separation Δ is equal to or smaller than 2.5° from any GSO EESS (passive) space station from the time of its notification in accordance with No. 11.44 with nominal orbital positions: 0°, 9.5° E, 76° E, 79° E, 99.5° E, 105° E, 123.5° E, 133° E, 165.8° E, 14.5° W and 137.2° W: –84 + 200 Δ dBW for $0^\circ \leq \Delta < 0.1^\circ$ –67 + 22.8 Δ dBW for $0.1^\circ \leq \Delta < 0.5^\circ$ –61 + 11.3 Δ dBW for $0.5^\circ \leq \Delta < 1.9^\circ$ –47 + 4 Δ dBW for $1.9^\circ \leq \Delta \leq 2.5^\circ$ in any 100 MHz of the EESS (passive) band <u>For earth stations operating in non-GSO FSS networks, in order to protect EESS (passive) band not to exceed the equivalent isotropically radiated power (e.i.r.p.) levels:</u> 40.2 dBW for $0 \leq \theta < 0.1^\circ$ 20.7 dBW for $0.1 \leq \theta < 0.36$ –1.7 dBW for $0.36 \leq \theta < 0.56$ $8 - 25 \cdot \log_{10}(\theta)$ dBW for $0.56 \leq \theta < 48$ –50 dBW for $48 \leq \theta^\circ$ <u>into any 100MHz of the EESS (passive) band. The angle θ is measured from the axis of the FSS earth station. For earth stations employing uplink power control, this e.i.r.p mask can be exceeded up to 7 dB at a minimum elevation angle of 15°.</u>
...			

Notes to Table 1:

¹ The unwanted emission power level is to be understood here as the level measured at the antenna port, unless it is specified in terms of total radiated power (TRP) or equivalent isotropically radiated power (e.i.r.p.).

...

EESS (passive) frequency band	Active service frequency band	Active service	Limits of unwanted emission power from active service stations in a specified bandwidth within the EESS (passive) frequency band ¹
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⁴ The limits apply under clear-sky conditions. During fading conditions, the limits may be exceeded by earth stations when using uplink power control.

...

...

Reasons: Limit the unwanted emissions from the non-GSO FSS Earth stations falling in the band 52.6-54.25 GHz to protect the EESS (passive).

United States of America

PROPOSALS FOR THE WORK OF THE CONFERENCE

Updates to U.S. Preliminary Proposal for Agenda item 1.4

The United States presented a Preliminary Proposal for WRC-27 Agenda Item 1.4 to the 47th Meeting of PCC.II on Dominica in April 2026. This Preliminary Proposal is in PCC.II Document 6452.

During the meeting in Dominica, the United States endeavored to combine its Preliminary Proposal in Document 6452 with Preliminary Proposals brought to the meeting by the administrations of Canada and Brazil. The output of this effort is a Draft Interamerican Proposal (DIAP) in Document **CITEL/GT/CMR-27/doc. 304/26** that reflects all 13 of the U.S. proposals for Agenda Item 1.4. These 13 elements are either joined or tentatively joined by Brazil and Canada.

There are, however, two additional proposals for Agenda Item 1.4 in the DIAP that are not in the U.S. Preliminary Proposal for Agenda Item 1.4 in Doc. 6452. These two proposals are for minor changes to RR Nos. **5.515A** and **5.515B** to capture fully the expansion of the FSS (space-to-Earth) allocation in 17.3-17.7 GHz to Region 3.

Recognizing the essentially editorial nature of the changes envisioned to RR Nos. **5.515A** and **5.515B**, the United States Delegation to the Dominica PCC.II meeting tentatively agreed to allow the United States name to be included among the supporters of the DIAP on these two elements of the proposals for WRC-27 Agenda Item 1.4. Now, the new proposals need to return to the WAC and IWG-3 for consideration of the tentatively-agreed additional elements.

In the Attachment to this document, the U.S. Proposal on AI 1.4 in Document 6452 is presented, with the new proposals for modifications to RR Nos. **5.515A** and **5.515B** shown as Proposals USA/1.4/2*bis* USA/1.4/2*ter* in yellow highlighting, along with the consequential adjustment to the Table of Frequency Allocations in Proposal No. USA/1.4/1. The only changes to the U.S. proposal are the ones with yellow highlighting, and these changes are the only ones for which further IWG-3/WAC consideration and approval is now requested.

ATTACHMENT



**ORGANIZACIÓN DE LOS ESTADOS AMERICANOS
ORGANIZATION OF AMERICAN STATES**

**Comisión Interamericana de Telecomunicaciones
Inter-American Telecommunication Commission**

**47 MEETING OF PERMANENT
CONSULTATIVE COMMITTEE II:
RADIOCOMMUNICATIONS
April 6 to 10, 2026
Portsmouth, Dominica**

**OEA/Ser.L/XVII.4.2.47
CCP.II-RADIO /doc. 6452/26
16 March 2026
Original: English**

**PRELIMINARY PROPOSALS FOR WRC-27
AGENDA ITEM 1.4
(Item on the Agenda: 3.1 (SGT1))
(Document submitted by the Administration of the United States of
America)**

Impact on the sector:

This document supports the work of CITEL's PCC.II Working Group for WRC under 3.1 of the agenda.

Executive Summary:

This contribution contains a preliminary proposal for WRC-27 agenda item 1.4. This proposal harmonizes FSS downlink in Region 3 with Regions 1 and 2.

UNITED STATES OF AMERICA

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.4

Agenda Item 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);

Resolution 726 (WRC-23) – Possible new primary allocation to the fixed-satellite service (space-to-Earth) in the frequency band 17.3-17.7 GHz and possible new primary allocation to the broadcasting-satellite service (space-to-Earth) in the frequency band 17.3-17.8 GHz in Region 3, and consideration of 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

Background:

WRC-23 recognized the critical need to support new technologies in the fixed-satellite service (FSS) for broadband delivery, and to address the disparity in usable downlink bandwidth in the FSS in Region 3, compared with Regions 1 and 2, for the frequency range 17-20 GHz associated with the uplink frequency range of 27-30 GHz. The frequency band 17.3-17.7 GHz is already allocated to the FSS (space-to-Earth) in Region 1 and coexists with BSS user links (space-to-Earth) in Region 1, as well as with feeder links (Earth-to-space) that are subject to Appendix 30A in all three Regions. In addition, WRC-23 agreed a new primary allocation to the FSS in the space-to-Earth direction in the frequency band 17.3-17.7 GHz in Region 2 was necessary, feasible and could coexist with the existing BSS (space-to-Earth) allocation in the 17.3-17.8 GHz band in the Region.

Considering the above, WRC-23 established agenda item 1.4 to study a new primary allocation to the fixed-satellite service (space-to-Earth) in the frequency band 17.3-17.7 GHz, a new primary allocation to the broadcasting-satellite service (space-to-Earth) in the frequency band 17.3-17.8 GHz in Region 3 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), WRC-23 invited sharing and compatibility studies between the FSS (space-to-Earth) and BSS (space-to-Earth) with existing services in co-frequency and adjacent bands for either of these new allocations in Region 3. The outcome of these studies should guarantee that the protection of existing primary services would be possible without adversely affecting the existing allocations to the FSS and BSS, including assignments to the BSS feeder links in Appendix 30A, and FSS NGSO (Earth-to-space). WRC-23 further invited consideration of the applicability of Region 2 non-GSO FSS epfd limits pertaining to the frequency band 17.3-17.7 GHz to Regions 1 and 3, so as to ensure the protection to GSO networks.

Prior to WRC-23, in Region 2, the 17.3-17.7 GHz frequency band was allocated to the unplanned GSO BSS (by definition, a downlink) and the GSO FSS in the Earth-to-space direction, although limited to BSS feeder links operating under Appendix 30A (AP30A). At WRC-23, the suggested FSS downlink allocation, was deemed technologically similar to the operations of the incumbent BSS allocation, and as such became subject

to coordination under No. **9.7** through a coordination trigger defined in Appendix **5**. For ground path interference, where a transmitting feeder link earth station may cause interference with nearby receiving FSS earth stations, sharing procedures exist through the application of site coordination under Article **6** of Appendix **30A** using the coordination area determined by Appendix **7**.

For NGSO FSS operations in this band, the protection of the BSS and the AP30A was ensured by extending the provisions of Article **22** to the Region 2 FSS (space-to-Earth) allocation in the frequency band 17.3-17.7 GHz, by including these frequencies to Table 22-1B for the application of $epfd_l$ and to Table 22-3 for the application of $epfd_s$. Sharing between FSS NGSOs was assured by extending the application of No. **9.12** (NGSO-NGSO coordination) to 17.3-17.7 GHz (space-to-Earth) in Region 2.

Current satellite communication trends encourage the development and implementation of new technologies in FSS for broadband applications to provide high-capacity and low-cost means of broadband communication even to the most isolated regions of the world. The allocation of the 17.3-17.7 GHz to FSS in Region 3 would facilitate global harmonization in the use of satellite radiocommunication technology and would facilitate the efficient use of this spectrum worldwide while aligning with the Regions 1 and 2 Table of Allocations. The inclusion of an FSS downlink allocation in 17.3-17.7 GHz in Region 3 would provide a contiguous amount of FSS spectrum for broadband applications throughout all three Regions.

The proposals below constitute a comprehensive set of regulatory changes fully within the scope of AI 1.4 and Resolution **726 (WRC-23)**. These proposals preserve the existing FSS (Earth-to-space) allocation and No. 5.516, consistent with Resolution 726's directive that studies be conducted without adversely affecting the existing allocations to the FSS (Earth-to-space). Moreover, the $epfd$ limits proposed herein are based on global harmonization principles, drawing from the established Region 2 regulatory framework developed under AI 1.19 for WRC-23. Consistent with the WRC-23 plenary minutes, these limits remain under study. This approach maximizes both harmonization among the regions and functionality for operators and incumbents. Finally, this proposal does not seek to modify Resolution **35 (Rev.WRC-23)** to include the 17.3-17.7 GHz FSS (space-to-Earth) band in the Table in *resolves* 1. The Bureau is tasked by the Resolution to identify and report on specific bands for possible addition to the Table, and this consideration could be handled under either Agenda Item 4 or Agenda Item 9.2, if appropriate.

Proposals:

MOD USA/AI 1.4/1

TABLE 5-1 (Rev.WRC-27)

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Technical conditions for coordination

(see Article 9)

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations
(See No. 2.1)

15.4-18.4 GHz

Allocation to services		
Region 1	Region 2	Region 3
17.3-17.7 FIXED-SATELLITE (Earth-to-space) 5.516 (space-to-Earth) MOD 5.484A 5.516A 5.516B Radiolocation 5.514	17.3-17.7 FIXED-SATELLITE (Earth-to-space) 5.516 (space-to-Earth) MOD 5.484A MOD5.515A MOD5.515B 5.517 BROADCASTING- SATELLITE Radiolocation 5.514 5.515	17.3-17.7 FIXED-SATELLITE (Earth-to-space) 5.516 (space-to-Earth) MOD 5.484A MOD5.515A MOD5.515B ADD 5.515C Radiolocation 5.514

Deleted: ¶

Reasons: Introduce the FSS (space-to-Earth) allocation in the frequency band 17.3-17.7 GHz in Region 3 and apply the No. 5.515C (based on existing No. 5.516A applying in Region 1) to this new allocation. Also, No. 5.484A is modified to extend the use of the frequency band 17.3-17.7 GHz (space-to-Earth) in Region 3, for application of the provisions of No. 9.12 for non-GSO satellite systems.

MOD USA/AI 1.4/2

5.484A The use of the frequency bands 10.95-11.2 GHz (space-to-Earth), 11.45-11.7 GHz (space-to-Earth), 11.7-12.2 GHz (space-to-Earth) in Region 2, 12.2-12.75 GHz (space-to-Earth) in Region 3, 12.5-12.75 GHz (space-to-Earth) in Region 1, 13.75-14.5 GHz (Earth-to-space), 17.3-17.7 GHz (space-to-Earth), 17.8-18.6 GHz (space-to-Earth), 19.7-20.2 GHz (space-to-Earth), 27.5-28.6 GHz (Earth-to-space), 29.5-30 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-27)

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Deleted: In Region 2, No. **22.2** shall continue to apply in the frequency band 17.3-17.7 GHz.

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Reasons: No. **5.484A** is modified to extend the application of the provisions of No. **9.12** for coordination between non-GSO FSS systems in the FSS in the frequency band 17.3-17.7 GHz (space-to-Earth) in Regions 1 and 3. In Region 1, non-GSOs are subject to coordination under No. **9.12** as per the Rule of Procedure (RoP) of No. **9.11A**, Table 9.11A-1. The RoP of No. **9.11A** should be updated by the Radio Regulations Board after WRC-23 to include the frequency bands considered under revised No. **5.484A** which would imply that No. **9.12** would be applied in both directions by default. The last sentence of No. **5.484A** is unnecessary.

MOD USA/AI 1.4/2bis

5.515A In addition to the need to comply with the coordination criteria in Annex 4 to Appendix **30A**, under assumed free-space propagation conditions, the power flux-density of an assignment in the fixed-satellite service (space to-Earth) of a geostationary-satellite network in the frequency band 17.3-17.7 GHz shall not exceed the value of $-98 \text{ dB(W/(m}^2 \cdot 27 \text{ MHz))}$ at points in the geostationary-satellite orbit with geocentric orbital separation angles between 152.6° and 162.6° . (WRC-27)

Deleted: in Region 2

Reasons: Extend the applicability of the footnote No. **5.515A** to Region 3 following the same approach as the one retained by WRC-23 with a dedicated footnote.

MOD USA/AI 1.4/2ter

5.515B In the frequency band 17.3-17.7 GHz, the use of the fixed-satellite service (space-to-Earth) by geostationary-satellite space stations in Regions 2 and 3 shall not cause harmful interference to space station receivers nor claim protection from the broadcasting-satellite service feeder-link earth stations operating under Appendix **30A** in all three Regions, nor put any limitations or restrictions on the locations of the broadcasting-satellite service feeder-link earth stations anywhere within the service area of the feeder link. The notifying administration for the fixed-satellite service (space-to-Earth), when submitting Appendix **4** information elements, shall provide a firm, objective, actionable, measurable and enforceable commitment that, in the event of harmful interference being reported to space station receivers in Appendix **30A**, it shall take immediate action to eliminate the interference or reduce it to an acceptable level. (WRC-27)

Reasons: Extend the applicability of footnote **5.515B** to Region 3 following the same approach as the one retained by WRC-23 with a dedicated footnote.

ADD USA/AI 1.4/3

5.515C In the band 17.3-17.7 GHz, earth stations of the fixed-satellite service (space-to-Earth) in Region 3 shall not claim protection from the broadcasting-satellite service feeder-link earth stations operating under Appendix **30A**, nor put any limitations or restrictions on the locations of the broadcasting-satellite service feeder-link earth stations anywhere within the service area of the feeder link. (WRC-27)

Reasons: Extend the applicability of the footnote No. **5.516A** to Region 3 following the same approach as the one retained by WRC-23 with a dedicated footnote allowing specific provisions for Region 3 as appropriate without impacting Region 1.

ARTICLE 22

Space services¹

Section II – Control of interference to geostationary-satellite systems

MOD USA/AI 1.4/4

TABLE 22-1B (Rev.WRC-27)

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Limits to the $\text{epfd}_{\downarrow}$ radiated by non-geostationary-satellite systems
in the fixed-satellite service in certain frequency bands^{3, 6, 8, 8bis}

Frequency band (GHz)	epfd↓ (dB(W/m²))	Percentage of time during which epfd↓ may not be exceeded	Reference bandwidth (kHz)	Reference antenna diameter and reference radiation pattern ⁷
17.3-17.7	-175.4	0	40	1 m Recommendation ITU-R S.1428-1
17.8-18.6	-175.4	90		
	-172.5	99		
	-167	99.714		
	-164	99.971		
	-164	100		
	-161.4	0	1 000	
	-161.4	90		
	-158.5	99		
	-153	99.714		
	-150	99.971		
-150	100			
	-178.4	0	40	2 m Recommendation ITU-R S.1428-1
	-178.4	99.4		
	-171.4	99.9		
	-170.5	99.913		
	-166	99.971		
	-164	99.977		
	-164	100		
	-164.4	0		
	-164.4	99.4		
	-157.4	99.9		
	-156.5	99.913		
	-152	99.971		
	-150	99.977		
	-150	100		
	-185.4	0	40	
	-185.4	99.8		
	-180	99.8		
	-180	99.943		
	-172	99.943		
	-164	99.998		
	-164	100		
	-171.4	0		1 000
	-171.4	99.8		
	-166	99.8		
	-166	99.943		
	-158	99.943		

Deleted: in Region 2,¶

Frequency band (GHz)	epfd↓ (dB(W/m ²))	Percentage of time during which epfd↓ may not be exceeded	Reference bandwidth (kHz)	Reference antenna diameter and reference radiation pattern ⁷
	−150	99.998		
	−150	100		

Reasons: to extend the applicability in Regions 1 and 3 of Table **22-1B** epfd limits to the frequency band 17.3-17.7 GHz to non-GSO systems to protect downlink operations (space-to-Earth) for the Fixed Satellite Service (FSS) of GSO satellite networks.

MOD USA/AI 1.4/5

TABLE 22-3 (Rev.WRC-27)

Limits to the epfd_{is} radiated by non-geostationary-satellite systems in the fixed-satellite service in certain frequency bands^{19, 19bis}

Frequency band (GHz)	epfd _{is} (dB(W/m ²))	Percentage of time during which epfd _{is} level may not be exceeded	Reference bandwidth (kHz)	Reference antenna beamwidth and reference radiation pattern ²⁰
10.7-11.7 (Region 1) 12.5-12.75 (Region 1) 12.7-12.75 (Region 2)	−160	100	40	4° Recommendation ITU-R S.672-4, <i>L_S</i> = −20
17.3-17.7 17.8-18.4	−160	100	40	4° Recommendation ITU-R S.672-4, <i>L_S</i> = −20

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Deleted: (Regions 1 and 2)

MOD USA/AI 1.4/6

^{19bis} **22.5F.4** A non-geostationary-satellite system operating in any Region, at any position in the orbit, shall meet the limits of this table for the 17.3-17.7 GHz band with respect to a receiving space station in the broadcasting-satellite feeder link of Appendix **30A**, in all three Regions. (WRC-~~27~~)

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Reasons: Extend the applicability of Table **22-3** epfd limits to ensure the protection of the assignments of receiving geostationary satellite systems under Appendix **30A** from the interference produced by non-geostationary satellite systems of the fixed-satellite service.

MOD USA/AI 1.4/7TABLE **22-4B** (Rev.WRC-~~27~~)

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Operational limits to the epfd↓ radiated by non-geostationary-satellite systems in the fixed-satellite service in certain frequency bands^{21, 25}

Frequency band (GHz)	epfd↓ (dB(W/m ²))	Percentage of time during which epfd↓ may not be exceeded	Reference bandwidth h (kHz)	Geostationary-satellite system receive earth station antenna gain (dBi)	Orbital inclination of geostationary satellite (degrees)
19.7-20.2	-157	100	40	≥ 49	≤ 2.5
	-157	100	40	≥ 43 ²⁵	≤ 2.5
	-155	100	40	≥ 49	> 2.5 and ≤ 4.5
19.7-20.2	-143	100	1 000	≥ 49	≤ 2.5
	-143	100	1 000	≥ 43 ²⁵	≤ 2.5
	-141	100	1 000	≥ 49	> 2.5 and ≤ 4.5
17.3-17.7	-164	100	40	≥ 49	≤ 2.5
17.8-18.6	-162	100	40	≥ 49	> 2.5 and ≤ 4.5
17.3-17.7	-150	100	1 000	≥ 49	≤ 2.5
17.8-18.6	-148	100	1 000	≥ 49	> 2.5 and ≤ 4.5

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Deleted: in Region 2¶

Reasons: In order to extend the applicability of Table **22-4B** epfd limits to the frequency band 17.3-17.7 GHz in all three Regions.

MOD USA/AI 1.4/8

APPENDIX 30A (REV.WRC-27)*

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Provisions and associated Plans and List¹ for feeder links for the broadcasting-satellite service (11.7-12.5 GHz in Region 1, 12.2-12.7 GHz in Region 2 and 11.7-12.2 GHz in Region 3) in the frequency bands 14.5-14.8 GHz² and 17.3-18.1 GHz in Regions 1 and 3, and 17.3-17.8 GHz in Region 2 (WRC-27)

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Reasons: Consequential

MOD USA/AI 1.4/9

ARTICLE 7 (Rev.WRC-27)

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Coordination, notification and recording in the Master International Frequency Register of frequency assignments to stations in the fixed-satellite service (space-to-Earth) in the frequency band 17.3-18.1 GHz to stations in the fixed-satellite service (Earth-to-space) in Region 2 in the frequency bands 14.5-14.8 GHz and 17.8-18.1 GHz, to stations in the fixed-satellite service (Earth-to-space) in countries listed in Resolution 163 (WRC-15) in the frequency band 14.5-14.75 GHz and in countries listed in Resolution 164 (WRC-15) in the frequency band 14.5-14.8 GHz where those stations are not for feeder links for the broadcasting-satellite service, and to stations in the broadcasting-satellite service in Region 2 in the frequency band 17.3-17.8 GHz when frequency assignments to feeder links for broadcasting-satellite stations in the frequency bands 14.5-14.8 GHz and 17.3-18.1 GHz in Regions 1 and 3 or in the frequency band 17.3-17.8 GHz in Region 2 are involved²⁸ (Rev.WRC-27)

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Deleted: and in Region 3 in the frequency band 17.7-18.1 GHz, ...

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Section I – Coordination of transmitting space or earth stations in the fixed-satellite service or transmitting space stations in the broadcasting-satellite service with assignments to broadcasting-satellite service feeder links

Reasons: Consequential to extending FSS (space-to-Earth) to 17.3-17.7 GHz in Region 3.

MOD USA/AI 1.4/10

7.1 The provisions of No. 9.7 and the associated provisions under Articles 9 and 11 are applicable to transmitting space stations in the fixed-satellite service in the frequency band 17.3-18.1 GHz, to transmitting earth stations in the fixed-satellite service in Region 2 in the frequency bands 14.5-14.8 GHz and 17.8-18.1 GHz, to transmitting earth stations in the fixed-satellite service in countries listed in Resolution 163 (WRC-15) in the frequency band 14.5-14.75 GHz and in countries listed in Resolution 164 (WRC-15) in the frequency band 14.5-14.8 GHz where those stations are not for feeder links for the broadcasting-satellite service, and to transmitting space stations in the broadcasting-satellite service in Region 2 in the frequency band 17.3-17.8 GHz. (WRC-27)

Deleted: Regions 1 and 2 in
Deleted: to transmitting space stations in the fixed-satellite service in Region 3 in the frequency band 17.7-18.1 GHz,

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Reasons: Extend the applicability of the provisions in Appendix 30A, Article 7, to the FSS (space-to-Earth) in the frequency band 17.3-17.7 GHz.

MOD USA/AI 1.4/11

APPENDIX 5 (REV.WRC-27)

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Identification of administrations with which coordination is to be effected or agreement sought under the provisions of Article 9

Reasons: Consequential.

MOD USA/AI 1.4/12

TABLE 5-1 (*continued*) (Rev.WRC-~~27~~)

Deleted: 23

Reference of Article 9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
...					
No. 9.7 GSO/GSO (<i>cont.</i>)		2bis) 13.4-13.65 GHz (Region 1)	i) Bandwidth overlap, and ii) any network in the space research service (SRS) or any network in the FSS and any associated space operation functions (see No. 1.23) with a space station within an orbital arc of $\pm 6^\circ$ of the nominal orbital position of a proposed network in the FSS or SRS		
		3) 17.3-19.7 GHz and 27.5-29.5 GHz	i) Bandwidth overlap, and ii) any network in the FSS and any associated space operation functions (see No. 1.23) with a space station within an orbital arc of $\pm 8^\circ$ of the nominal orbital position of a proposed network in the FSS		

Deleted: 17.7-19.7 GHz,
(Region 3),

Deleted:
(Regions 1 and 2)

	3bis) 19.7-20.2 GHz and 29.5-30 GHz	i) Bandwidth overlap, and ii) any network in the FSS or in the mobile-satellite service (MSS) and any associated space operation functions (see No. 1.23) with a space station within an orbital arc of $\pm 8^\circ$ of the nominal orbital position of a proposed network in the FSS or in the MSS.	
...			

Reasons: Covers the coordination of two GSO networks of the FSS (except earth stations operating in opposite directions of transmission) under No. **9.7**.

SUP

USA/AI 1.4/13

Deleted: 4

RESOLUTION 726 (WRC-23)

Possible new primary allocation to the fixed-satellite service (space-to-Earth)
in the frequency band 17.3-17.7 GHz and possible new primary allocation
to the broadcasting-satellite service (space-to-Earth) in the frequency band 17.3-17.8 GHz in
Region 3, and consideration of 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

Reasons: Consequential. Studies are complete

United States of America**PROPOSALS FOR THE WORK OF THE CONFERENCE****Agenda item 1.6**

Agenda Item 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)**.*

- **BACKGROUND**

Resolution **131** was adopted at the 2023 World Radiocommunication Conference (WRC-23) to study the technical and regulatory measures applicable to FSS 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), or parts thereof, for equitable access, while ensuring the protection of existing primary services to which the band is allocated in the same or adjacent bands, taking into account the special needs of developing countries.

The use of 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) has experienced growth in recent years. According to a report presented by the Radiocommunication Bureau, as of October 2026, these bands are included in nearly 1000 satellite records (both GSO and non-GSO) at the coordination stage in Article **9**, and in at least 50 records at the notification stage in Article **11**. A number of these frequency assignments have been brought into use, and others are in the advanced states of implementation. Among the administrations in Region 2 with filings in these bands are the United States, Canada, Brazil, and Mexico.

Resolution **131 (WRC-23)** emphasizes that any actions to be taken should be without prejudice to those services, particularly the operation of satellite networks and systems in those bands, and without modifying the protection measures for terrestrial services against unacceptable interference.

Article 44 of the ITU Constitution indicates that frequencies and associated orbital resources are limited natural resources that must be used rationally, efficiently, and economically, in order to allow equitable access to them.

Accordingly, Articles **9** and **11** of the Radio Regulations (RR) establish an overall coordination and notification procedure which offers flexibility to Member States to access orbital resources in an equitable manner, and at the same time ensures operations free from harmful interference.

Based on this process, all Member States may carry out the procedures to access orbital locations.

The existing coordination procedure allows flexibility in design and ensures efficient use of the spectrum, ensuring that its use is free of interference. This has led to increased demand and more robust use of orbital resources compared to the planned resources. In addition, the Article 9 and 11 procedures allow all administrations to use orbital resources without adversely affecting other services.

Although it may be difficult to find a geostationary orbital slot with a low coordination burden in orbital locations that are in most demand, often due to coverage of densely populated regions, this reflects robust and efficient use of the geostationary orbit/spectrum resource rather than a broken system. Networks continue to be successfully coordinated and brought into use in congested locations and bands, demonstrating the resilience and effectiveness of the coordination process.

The adoption of any methodology other than the coordination and notification procedure to access the bands subject to this AI would represent a significant challenge due to the complexity of the operational and filed satellite frequency assignments submitted to the ITU. Changing the manner in which administrations rationally, efficiently, and economically use the orbital/spectrum resources available to FSS/BSS networks and systems cannot be justified unless and until a viable alternative is identified, and the studies conducted under Resolution 131 (WRC-23) have not produced one. Any change that fails to respect filings already made would undermine the foundations of the Radio Regulations and contradict the conditions set out in the resolves of Resolution 131 (WRC-23). Such a change would also overlook the fact that most FSS spectrum is already efficiently shared on a co-primary basis with other services, at a time when new service applications continue to seek greater access to bands allocated to space services.

- **PROPOSALS**

NOC USA/1.6/1

Volumes 1 and 2 of the Radio Regulations

Proposal: No change to the Radio Regulations under Agenda Item 1.6.

Reasons: Any new or additional technical or regulatory measures that alter the coordination procedures already established by the Radio Regulations, or any other process that would impose additional coordination requirements on, or implementation barriers for, existing, planned or future FSS satellite networks and systems, would adversely affect the operation of satellite networks or systems in the bands under study in Resolution **131 (WRC-23)**. During ITU-R studies, no measures were identified that satisfy the conditions of Resolution **131 (WRC-23)**, so the only available method is to not change the Radio Regulations.

SUP USA/1.6/2

RESOLUTION 131 (WRC-23)

Consideration of 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

Reason: Resolution **131 (WRC-23)** should be suppressed because the studies have not identified a viable and universally implementable basis for regulatory change.

UNITED STATES OF AMERICA
DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 10

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)*

WRC-31 agenda item to review and update regulatory provisions for use of the frequency band 18.6-18.8 GHz by non-geostationary orbit (non-GSO) satellite systems in the fixed-satellite service (FSS)

Background

The frequency band 18.6-18.8 GHz is allocated on a co-primary basis to the Fixed-Satellite Service (FSS) (space-to-Earth), Earth Exploration-Satellite Service (EESS) (passive), Fixed Service, Mobile Service except aeronautical mobile, and, in Region 2 only, the Space Research Service (SRS) (passive). Radio Regulations (RR) No. **5.522B** limits the use of the band 18.6-18.8 GHz by the FSS to geostationary systems and systems with an orbit of apogee greater than 20 000 km and RR No. **5.522A** limits FSS emissions to the power flux-density (pfd) values given in RR No. **21.16.2**. EESS (passive) operations in the 18.6-18.8 GHz band enable the measurement of various atmospheric and oceanic parameters, including water vapor profiles, precipitation, cloud formations, snow and ice coverage, melting layer characteristics, and sea surface properties such as wind, temperature, and topography. Recommendation ITU-R RS.2017 outlines the performance and interference criteria for these remote sensing systems.

The limitations on the FSS were put into place at WRC-2000 when the EESS (passive) and SRS (passive) allocations were made co-primary on a worldwide basis and in Region 2, respectively. The regulatory framework in the 18.6-18.8 GHz band has not kept pace with non-GSO satellite system developments. It has been more than 25 years since any technical assessment of co-frequency non-geostationary satellite orbit (non-GSO) FSS downlinks on EESS (passive) operations in this band has been performed. During this interval, there have been many developments in the state of the technical art for non-GSO satellite systems (including non-GSO FSS systems that operate with an orbit of apogee at or below 20 000 km) in the bands adjacent to 18.6-18.8 GHz. Among the developments are Recommendation ITU-R P.2146, which provides a method for predicting signal reflection from sea surfaces.

The ITU-R has determined that it is time to review the interference and co-primary sharing environment in the frequency band 18.6-18.8 GHz, including the limitations under RR Nos. **5.522A** and **5.522B**. During the 2023-2027 ITU-R study cycle, work was initiated – and is progressing toward maturity – on a new ITU-R Report, Report ITU-R RS.[NGSO-18-GHz], entitled “Impact assessment of co-frequency sharing between non-GSO FSS (space-to-Earth) and EESS (passive) in [the] 18.6-18.8 GHz band.”

This new Report investigates the relevance of WRC-2000 studies that led to the elevation of EESS (passive) to co-primary status and established the limitation on No. **5.522B** cited above. At that time, there were only non-GSO FSS system in highly elliptical orbit (HEO) planning or using the 18.6-18.8 GHz band and studies were limited to HEO systems. The Report also includes studies assessing the theoretical impact of non-GSO FSS systems with an orbit of apogee less than 20 000 km. The focus is on potential interference into EESS (passive) sensors caused by reflections of non-GSO FSS emissions from bodies of water on the Earth's surface.

Both low-Earth orbit (LEO) and medium-Earth orbit (MEO) non-GSO FSS systems based on the characteristics of systems that operate in FSS bands immediately adjacent to 18.6-18.8 GHz today are included in the new Report, and results are promising for additional non-GSO FSS (space-to-Earth) operations in the band.

Demand for downlink spectrum for use by non-GSO FSS systems in the 17.3-20.2 GHz range is high and growing. Multiple non-GSO constellations in LEO and MEO orbits are operational or under construction, all requiring downlink capacity in this frequency range. WRC-23 approved additional allocations to non-GSO FSS systems in the 17.3-17.7 GHz band in Region 2, and WRC-27 is considering expanding this allocation to Region 3 as a step toward global harmonization. If the 18.6-18.8 GHz band were available for LEO/MEO operations, it would alleviate spectrum discontinuity and help satisfy demand for more spectrum and service improvements, providing more opportunities across the entire 17.3-20.2 GHz range.

The United States proposes a new agenda item for WRC-31 to review the limitations on non-GSO FSS (space-to-Earth) operations in No. **5.522B**, and the associated conditions in No. **5.522A** and consider regulatory action, as reflected in the following proposals.

Proposals

ADD USA/10/1

RESOLUTION [USA_10_2027] (WRC-27)

Agenda for the 2031 world radiocommunication conference

The World Radiocommunication Conference (Shanghai, 2027),

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-31;
- 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 2031 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-27 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.x to consider, based on the results of ITU-R studies, revisions to the regulatory provisions for use of the frequency band 18.6-18.8 GHz by non-geostationary orbit (non-GSO) satellite systems in the fixed-satellite service (FSS) (space-to-Earth) in accordance with Resolution **[USA_10_18.6-18.8_GHz_Non-GSO] (WRC-27)**;

...

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-27¹;

9.2 on any difficulties or inconsistencies encountered in the application of the Radio Regulations²; 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-27)**,

further resolves

to activate the Conference Preparatory Meeting (CPM),

invites the ITU Council

to finalize the agenda and arrange for the convening of WRC-31, 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-31;

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.

Reasons: To include on the agenda for WRC-31 studies on potential expansion of non-GSO FSS use of the 18.6-18.8 GHz band to provide additional downlink spectrum for LEO/MEO systems while ensuring the continued protection of EESS (passive) operations.

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.xx 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.

ADD USA/10/2

Draft New Resolution [USA_10_18.6-18.8_GHz_Non-GSO] (WRC-27)

Studies on possible revisions of sharing conditions in the frequency band 18.6-18.8 GHz to enable greater use of the primary fixed-satellite service (space-to-Earth) allocation by non-geostationary systems while ensuring the continued protection of EESS (passive) and other co-primary operations

The World Radiocommunication Conference (Shanghai, 2027),

considering

- a) the need to encourage the development and implementation of new technologies in the fixed-satellite service (FSS) for broadband applications;
- b) that FSS systems based on the use of new technologies associated with geostationary-satellite orbit (GSO) and non-geostationary-satellite orbit (non-GSO) systems are capable of providing high-capacity and low-cost means of broadband communication even to the most isolated regions of the world;
- c) that, due to the orbital characteristics of non-GSO satellite systems, the constellations are capable of providing services globally, and there is therefore a need for harmonized Radio Regulations;
- d) that the Radio Regulations should enable the introduction of new applications of radiocommunication technology to ensure the operation of as many systems as possible in order to ensure efficient use of the spectrum;
- e) that there is an allocation to the FSS (space-to-Earth), including non-GSO FSS, in the 18.6-18.8 GHz band, but No. **5.522B** limits non-GSO FSS use to systems with an orbit of apogee greater than 20 000 km and No. **5.522A** specifies additional in-band power flux-density limits in No. **21.16.2** to protect Earth exploration-satellite service (EESS) (passive) and space research service (SRS) (passive),
- f) that the primary allocation to the EESS (passive) worldwide in 18.6-18.8 GHz has been extensively used for scientific purposes by passive remote sensing instruments;
- g) that there is a primary allocation to the space research service (passive) (SRS) in Region 2 in the frequency band 18.6-18.8 GHz;

noting

- a) that when studies were done for WRC-2000 to consider elevation of the EESS (passive) to co-primary status with FSS in Regions 1 and 3, the only non-GSO systems considered were those in highly elliptical orbits, with orbits of apogee greater than 20 000 km;
- b) that new studies in the ITU-R show the potential for sharing between non-GSO FSS systems with orbits of apogee 20 000 km or less and EESS (passive) sensors operating over oceans;

- c) that there is a growing demand for FSS downlink spectrum in the 17.3-20.2 GHz frequency range by low-Earth and medium-Earth orbit non-GSO FSS systems;
- d) that enabling non-GSO FSS operations with orbits of apogee below 20 000 km in the 18.6-18.8 GHz band would contribute to harmonization of the Ka-band FSS downlink range from 17.3 to 20.2 GHz, enhancing global service provision and reducing the complexity of frequency planning for non-GSO systems operating across multiple sub-bands by enabling contiguous spectrum use,

resolves to invite the ITU Radiocommunication Sector to conduct and complete in time for the 2031 world radiocommunication conference

1 studies on sharing and compatibility between the non-GSO FSS (space-to-Earth) systems operating with orbits of apogee at or below 20 000 km and existing services in the frequency band 18.6-18.8 GHz;

2 studies on possible associated regulatory actions to enable the use of non-GSO FSS (space-to-Earth) systems operating with orbits of apogee at or below 20 000 km, including the introduction of coordination requirements or power limits, based on the results of the sharing and compatibility studies in *resolves 1*),

invites the 2031 world radiocommunication conference

to consider the results of studies in accordance with *resolves to invite ITU Radiocommunication Sector to conduct and complete in time for the 2031 world radiocommunication conference* and take appropriate regulatory action to enable greater use of the 18.6-18.8 GHz band by non-geostationary FSS systems operating at or below 20,000 km while ensuring the protection of existing primary services,

invites administrations

to participate actively in the studies described in *resolves to invite the ITU Radiocommunication Sector to conduct and complete in time for the 2031 world radiocommunication conference* and provide the technical and operational characteristics of the systems involved by submitting contributions to ITU-R.

Reasons: To provide for urgent studies to review and revisit the apogee limit on non-GSO FSS system orbits in No. **5.522B**, while ensuring protection of EESS (passive) and Region 2 SRS (passive) and that other incumbent primary services are not adversely affected.

ATTACHMENT**Proposal for WRC-31 agenda item to review and update regulatory provisions for use of the frequency band 18.6-18.8 GHz by non-geostationary orbit (non-GSO) satellite systems in the fixed-satellite service (FSS)**

Subject: Proposed WRC-31 agenda item to review and update regulatory provisions for use of the frequency band 18.6-18.8 GHz by non-geostationary orbit (non-GSO) satellite systems in the fixed-satellite service (FSS)

Origin: United States of America

Proposal: WRC-31 agenda item to review and update regulatory provisions for use of the frequency band 18.6-18.8 GHz by non-geostationary orbit (non-GSO) satellite systems in the fixed-satellite service (FSS)

Background/reason: When the orbit of apogee limits in No. **5.522B** were adopted at WRC-2000, no studies were conducted of low-Earth orbit and Medium-Earth orbit non-GSO FSS systems potentially operating in the 18.6-18.8 GHz band; only non-GSO systems with orbit of apogees of more than 20 000 km. Developments in satellite technology; understandings of propagation effects (including new ITU-R recommendations); and operational experience with EESS (passive) sensors all combine to warrant a revisitation and possible update or removal of the altitude limit in No. **5.522B**. Initial ITU-R studies from the 2023-2027 ITU-R study cycle support the idea that some modification here would be possible, but further study is needed. Demand for non-GSO FSS downlink spectrum in the Ka-band range remains obvious and high, so spectrum needs studies are not required.

Radiocommunication services concerned: FSS, EESS (passive), Region 2 SRS (passive), fixed, and mobile

Indication of possible difficulties:

Previous/ongoing studies on the issue: ITU-R studies in SG 7 are ongoing.

Studies to be carried out by: WP4A	<i>with the participation of:</i> SG7, SG 5, and Administrations and Sector members of the ITU-R
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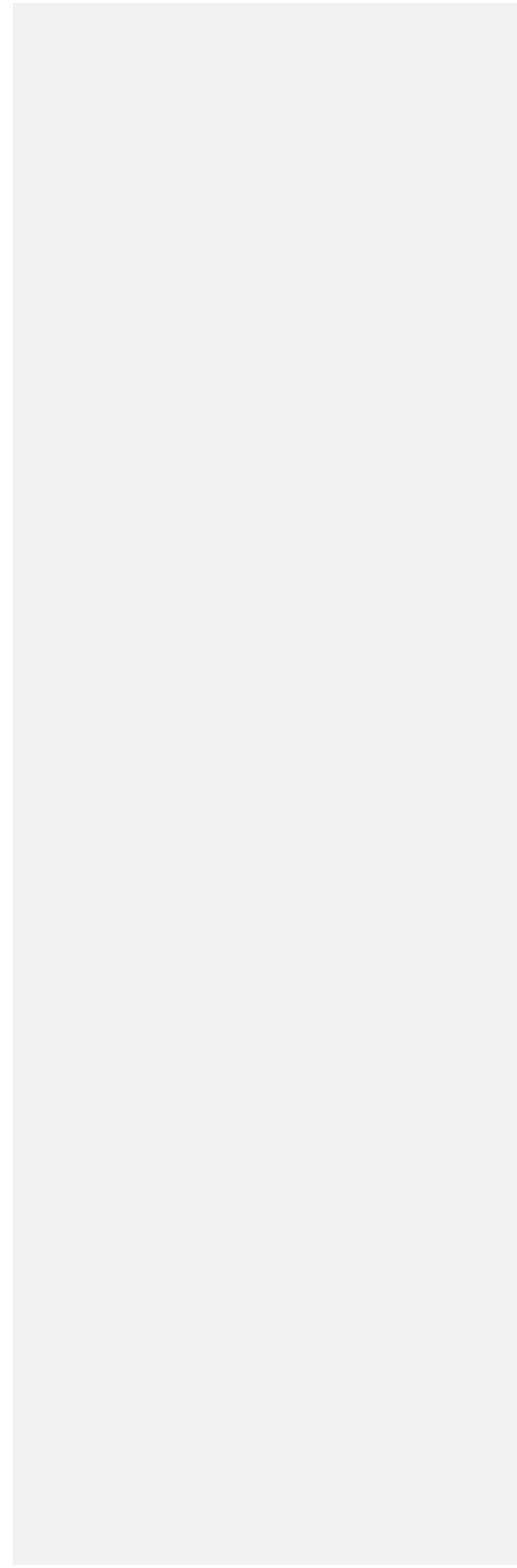
ITU-R Study Groups concerned: SG4, SG7, SG5

ITU resource implications, including financial implications (refer to CV126): This proposed agenda item will be studied within the normal ITU-R procedures and planned budget.

Common regional proposal: Yes/No	Multicountry proposal: Yes/No
	<i>Number of countries:</i>

Remarks

WAC_27_057



UNITED STATES OF AMERICA

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 10

Discontinuation of agenda item 2.3 on the preliminary WRC-31 agenda and the suppression of corresponding Resolution 133 (WRC-23)**Background:**

Preliminary WRC-31 agenda item 2.3 considers the use of aeronautical and maritime earth stations in motion communicating with non-geostationary space stations in the fixed-satellite service (Earth-to-space) in the frequency band 12.75-13.25 GHz, in accordance with Resolution 133 (WRC-23). The use of 12.75-13.25 GHz FSS spectrum remains quite limited worldwide, especially from NGSOs. Moreover, based on recent NGSO FSS developments and announcements, most of the NGSO traffic in the future in these bands will be space-to-Earth direction. It is indeed more logical to expand the available downlink spectrum in the band immediately adjacent to an existing downlink allocation, i.e. 10.7-12.7 GHz.

1. PROPOSALS

2. **SUP** USA/10 (NGSO ESIMS KU)/1

3. RESOLUTION 814 (WRC-23)

Preliminary agenda for the 2031 World Radiocommunication Conference*

Reasons: This Resolution must be suppressed, as WRC-27 will create a new Resolution that will include the agenda for WRC-31, and the United States proposes that *resolves* 2.6 from Resolution **814 (WRC-27)** not be on that agenda

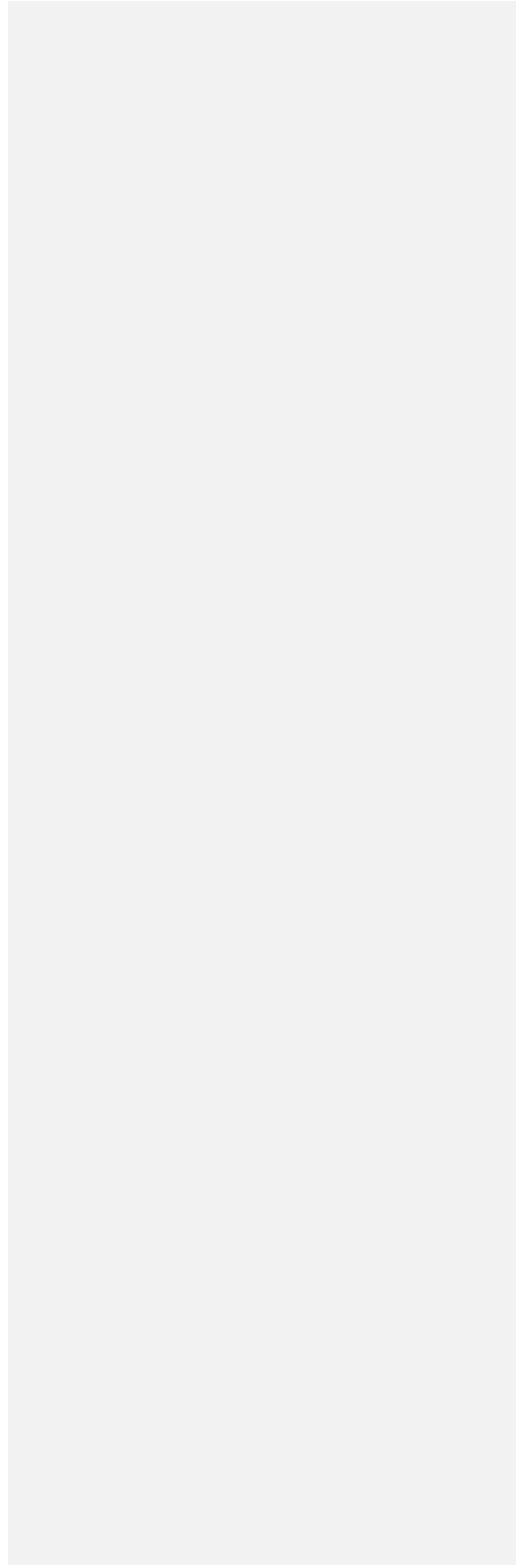
4. **SUP** USA/10 (NGSO ESIMS KU)/2

5. RESOLUTION 133 (WRC-23)

Study of the possible use of the frequency band 12.75-13.25 GHz by aeronautical and maritime earth stations in motion communicating with non-geostationary space stations in the fixed-satellite service (Earth-to-space)

Reason: Consequential to non-inclusion of resolves 2.3 from the preliminary WRC-31 agenda.

WAC_27_058



United States of America

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 1.18, *RESOLVES* 1

Agenda Item 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);*

BACKGROUND

At WRC-2000, a number of frequency bands above 100 GHz were allocated to the earth exploration-satellite service (passive) and space research (passive) services and the radio astronomy service to better align the allocations with the scientific observations performed in those frequency bands (based on the requirements known at the time of the Conference). Similarly, modifications to the active services (including fixed, mobile and fixed satellite service) were adjusted to provide frequency blocks of 5-9 GHz wide to accommodate future wideband multimedia systems. WRC-2000 also adopted Resolution 731 that *urges administrations* “to note the possibility of changes to Article 5 to accommodate emerging requirements for active services, as indicated in this Resolution, and to take this into account in the development of national policies and regulations,” and to *recognize* “to the extent practicable, the burden of sharing among active and passive services should be equitably distributed among the services to which allocations are made.”

It should be noted that active service systems are still emerging in these frequency bands. There is ongoing academic and industry research on the possible suitability of land mobile service systems providing mobile broadband applications in this range, however at this nascent stage of development, it would be premature to impose any regulatory constraints on these existing allocations for these systems. In addition, consideration is being given to the need for broader spectrum blocks than are currently made available in Article 5.

Resolution 712 (WRC-23) *resolves to invite the ITU Radiocommunication Sector to complete in time for the 2027 world radiocommunication conference* two distinct sets of studies. Under resolves 1, compatibility studies between EESS (passive) and selected active services and under resolves 2, compatibility between the RAS and active satellite services in certain adjacent and nearby frequency bands. This proposal only addresses resolves 1:

1 to determine, based on the results of studies, any required regulatory measures regarding the protection of the EESS (passive) in the frequency bands listed in Table 1 above from unwanted emissions of active services and update Resolution 750 (Rev.WRC-19) accordingly;

TABLE 1

EESS (passive) frequency bands to be studied and corresponding active services to be included

EESS (passive) frequency band	Active service frequency band	Active service
86-92 GHz	81-86 GHz	Fixed-satellite service (FSS) (Earth-to-space), mobile service (MS)
	92-94 GHz	MS, radiolocation service (RLS)
114.25-116 GHz	111.8-114.25 GHz	Fixed service (FS), MS
164-167 GHz	158.5-164 GHz	FS, FSS (space-to-Earth), MS, mobile-satellite service (MSS) (space-to-Earth)
	167-174.5 GHz	FS, FSS (space-to-Earth), inter-satellite service (ISS), MS
200-209 GHz	191.8-200 GHz	FS, ISS, MS, MSS, radionavigation service (RNS), radionavigation-satellite service (RNSS)
	209-217 GHz	FS, FSS (Earth-to-space), MS

Resolution **750 (Rev.WRC-19)** deals with the compatibility between the Earth exploration-satellite service (passive) in bands subject to RR No. **5.340** and relevant active services in adjacent bands. It basically provides limits for the unwanted emission levels of active service stations for the compatibility with EESS (passive).

The latest version of Resolution **750 (Rev.WRC-19)** includes unwanted emission levels from the fixed service into the frequency band 86-92 GHz but is not addressing unwanted emissions from other active services allocated in frequency bands adjacent to 86-92 GHz. Changes to the fixed service levels in this band are out of scope of this agenda item.

The coexistence with RSTT in the 92-94 GHz band is addressed in Annex 3 of Report ITU-R M.2500-0 “Coexistence between high-speed railway radiocommunication system between train and trackside operating in the frequency bands 92-94 GHz, 94.1-100 GHz and 102-109.5 GHz, and radio astronomy service and Earth exploration-satellite service (EESS) (active) and EESS (passive) services”. With various scenarios leading to a very large margin varying from about – 50 to + 50 dB, the static analysis do not provide a relevant conclusion. On the other hand, the results of dynamic analysis, for all EESS (passive) sensors, depict a margin of 4 to 13 dB with a –54 dBW/100 MHz unwanted emission.

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The coexistence with FOD in the 92-100 GHz band is addressed in Annex 2 of Report ITU-R M.2562-0 “Sharing and compatibility studies between foreign object debris detection system and other services in the frequency ranges 92-100 GHz”. Dynamic analysess concluded that a required unwanted emission level of –42 dBW/100 MHz in the band 86-92 GHz to be applied to FOD applications operating in the 92-100 GHz band would be sufficient to protect EESS (passive).

The coexistence with FSS in the 81-86 GHz, 158.5-164 GHz and 167-174.5 GHz bands is addressed in Annex 4 of preliminary draft new Report ITU-R RS.[1.18 – EESS].

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For the band 81-86 GHz (Earth-to-space), the dynamic analysis show that, to ensure protection of EESS (passive) in the band 86-92 GHz, the following unwanted emissions have to be applied to FSS earth stations:

$$-39.2 - 16.3(f - 86) \text{ dBW/100 MHz}$$

$$\text{for } 86.05 \leq f < 87 \text{ GHz}$$

$$-59 \text{ dBW/100 MHz}$$

$$\text{for } 87 < f < 91.95 \text{ GHz}$$

For the bands 158.5-164 GHz (space-to-Earth) and 167-174.5 GHz (space-to-Earth), the potential for interference into the cold calibration of the sensor was identified as the predominant case. Technical analysis show that the protection criteria is not exceeded technical analysis and that there is no need to apply unwanted emission limits to FSS space stations.

Compatibility studies between EESS (passive) and Fixed Service (FS) are addressed in Report ITU-R F.2558-0 “Studies on unwanted emission levels outside the allocated bands for fixed service systems operating in frequency bands from 94.1 GHz to 174.8 GHz for the protection of Earth exploration-satellite service (passive) operating in adjacent bands where footnote RR No. 5.340 of the Radio Regulations applies”. These studies were based on a “best estimate” of FS deployments in these frequency bands based on an extrapolation of assumptions used in Report ITU-R F.2239 for the 70/80/90 GHz bands. Thus, these limits should be supported as recommended limits, similar to the existing limits in Resolution 750 for the 80 and 90 GHz bands.

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PROPOSALS

1. MOD USA/1.18/1

81-86 GHz

Allocation to services		
Region 1	Region 2	Region 3
81-84	FIXED	
	FIXED-SATELLITE (Earth-to-space)	
	MOBILE	
	MOBILE-SATELLITE (Earth-to-space)	
	RADIO ASTRONOMY	
	Space research (space-to-Earth)	
	5.149 5.561A MOD 5.338A	
84-86	FIXED	
	FIXED-SATELLITE (Earth-to-space) 5.561B	
	MOBILE	
	RADIO ASTRONOMY	
	5.149 MOD 5.338A	

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Reason: Providing updates to Resolution 750 containing the new limits on the Fixed-satellite service (Earth-to-space).

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2. MOD USA/1.18/2

86-111.8 GHz

Allocation to services		
Region 1	Region 2	Region 3
86-92	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	
92-94	FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149 MOD 5.338A	

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Reason: [Providing updates to Resolution 750 containing the new limits on the mobile service \(RSTT applications\) and radiolocation service \(FOD applications\).](#)

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3. MOD USA/1.18/3

111.8-119.98 GHz

Allocation to services		
Region 1	Region 2	Region 3
111.8-114.25	FIXED MOD 5.338A MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341	

2.

4. MOD USA/1.18/4

158.5-200 GHz

Allocation to services		
Region 1	Region 2	Region 3
158.5-164	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) MOD 5.338A	
164-167	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	

167-174.5	FIXED
	FIXED-SATELLITE (space-to-Earth)
	INTER-SATELLITE
	MOBILE 5.558
	5.149 5.562D MOD 5.338A

3.

4.

5. **MOD** USA/1.18/7

5.338A In the frequency bands 1 350-1 400 MHz, 1 427-1 452 MHz, 22.55-23.55 GHz, 24.25-27.5 GHz, 30-31.3 GHz, 49.7-50.2 GHz, 50.4-50.9 GHz, 51.4-52.4 GHz, 52.4-52.6 GHz, 81-86 GHz, 92-94 GHz, [111.8-114.25 GHz](#), [158.5-164 GHz](#) and [167-174.5 GHz](#), Resolution **750 (Rev.WRC-27)** applies. (WRC-27)

5. **Reasons:** Introduce the reference to footnote 5.338A to refer new frequency bands for which Resolution 750 (WRC-27) applies

6. **MOD** USA/1.18/8

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RESOLUTION 750 (REV.WRC-27)

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Compatibility between the Earth exploration-satellite service (passive) and relevant active services

The World Radiocommunication Conference ([Shanghai, 2027](#)),

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considering

a) that primary allocations have been made to various space services such as the fixed-satellite service (Earth-to-space), the space operation service (Earth-to-space) and the inter-satellite service and/or to terrestrial services such as the fixed service, the mobile service and the radiolocation service, hereinafter referred to as “active services”, in frequency bands adjacent or nearby to frequency bands allocated to the Earth exploration-satellite service (EESS) (passive), subject to No. **5.340**;

b) that unwanted emissions from active services have the potential to cause unacceptable interference to EESS (passive) sensors;

c) that, for technical or operational reasons, the general limits in Appendix **3** may be insufficient in protecting the EESS (passive) in specific frequency bands;

d) that, in many cases, the frequencies used by EESS (passive) sensors are chosen to study natural phenomena producing radio emissions at frequencies fixed by the laws of nature, and therefore shifting frequency to avoid or mitigate interference problems is not possible;

e) that the frequency band 1 400-1 427 MHz is used for measuring soil moisture, and also for measuring sea-surface salinity and vegetation biomass;

f) that long-term protection of the EESS in the frequency bands 23.6-24 GHz, 31.3-31.5 GHz, 50.2-50.4 GHz, 52.6-54.25 GHz, 86-92 GHz, ~~114.25-116 GHz and 164-167 GHz~~ is vital to weather prediction and disaster management, and measurements at several frequencies must be made simultaneously in order to isolate and retrieve each individual contribution;

g) that, in many cases, the frequency bands adjacent to or nearby passive service frequency bands are used and will continue to be used for various active service applications;

h) that it is necessary to ensure equitable burden-sharing for achieving compatibility between active and passive services operating in adjacent or nearby frequency bands,

noting

a) that some of the compatibility studies between relevant active and passive services operating in adjacent and nearby frequency bands are documented in Report ITU-R SM.2092 and in Report ITU-R S.2463;

b) that the compatibility studies between International Mobile Telecommunications (IMT) systems in the frequency bands 1 375-1 400 MHz and 1 427-1 452 MHz and EESS (passive) systems in the frequency band 1 400-1 427 MHz are documented in Report ITU-R RS.2336;

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c) that Report ITU-R F.2239 provides the results of studies covering various scenarios between the fixed service, operating in the frequency bands 81-86 GHz and/or 92-94 GHz, and the EESS (passive), operating in the frequency band 86-92 GHz;

d) that Report ITU-R M.2500-0 provides in particular the results of compatibility studies between EESS (passive) in the 86-92 GHz and high-speed railway radiocommunication system between train and trackside (RSTT) operating in the frequency bands 92-94 GHz;

e) that Report ITU-R F.2558 provides studies on unwanted emission levels outside the allocated bands for fixed service systems operating in frequency bands from 94.1 GHz to 174.8 GHz for the protection of Earth exploration-satellite service (passive) operating in adjacent bands where footnote No. 5.340 of the Radio Regulations applies;

f) that Report ITU-R M.2562-0 addresses in particular compatibility between foreign object debris detection system in the 92-100 GHz and the EESS (passive) in the adjacent 86-92 GHz band;

g) that Recommendation ITU-R RS.2017 provides the interference criteria for satellite passive remote sensing,

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noting further

that, for the purpose of this Resolution:

- point-to-point communication is defined as radiocommunication provided by a link, for example a radio-relay link, between two stations located at specified fixed points;
- point-to-multipoint communication is defined as radiocommunication provided by links between a single station located at a specified fixed point (also called “hub station”) and a number of stations located at specified fixed points (also called “customer stations”),

recognizing

a) that studies documented in Report ITU-R SM.2092 do not consider point-to-multipoint communication links in the fixed service in the frequency bands 1 350-1 400 MHz and 1 427-1 452 MHz;

b) that, in the frequency band 1 427-1 452 MHz, mitigation measures, such as channel arrangements, improved filters and/or guard bands, may be necessary in order to meet the unwanted emission limits for IMT stations in the mobile service specified in Table 1 of this Resolution;

c) that, in the frequency band 1 427-1 452 MHz, IMT mobile stations typically perform better than the equipment specifications as stated by relevant standards organizations, which may be taken into account in meeting the limits specified in Table 1 (see also sections 4 and 5 of Report ITU-R RS.2336),

resolves

1 that unwanted emissions of stations brought into use in the frequency bands and services listed in Table 1 below shall not exceed the corresponding limits in that table, subject to the specified conditions;

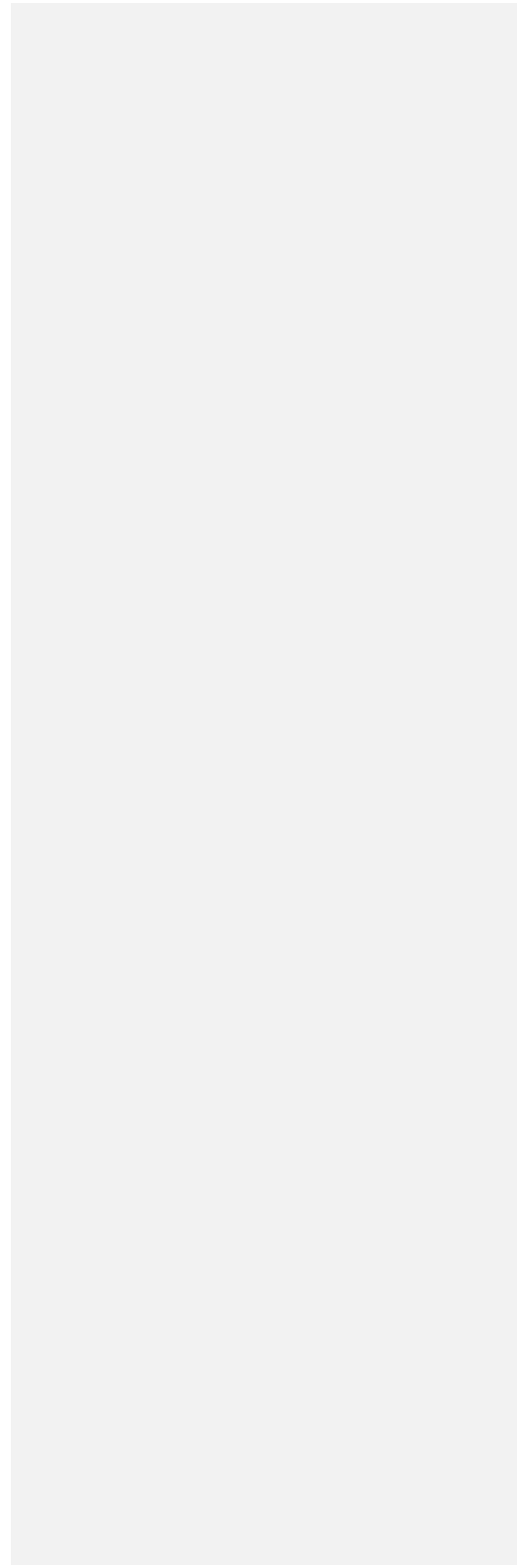
2 to urge administrations to take all reasonable steps to ensure that unwanted emissions of active service stations in the frequency bands and services listed in Table 2 below do not exceed the recommended maximum levels contained in that table, noting that EESS (passive) sensors provide worldwide measurements that benefit all countries, even if these sensors are not operated by their country;

3 that the Radiocommunication Bureau shall not make any examination or finding with respect to compliance with this Resolution under either Article **9** or **11**.

TABLE 1

EESS (passive) frequency band	Active service frequency band	Active service	Limits of unwanted emission power from active service stations in a specified bandwidth within the EESS (passive) frequency band ¹
1 400-1 427 MHz	1 427-1 452 MHz	Mobile	–72 dBW in the 27 MHz of the EESS (passive) band for IMT base stations –62 dBW in the 27 MHz of the EESS (passive) band for IMT mobile stations^{2, 3}
23.6-24.0 GHz	22.55-23.55 GHz	Inter-satellite	–36 dBW in any 200 MHz of the EESS (passive) band for non-GSO inter-satellite service (ISS) systems for which complete advance publication information (API) is received by BR before 1 January 2020, and –46 dBW in any 200 MHz of the EESS (passive) band for non-GSO ISS systems for which complete API is received by BR on or after 1 January 2020
	24.25-27.5 GHz	Mobile	–33 dBW^a in any 200 MHz of the EESS (passive) band for IMT base stations⁵ –29 dBW^b in any 200 MHz of the EESS (passive) band for IMT mobile stations⁵
31.3-31.5 GHz	31-31.3 GHz	Fixed (excluding HAPS)	For stations brought into use after 1 January 2012: –38 dBW in any 100 MHz of the EESS (passive) band. This limit does not apply to stations that have been authorized prior to 1 January 2012
50.2-50.4 GHz	49.7-50.2 GHz	Fixed-satellite (E-to-s) ⁴	For GSO earth stations brought into use after the date of entry into force of the Final Acts of WRC-07 and prior to 1 January 2024: –10 dBW into the 200 MHz of the EESS (passive) band for earth stations having an antenna gain greater than or equal to 57 dBi –20 dBW into the 200 MHz of the EESS (passive) band for earth stations having an antenna gain less than 57 dBi For GSO earth stations with antenna gain greater than or equal to 57 dBi brought into use on or after 1 January 2024: –25 dBW into the 200 MHz of the EESS (passive) band for earth stations having an elevation angle below 80° –45 dBW into the 200 MHz of the EESS (passive) band for earth stations having an elevation angle equal or above 80° For GSO earth stations with antenna gain less than 57 dBi brought into use on or after 1 January 2024: –30 dBW into the 200 MHz of the EESS (passive) band for earth stations having an elevation angle below 80° –45 dBW into the 200 MHz of the EESS (passive) band for earth stations having an elevation angle equal or above 80°

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EESS (passive) frequency band	Active service frequency band	Active service	Limits of unwanted emission power from active service stations in a specified bandwidth within the EESS (passive) frequency band ¹
			For non-GSO earth stations brought into use after the date of entry into force of the Final Acts of WRC-07 and before the date of entry into force of the Final Acts of WRC-19: –10 dBW into the 200 MHz of the EESS (passive) band for earth stations having an antenna gain greater than or equal to 57 dBi –20 dBW into the 200 MHz of the EESS (passive) band for earth stations having an antenna gain less than 57 dBi For non-GSO earth stations brought into use after the date of entry into force of the Final Acts of WRC-19⁶: –42 dBW into the 200 MHz of the EESS (passive) band for earth stations not employing uplink power control –42 dBW into the 200 MHz of the EESS (passive) band at zenith increasing to a maximum level of –35 dBW into the 200 MHz of the EESS (passive) band at a minimum elevation angle of 15° for earth stations employing uplink power control
50.2-50.4 GHz	50.4-50.9 GHz	Fixed-satellite (E-to-s) ⁴	For GSO earth stations brought into use after the date of entry into force of the Final Acts of WRC-07 and prior to 1 January 2024: –10 dBW into the 200 MHz of the EESS (passive) band for earth stations having an antenna gain greater than or equal to 57 dBi –20 dBW into the 200 MHz of the EESS (passive) band for earth stations having an antenna gain less than 57 dBi For GSO earth stations with antenna gain greater than or equal to 57 dBi brought into use on or after 1 January 2024: –25 dBW into the 200 MHz of the EESS (passive) band for earth stations having an elevation angle below 80° –45 dBW into the 200 MHz of the EESS (passive) band for earth stations having an elevation angle equal or above 80° For GSO earth stations with antenna gain less than 57 dBi brought into use on or after 1 January 2024: –30 dBW into the 200 MHz of the EESS (passive) band for earth stations having an elevation angle below 80° –45 dBW into the 200 MHz of the EESS (passive) band for earth stations having an elevation angle equal or above 80°
			For non-GSO earth stations brought into use after the date of entry into force of the Final Acts of WRC-07 and before the date of entry into force of the Final Acts of WRC-19:

EESS (passive) frequency band	Active service frequency band	Active service	Limits of unwanted emission power from active service stations in a specified bandwidth within the EESS (passive) frequency band ¹
			–10 dBW into the 200 MHz of the EESS (passive) band for earth stations having an antenna gain greater than or equal to 57 dBi –20 dBW into the 200 MHz of the EESS (passive) band for earth stations having an antenna gain less than 57 dBi For non-GSO earth stations brought into use after the date of entry into force of the Final Acts of WRC-19⁶: –42 dBW into the 200 MHz of the EESS (passive) band for earth stations not employing uplink power control –42 dBW into the 200 MHz of the EESS (passive) band at zenith increasing to a maximum level of –35 dBW into the 200 MHz of the EESS (passive) band at a minimum elevation angle of 15° for earth stations employing uplink power control
52.6-54.25 GHz	51.4-52.4 GHz	Fixed-satellite (E-to-s) ⁴	For earth stations operating in GSO FSS networks, in order to protect non-GSO EESS (passive) space stations: –37 dBW in any 100 MHz of the EESS (passive) band for FSS earth stations with elevation angles lower than 75° –52 dBW in any 100 MHz of the EESS (passive) band for FSS earth stations with elevation angles equal to or higher than 75° For earth stations operating with a GSO FSS space station whose nominal geocentric orbital separation Δ is equal to or smaller than 2.5° from any GSO EESS (passive) space station from the time of its notification in accordance with No. 11.44 with nominal orbital positions: 0°, 9.5° E, 76° E, 79° E, 99.5° E, 105° E, 123.5° E, 133° E, 165.8° E, 14.5° W and 137.2° W: –84 + 200 Δ dBW for $0^\circ \leq \Delta < 0.1^\circ$ –67 + 22.8 Δ dBW for $0.1^\circ \leq \Delta < 0.5^\circ$ –61 + 11.3 Δ dBW for $0.5^\circ \leq \Delta < 1.9^\circ$ –47 + 4 Δ dBW for $1.9^\circ \leq \Delta \leq 2.5^\circ$ in any 100 MHz of the EESS (passive) band
52.6-54.25 GHz	51.4-52.6 GHz	Fixed	For stations brought into use after the date of entry into force of the Final Acts of WRC-07: –33 dBW in any 100 MHz of the EESS (passive) band
<u>86-92 GHz</u>	<u>81-86 GHz</u>	<u>Fixed-satellite (E-to-s)</u>	<u>–39.2 – 16.3(f – 86) dBW/100 MHz for 86.05 ≤ f < 87 GHz</u> <u>–59 dBW/100 MHz for 87 ≤ f ≤ 91.95 GHz</u>
<u>86-92 GHz</u>	<u>81-86 GHz</u>	<u>Mobile service (RSTT applications)</u>	<u>–54 dBW in any 100 MHz of the EESS (passive) band</u>

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EESS (passive) frequency band	Active service frequency band	Active service	Limits of unwanted emission power from active service stations in a specified bandwidth within the EESS (passive) frequency band ¹
<u>86-92 GHz</u>	<u>81-86 GHz</u>	<u>Radiolocation service (FOD applications)</u>	<u>-42 dBW in any 100 MHz of the EESS (passive) band</u>

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Notes to Table 1:

- ¹ The unwanted emission power level is to be understood here as the level measured at the antenna port, unless it is specified in terms of total radiated power (TRP).
- ² This limit does not apply to mobile stations in the IMT systems for which the notification information has been received by BR by 28 November 2015. For those systems, -60 dBW/27 MHz applies as the recommended value.
- ³ The unwanted emission power level is to be understood here as the level measured with the mobile station transmitting at an average output power of 15 dBm.
- ⁴ The limits apply under clear-sky conditions. During fading conditions, the limits may be exceeded by earth stations when using uplink power control.
- ⁵ The unwanted emission power level is considered in terms of TRP. The TRP is to be understood here as the integral of the power transmitted from all antenna elements in different directions over the entire radiation sphere.
 - ^a A limit of -39 dB(W/200 MHz) will apply to IMT base stations brought into use after 1 September 2027. This limit will not apply to IMT base stations which have been brought into use prior to this date. For those IMT base stations, the limit of -33 dB(W/200 MHz) will continue to apply after this date.
 - ^b A limit of -35 dB(W/200 MHz) will apply to IMT mobile stations brought into use after 1 September 2027. This limit will not apply to IMT mobile stations which have been brought into use prior to this date. For those IMT mobile stations, the limit of -29 dB(W/200 MHz) will continue to apply after this date.
- ⁶ Compliance with these limits may include the consideration of additional mitigation techniques, which require further studies by ITU-R.

TABLE 2

EESS (passive) frequency band	Active service frequency band	Active service	Recommended maximum level of unwanted emission power from active service stations in a specified bandwidth within the EESS (passive) frequency band ¹
1 400-1 427 MHz	1 350-1 400 MHz	Radiolocation ²	–29 dBW in the 27 MHz of the EESS (passive) band
		Fixed	–45 dBW in the 27 MHz of the EESS (passive) band for point-to-point
		Mobile	–60 dBW in the 27 MHz of the EESS (passive) band for mobile-service stations except transportable radio-relay stations –45 dBW in the 27 MHz of the EESS (passive) band for transportable radio-relay stations
	1 427-1 429 MHz	Space operation (E-to-s)	–36 dBW in the 27 MHz of the EESS (passive) band
	1 427-1 429 MHz	Mobile except aeronautical mobile	–60 dBW in the 27 MHz of the EESS (passive) band for mobile-service stations except IMT stations and transportable radio-relay stations ³ –45 dBW in the 27 MHz of the EESS (passive) band for transportable radio-relay stations
		Fixed	–45 dBW in the 27 MHz of the EESS (passive) band for point-to-point
	1 429-1 452 MHz	Mobile	–60 dBW in the 27 MHz of the EESS (passive) band for mobile-service stations except IMT stations, transportable radio-relay stations and aeronautical telemetry stations –45 dBW in the 27 MHz of the EESS (passive) band for transportable radio-relay stations –28 dBW in the 27 MHz of the EESS (passive) band for aeronautical telemetry stations ³
		Fixed	–45 dBW in the 27 MHz of the EESS (passive) band for point-to-point
31.3-31.5 GHz	30.0-31.0 GHz	Fixed-satellite (E-to-s) ⁴	–9 dBW into the 200 MHz of the EESS (passive) band for earth stations having an antenna gain greater than or equal to 56 dBi –20 dBW into the 200 MHz of the EESS (passive) band for earth stations having an antenna gain less than 56 dBi
86-92 GHz ⁵	81-86 GHz	Fixed	–41 – 14(f – 86) dBW/100 MHz for 86.05 ≤ f ≤ 87 GHz –55 dBW/100 MHz for 87 ≤ f ≤ 91.95 GHz where f is the centre frequency of the 100 MHz reference bandwidth expressed in GHz
	92-94 GHz	Fixed	–41 – 14(92 – f) dBW/100 MHz for 91 ≤ f ≤ 91.95 GHz –55 dBW/100 MHz for 86.05 ≤ f ≤ 91 GHz where f is the centre frequency of the 100 MHz reference bandwidth expressed in GHz

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114.25-116 GHz	111.8-114.25 GHz	Fixed	-30.4 – 14(f – 114.25) dBW/100 MHz for 114.3 ≤ f ≤ 115.25 GHz -44.4 dBW/100 MHz for 115.25 ≤ f ≤ 116 GHz
164-167 GHz	158.5-164 GHz	Fixed	-28.1 – 14(f – 164) dBW/100 MHz for 164.05 ≤ f ≤ 165 GHz -42.1 dBW/100 MHz for 165 ≤ f ≤ 166.95 GHz
164-167 GHz	167-174.5 GHz	Fixed	-42.1dBW/100 MHz for 164.05 ≤ f ≤ 166 GHz -28.1 – 14(167 – f) dBW/100 MHz for 166 ≤ f ≤ 166.95 GHz

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Notes to Table 2:

- ¹ The unwanted emission power level is to be understood here as the level measured at the antenna port.
- ² The mean power is to be understood here as the total power measured at the antenna port (or an equivalent thereof) in the frequency band 1 400-1 427 MHz, averaged over a period of the order of 5 s.
- ³ The frequency band 1 429-1 435 MHz is also allocated to the aeronautical mobile service in eight Region 1 administrations on a primary basis exclusively for the purposes of aeronautical telemetry within their national territory (No. **5.342**).
- ⁴ The recommended maximum levels apply under clear-sky conditions. During fading conditions, these levels may be exceeded by earth stations when using uplink power control.
- ⁵ Other maximum unwanted emission levels may be developed based on different scenarios provided in Report ITU-R F.2239 for the frequency band 86-92 GHz.

6.

7. **Reasons:** To introduce the relevant unwanted emissions limits in Resolution **750 (WRC-27)**.

7.

8. **SUP** USA/1.18/9

RESOLUTION 712 (WRC-23)

Studies on compatibility between the Earth exploration-satellite service (passive), the radio astronomy service in certain bands above 76 GHz, and active services in adjacent and nearby frequency bands

Reasons: Consequential action.

9. **NOC** USA/1.18/10

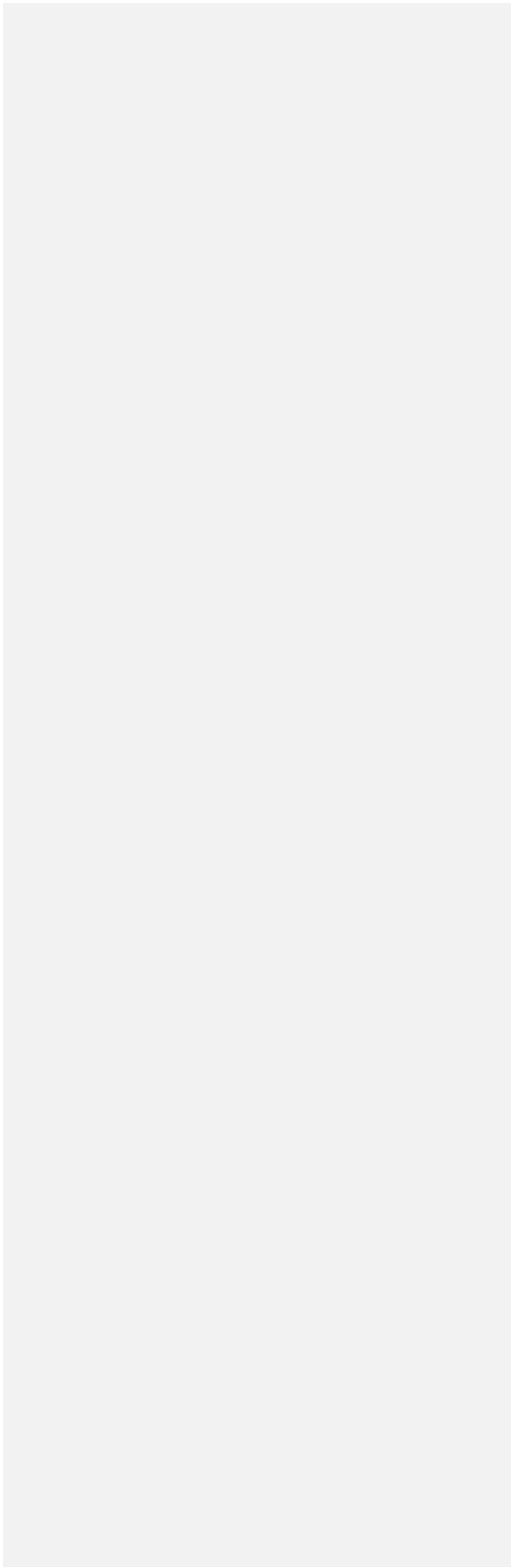
RESOLUTION 731 (REV.WRC-23)

Consideration of sharing and adjacent-band compatibility between passive and active services above 71 GHz

The World Radiocommunication Conference (Dubai, 2023),

Reasons: Modifications to Resolution 731 are outside the scope of this agenda item. Taking account the principle of burden sharing, this Resolution offers the opportunity to enhance spectrum efficiency through active and passive service sharing.

WAC_27_061



UNITED STATES OF AMERICA

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

AGENDA ITEM 9.2: *[to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the ITU Convention:] on any difficulties or inconsistencies encountered in the application of the Radio Regulations; . . .*

BACKGROUND

Resolves 5 of Resolution 609 (Rev.WRC-07) establishes that “... no single RNSS system shall be permitted to use up the entire interference allowance specified in resolves 1 above in any 1 MHz of the 1 164-1 215 MHz band (see Recommendation 608 (Rev.WRC-07))” *Recommends 1 of Recommendation 608 (Rev.WRC-07) states that “... in the implementation of resolves 5 of Resolution 609 (Rev.WRC-07), in the frequency band 1 164-1 215 MHz, the maximum pfd produced at the surface of the Earth by emissions from a space station in the RNSS, for all angles of arrival, should not exceed –129 dB(W/m²) in any 1 MHz band under free space propagation conditions[.]”*

The maximum pfd level from Recommendation 608 is not mandatory and is not a pfd limit. It is one way for administrations operating RNSS systems in the 1 164-1 215 MHz band to meet their obligation not to have any single RNSS system use up the entire interference allowance for all RNSS systems in this band under the epfd limit put into place in *resolves 1 of Resolution 609 and No. 21.18 of the Radio Regulations* for the protection of co-frequency aeronautical radionavigation service systems. This was the clear intention of WRC-03 (which initially adopted both Resolution 609 and Recommendation 608), and the maximum pfd value has been considered to be an important, but non-mandatory, element during the Resolution 609 (Rev.WRC-07) Consultation Meetings ever since.

The Radiocommunication Bureau issued Circular Letter [CR/521](#) on 15 August 2025, containing a reminder for administrations of their obligation to participate in Resolution 609 (Rev.WRC-07) consultation meetings and clarifications on the compliance with the power-flux density (pfd) level in the *recommends 1 of the Recommendation 608 (Rev.WRC-07)*. Several questions regarding this Circular Letter were raised to the Bureau with respect to technical and regulatory examination of satellite network/systems containing the radionavigation-satellite service (RNSS) frequency assignments in the frequency band 1 164-1 215 MHz.

It turns out that when WRC-03 adopted Resolution 609 and Recommendation 608, it also made a revision to Appendix 4 with respect to the latter. It adopted a new section, **A.17**, in Appendix 4, Annex 2 entitled “COMPLIANCE WITH POWER FLUX-DENSITY (pfd) LIMITS” and created data item **A.17.a**, which calls for:

“a commitment of compliance with per-satellite power flux-density level produced at the Earth’s surface of –129 dB(W/(m² · MHz)) in any 1 MHz band under free space propagation conditions

Required only for satellite systems operating in the radionavigation-satellite service in the frequency band 1 164-1 215 MHz[.]”

In other words, WRC-03 apparently, and unintentionally, converted the non-mandatory recommended maximum per-satellite pfd level of Recommendation 608 (Rev.WRC-07) into a mandatory data item requiring a commitment from administrations. This was not something envisioned or desired in the establishment of Resolution 609 and Recommendation 608.

Prior to the issuance of Circular Letter CR/521, the Bureau did not appear to attach any regulatory significance to data item **A.17.a** from Appendix 4. Now, following Circular Letter CR/521, the Bureau has determined that if any mandatory data item of RR Appendix 4 including the commitment mentioned above is absent, the submission of the satellite system or network will then be considered as incomplete under RR No. **9.40A** or No. **11.27** and a formal date of receipt will not be established until the missing information is received. In this case, the formal date of receipt will be the date of receipt of the missing information. See Document 4C/567 from the Bureau to Working Party 4C in April 2026. The Bureau was clear in Document 4C/567 that “an exceedance of this pfd level computed from the technical characteristics provided in the filing does not lead to unfavourable findings under RR No. **9.35** or No. **11.31**.” See Document 4C/567, at p. 3.

In Document 4C/567, the Bureau expressed its intention to include in the Director’s Report a statement on the inconsistency between the requirement to provide a commitment to comply with the per-satellite pfd level under data item **A.17.a** of RR Appendix 4 and the non-mandatory nature of compliance with the same pfd level as set out in Recommendation **608 (Rev.WRC-07)**. [This discussion is included in Section **X.Y.Z** of the Director’s Report.]

As the recommended maximum per-satellite pfd level in Recommendation **608 (Rev.WRC-07)** is not a pfd limit (despite the title of Section **A.17** of Appendix 4), and should not be subject to any kind of commitment from filing administrations independent of the obligations in Resolution **609 (Rev.WRC-07)**, the United States brings the following proposal to resolve this inconsistency by immediately suppressing current data item **A.17.a** from Appendix 4. This corrects a mistake regarding the treatment of the non-mandatory recommended maximum per-satellite pfd level in Recommendation **608 (Rev.WRC-07)** and rectifies the inconsistency.

Proposal:

MOD USA/9.2/1

ANNEX 2

Characteristics of satellite networks, earth stations
or radio astronomy stations² (Rev.WRC-12)

Table of characteristics to be submitted for space and radio astronomy services
(Rev.WRC-12)

TABLE A

GENERAL CHARACTERISTICS OF THE SATELLITE NETWORK OR SYSTEM,
EARTH STATION OR RADIO ASTRONOMY STATION (Rev.WRC-27)

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GENERAL CHARACTERISTICS OF THE SATELLITE NETWORK OR SYSTEM, EARTH STATION OR RADIO ASTRONOMY STATION	
DENSITY (pdf) LIMITS	

Advance publication of a geostationary-satellite network	Advance publication of a non-geostationary-satellite network or system not subject to coordination under Section II of Article 9	Notification or coordination of a geostationary-satellite network including space operation functions under Article 2A of Appendices 30 or 30A	Notification or coordination of a non-geostationary-satellite network or system	Notification or coordination of an earth station (including notification under Appendices 30A or 30B)	Notice for a satellite network in the broadcasting-satellite service under Appendix 30 (Articles 4 and 5)	Notice for a satellite network (feeder-link) under Appendix 30A (Articles 4 and 5)	Notice for a satellite network in the fixed-satellite service under Appendix 30B (Articles 6 and 8) or for Appendix 30B ESM in accordance with Resolution 121 (WRC-25)	Items in Appendix
								A.17

Deleted: A.17.a

Deleted: a commitment of compliance with per-satellite power flux-density level produced at the Earth's surface of $-129 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ in any 1 MHz band under free space propagation conditions¶
Required only for satellite systems operating in the radionavigation-satellite service in the frequency band 1 164-1 215 MHz

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Reasons: Corrects an inconsistency between Appendix 4 and Resolution 609 (Rev.WRC-07)/Recommendation 608 (Rev.WRC-07) by removing a data item that should not have been included in Appendix 4. Changing data item to “not used” avoids the need to renumber subsequent data items in Section A.17.

² The Radiocommunication Bureau shall develop and keep up-to-date forms of notice to meet fully the statutory provisions of this Appendix and related decisions of future conferences. Additional information on the items listed in this Annex together with an explanation of the symbols is to be found in the Preface to the BR IFIC (Space Services). (WRC-12)

UNITED STATES OF AMERICA

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 10

Discontinuation of agenda item 2.11 on the preliminary WRC-27 and the suppression of corresponding Resolution 685 (WRC-23)**Background:**

Preliminary WRC-27 agenda item 2.11 considers studies towards frequency allocations for the Earth exploration-satellite service (space-to-Earth) within the frequency range [37.5-52.4 GHz]. EESS (space-to-Earth) currently operates in the 37.5-40.5 GHz frequency band on a secondary basis. As a consequence to decisions made at WRC-19, the 37-43.5 GHz, 45.5-47 and 47.2-48.8 GHz bands were identified for IMT. Portions of these bands were identified for high-altitude platform stations (HAPS) under the fixed service. Finally, WRC-19 also updated the regulatory framework for non-GSO FSS satellite systems. It is worth noting that WRC-27 is also considering the use of aeronautical and maritime earth stations in motion in portions of this frequency range, as well as non-GSO FSS use of the 51.4-52.4 GHz frequency band. Because elevating EESS (space-to-Earth) from secondary to primary status would not provide any additional operational or regulatory benefit, as incumbent primary services would still require protection, pursuing this agenda item would be an inefficient use of ITU and Member State time and resources. Given the importance of these terrestrial and satellite systems, the United States proposes to discontinue consideration of preliminary WRC-27 agenda item 2.11 as follows:

Proposals

10. SUP USA/10 (EESS Q/V)/1

RESOLUTION 814 (WRC-23)

Preliminary agenda for the 2031 World Radiocommunication Conference*

8. **Reasons:** This Resolution must be suppressed, as WRC-27 will create a new Resolution that will include the agenda for WRC-27, and the United States proposes that *resolves* 2.11 from Resolution 814 (WRC-27) not be on that agenda.

11. SUP USA/10 (EESS Q/V)/2

RESOLUTION 685 (WRC-23)

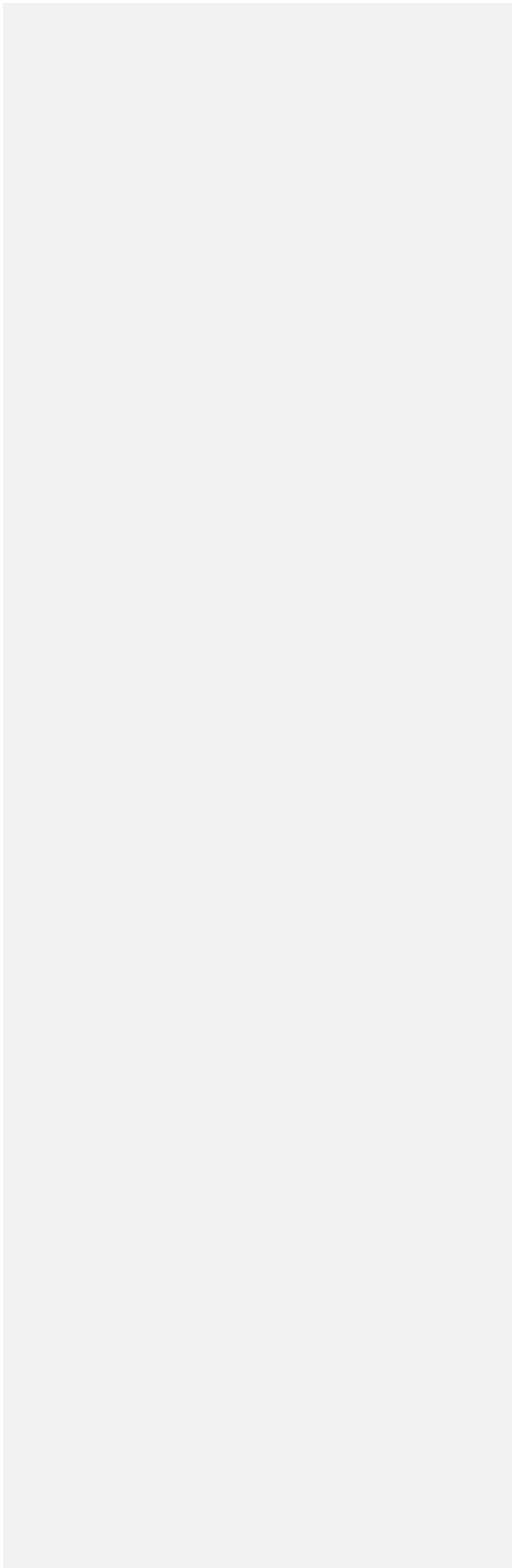
9. **Studies towards frequency allocations for the Earth exploration-satellite service**

10. (space-to-Earth) within the frequency range [37.5-52.4 GHz]*

11.

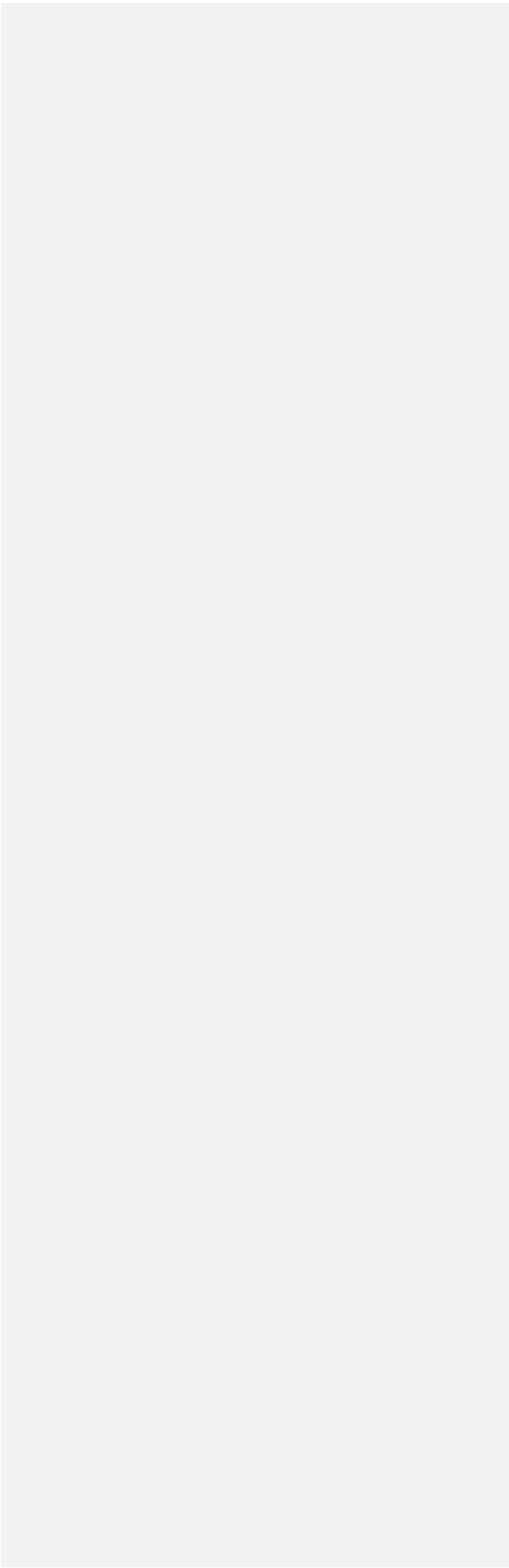
12. **Reasons:**Consequential to non-inclusion of *resolves* 2.11 from the preliminary WRC-31 agenda.

13. _____



WAC_27_063

Attachment B





UNITED STATES DEPARTMENT OF
COMMERCE
National Telecommunications and Information
Administration Washington, D.C. 20230

July 16, 2026

Mr. Tom Sullivan
Chief, Office of International Affairs
Federal Communications
Commission 45 L Street NE
Washington, DC 20554

Dear Mr. Sullivan,

The National Telecommunications and Information Administration (NTIA), on behalf of the Executive Branch agencies, provides for your consideration the attached WRC-27 proposals for WRC-27 Agenda Items:

- 1.1** on Aeronautical and Maritime ESIMs at 50 GHz (**Res 176 (Rev.WRC-23)**),
- 1.6** on Equitable access for FSS access in 30/40/50 GHz (**Res 131 (WRC-23)**),
- 1.7 (15 GHz)** on Terrestrial Mid-Band IMT (**Res 256 (WRC-23)**),
- 1.8** on Radiolocation above 231.5 GHz (**Res 663 (Rev.WRC-23)**),
- 1.9** on Appendix 26 aeronautical HF modernization (**Res 411 (WRC-23)**),
- 1.17** on Space Weather (**Res 682 (WRC-23)**),
- 1.18 (Issue A)** on Protection of EESS and RAS above 76 GHz (**Res 712 (WRC-23)**), and
- 1.18 (Issue B)** on Protection of EESS and RAS above 76 GHz (**Res 712 (WRC-23)**)

These documents are attached to this letter below.

NTIA looks forward to working with the FCC and reconciling these proposals as necessary for submission to CITEL PCC.II as U.S. contributions to the meeting. Our point of contact is Dr. Brian Patten, NTIA's chair of the Radio Conference Subcommittee of the IRAC, who can be reached at (202) 617-0483 or bpatten@ntia.gov.

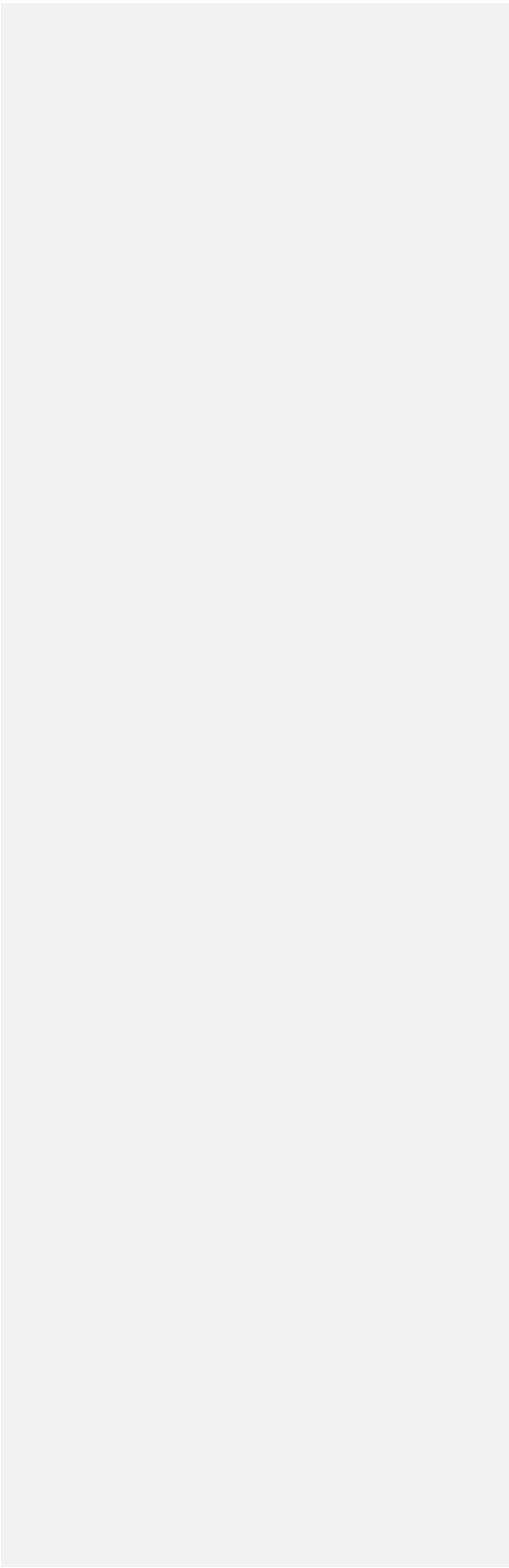
Sincerely,

/s/ Derek Khlopin

Derek Khlopin
Deputy Associate Administrator
Office of Spectrum Management

WAC_27_050

Attachments



UNITED STATES OF AMERICA

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 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)**;

BACKGROUND

WRC-23 agreed to WRC-27 Agenda Item 1.1 that considers 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. Agenda Item 1.1 was developed 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. As called for in Resolution **176 (Rev.WRC-23)**, the work must ensure protection of existing FSS applications as well as ensure protection of other radio services with primary allocations in bands 47.2-50.2 GHz and 50.4-51.4 GHz and in adjacent frequency bands.

ITU-R studies have been conducted in response to Agenda Item 1.1 and provided mixed results regarding protection of in-band and adjacent band radio services. No studies have addressed the need for additional spectrum for operation of maritime and aeronautical ESIMs as called for in *resolves* 1 of Resolution **176 (Rev.WRC-23)**.

Additionally, multiple studies to consider sharing and compatibility with primary services as called for in *resolves* 2 of Resolution **176 (Rev. WRC-23)** were also not completed. For the preliminary studies that were completed, there are several characteristics of ESIM systems that were not provided by operators (deployments, duty cycle, tracking strategies, and more) and therefore assumptions had to be made to conduct preliminary studies. Thus, there is not a full understanding of the impact that ESIMs may have on incumbent services. This status does not demonstrate a need or significant interest in the regulatory changes sought under Agenda Item 1.1.

PROPOSAL

The United States proposes No Change (NOC) for WRC-27 Agenda Item 1.1 for the Radio Regulations Articles and Appendices, and proposes suppression of Resolution **176 (Rev.WRC-23)** since it is no longer required.

NOC **USA/4546A1/1**

ARTICLES

Reasons: Taking into account the lack of a demonstrated need for ESIM operations, and the lack of complete sharing and compatibility studies, the United States supports protection of existing FSS applications and other incumbent radio services rather than expanding the FSS allocations to allow operation of ESIMS.

NOC **USA/4546A1/2**

APPENDICES

Reasons: Taking into account the lack of a demonstrated need for ESIM operations, and the lack of complete sharing and compatibility studies, the United States supports protection of existing FSS applications and other incumbent radio services rather than expanding the FSS allocations to allow operation of ESIMS.

SUP **USA/4546A1/3**

RESOLUTION 176 (REV.WRC-23)

**Studies on the use of the frequency bands 47.2-50.2 GHz (Earth-to-space)
and 50.4-51.4 GHz (Earth-to-space), or parts thereof, by aeronautical
and maritime earth stations in motion in the fixed-satellite service**

The World Radiocommunication Conference (Dubai, 2023),

Reasons: Work is complete on Agenda Item 1.1, therefore Resolution **176 (Rev. WRC-23)** is no longer required.

UNITED STATES OF AMERICA
DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

AGENDA ITEM 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)**;

BACKGROUND:

Articles **12** and **44** of the ITU Constitution lay down the basic principles for the use of the radio-frequency spectrum, including that of GSO satellite networks and non-GSO satellite systems. Article **44** specifically states that:

“In using frequency bands for radio services, Member States shall bear in mind that radio frequencies and any associated orbits, including the geostationary-satellite orbit, are limited natural resources and that they must be used rationally, efficiently and economically, in conformity with the provisions of the Radio Regulations (RR), so that countries or groups of countries may have equitable access to those orbits and frequencies, taking into account the special needs of the developing countries and the geographical situation of particular countries.”

The purpose of this agenda item was to study the technical and regulatory measures for FSS 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), or portions thereof, for equitable access, while ensuring the protection of existing primary services to which the band is allocated in the same and adjacent bands, taking into account the specific needs of developing countries:

- without adversely affecting those services, specifically the operation of the satellite networks and systems in the bands,
- without changing measures to protect terrestrial services from unacceptable interference,

It is recognized that the “first-come, first-served” concept in RR Articles **9** and **11** could result in difficulties for future access to limited spectrum and orbital resources for later filed systems and that this in particular could, under certain circumstances, lead to a relative disadvantage for developing countries in coordination negotiations due to reasons such as a lack of resources and expertise. It is noted that in the portions of the 4/6/10/11/12/13/14/17/20/30 GHz frequency bands allocated to the fixed-satellite service which are subject to the “first-come, first-served” concept in RR Articles **9** and **11**, there are already a large number of GSO satellite networks and non-GSO satellite systems recorded in the ITU databases. Consequently, due to this congestion, successful coordination and introduction of satellite networks or systems in these frequency bands is complex and may be difficult to achieve. Resolution **131 (WRC-23)** invites WRC-27 to review the results of studies and take appropriate action on the usage of 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 by FSS satellite networks/systems.

It should be noted that it was recognized that a priori planning for satellite networks, as was done in the RR Appendices **30**, **30A**, and **30B** in the C- and Ku-bands, resulted in undesired consequences such as a lack of flexibility to adapt to new technologies, and that lessons learned should be taken into account in the consideration of 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.

PROPOSAL:

The United States supports no change (NOC) for this agenda item and the suppression of Resolution **131(WRC-23)**.

The frequency bands under agenda item 1.6 are in the early stages of global deployment and do not show the congestion that motivated the a priori plans in Appendices **30**, **30A**, and **30B**. These Q/V frequency band ranges are marked by rapid technological evolution, including flexible payloads, dynamic beamforming, and advanced interference-mitigation techniques, all of which would be constrained by any form of predetermined allotment or planning mechanism. Introducing planning at this stage risks locking the bands in a configuration that may not reflect future technical or operational realities. In line with studies conducted under Resolution **131 (WRC-23)**, no viable alternative regulatory approach has been identified that would improve equitable access without undermining the rational, efficient, and economical use of orbital and spectrum resources.

The understanding of administrations supporting the “no change” method is that the “first come first served” or “FCFS” concept in RR Articles **9** and **11** is a mechanism designed to preserve equal opportunity for all administrations by applying a uniform, time-based priority system. In practice, FCFS has contributed to the efficient use of geostationary orbit and spectrum resources by providing a predictable, transparent framework for processing filings. Proposals to alter this framework for the frequency bands subject to Resolution **131 (WRC-23)** would undermine how all administrations rationally, efficiently, and economically use the orbital/spectrum resources available to FSS/BSS networks and systems – hallmarks of both Article **44** of the ITU Constitution and the cooperative structure of the Radio Regulations. Although it may be difficult to find a geostationary orbital slot with a low coordination burden in orbital locations that are in most demand, often due to coverage of densely populated regions, this reflects robust and efficient use of the geostationary orbit/spectrum resource rather than a flawed system. Further, modifications to the existing framework risk unintended consequences to incumbent in-band and adjacent-band services, such as the radio astronomy service operating on a co-primary basis with FSS (E-s) in the 42.5-43.5 GHz range. Networks continue to be successfully coordinated and brought into use in congested locations and bands, demonstrating the resilience and effectiveness of the coordination process – hallmarks of both Article **44** of the ITU Constitution and the cooperative structure of the Radio Regulations.



PLENARY MEETING

**Addendum 6 to
Document 4616-E
23 June 2026
Original: English**

United States of America

Proposals for the work of the conference

Agenda item 1.6

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)**;

PROPOSAL:

The United States supports no change (NOC) for this agenda item and the suppression of Resolution **131(WRC-23)**.

NOC USA/4616A6/1

ARTICLES

Reasons: It was recognized that a priori planning for satellite networks, as was done in the RR Appendices **30**, **30A**, and **30B** in the C- and Ku-bands, resulted in undesired consequences such as a lack of flexibility to adapt to new technologies, and that lessons learned should be taken into account in the consideration of 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

NOC USA/4616A6/2

APPENDICES

Reasons: It was recognized that a priori planning for satellite networks, as was done in the RR Appendices **30**, **30A**, and **30B** in the C- and Ku-bands, resulted in undesired consequences such

as a lack of flexibility to adapt to new technologies, and that lessons learned should be taken into account in the consideration of 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

SUP USA/4616A6/3

- RESOLUTION 131 (WRC-23)

Consideration of 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

The World Radiocommunication Conference (Dubai, 2023),

Reasons: The work under this Resolution has been completed, therefore the Resolution can be suppressed.

(A) UNITED STATES OF AMERICA

(B) DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

AGENDA ITEM 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, 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);*

Part 3 – Frequency Band 14.8 – 15.35 GHz

BACKGROUND INFORMATION:

WRC-27 agenda item 1.7 focuses on the identification of additional frequency bands for the terrestrial component of International Mobile Telecommunications (IMT), as outlined in Resolution 256 (WRC-23). The agenda item calls for studies addressing technical, operational, and regulatory considerations in the frequency bands 4 400-4 800 MHz, or parts thereof, in Region 1 and Region 3; 7 125-8 400 MHz, or parts thereof, in Region 2 and Region 3; 7 125-7 250 MHz and 7 750-8 400 MHz, or parts thereof, in Region 1; 14.8-15.35 GHz. These studies aim to support the growing demand for IMT, particularly in the context of IMT-2030, which emphasizes ultra-low latency and high-data-rate applications.

IMT-2030 requires harmonized spectrum allocations to enable global roaming and economies of scale. As the demand for IMT services grows, contiguous spectrum blocks become essential for supporting emerging applications. The studies would also evaluate sharing and compatibility to ensure IMT's deployment does not interfere with existing primary services, including those in international waters and airspace, and to protect adjacent bands without adding regulatory burdens.

At WRC-27, based on the results of study, the identification of all or parts of these frequency bands will be considered in different regions. The goal is to address the growing IMT needs while ensuring compatibility with existing services, fostering technological advances, and supporting developing countries.

PROPOSAL

14.8-15.35 GHz

NOC **USA/4592A7/1**

ARTICLES

Reasons: Based on the results of the studies, which indicate that very large separation distances (up to 450 km) would be required between terrestrial IMT systems and the incumbent services, the United States proposes No Change (NOC) to Article 5 of the ITU Radio Regulations for this frequency band.

NOC **USA/4592A7/2**

APPENDICES

Reasons: With no additional allocations, there is no need for modification of the Appendices.

SUP **USA/4592A7/3**

RESOLUTIONS 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

Reasons: The work under Resolution **256 (WRC-23)** is complete.

NOC **USA/4592A7/4**

RECOMMENDATIONS

Reasons: With no additional allocations, there is no need for modification of the Recommendations.

**UNITED STATES OF AMERICA
DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE**

***Agenda item 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);*

BACKGROUND:

This agenda item considers possible primary radiolocation service (RLS) allocations in the frequency range 231.5 – 275 GHz and possible identifications for RLS systems and applications in the frequency range 275 – 700 GHz for imaging (including material analysis) and localization. It should be noted that frequencies above 275 GHz are not allocated to any radiocommunication service in the Radio Regulations, and active and/or passive service applications can only be ‘identified’ via footnote (see also RR Nos. 5.564A and 5.565).

The 231.5-275 GHz frequency range includes several bands that are allocated to different radio services, particularly for RLS in different categories, with the 238-248 GHz band on a primary basis and the 231.5-235 GHz band on a secondary basis, while the 235-238 GHz and 248-275 GHz frequency bands are currently not allocated to the RLS.

In addition, the 231.5 – 275 GHz and 275 – 700 GHz frequency ranges are also allocated and/or identified to several services including the Earth exploration-satellite service (EESS) (passive), radio astronomy service (RAS), space research service (SRS) (passive), fixed and mobile service and the amateur and amateur-satellite service. In this regard, it should be noted that RR No. 5.340 applies in the frequency range 250-252 GHz, prohibiting all emissions in this frequency range.

On the other hand, it is important to mention that there is interest in having a harmonized spectrum globally for radiolocation service systems and applications, especially in the 231.5-320 GHz range, because of low atmospheric absorption. Some of the applications mentioned in Resolution 663 (Rev.WRC-23) are ranging, imaging (including material analysis) and localization, which are designed in two main configurations active (radars) and receive-only (radiometers). The scope of the agenda item covers scientific, governmental, public safety and near-range ITS applications. A globally harmonized spectrum framework for these millimetric and sub-millimetric wave RLS systems and applications is highly desirable for achieving economies of scale.

The studies carried out in the ITU-R so far indicated that the two most suitable bands for the RLS applications are 252-296 GHz and 356-439 GHz.

Proposals:

The United States proposes to allocate the frequency range 252-275 GHz in all three ITU-R Regions on a primary basis to the RLS and identify the frequency ranges 275-296 GHz and 356-

WAC_27_050

439 GHz in all three ITU-R Regions for use by applications of the RLS. In order to maintain the protection of existing services, unwanted emission limits are proposed for the RLS stations through new footnotes and modifications of Resolution **750 (Rev.WRC-19)**.

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations
(See No. 2.1)

MOD USA/4611A8/1

241-3 000 GHz

Allocation to services		
Region 1	Region 2	Region 3
252-265	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIOLOCATION ADD 5.A18-A ADD 5.A18-B RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554	
265-275	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149 5.563A	
275-3 000	(Not allocated) 5.564A 5.565 ADD 5.A18-C ADD 5.A18-D	

Reasons: To allocate the frequency range 252-275 GHz on a primary basis and identify the frequency ranges 275-296 GHz and 356-439 GHz for use by applications of the RLS. Studies have shown that these two frequency ranges are suitable with certain conditions.

ADD USA/4611A8/2

5.A18-A The use of the frequency bands 252-265 GHz by stations of the radiolocation service shall be subject to Resolution **750 (Rev.WRC-27)**. (WRC-27)

Reasons: To provide the pointer to the mandatory unwanted emission limit in the Resolution 750.

ADD USA/4611A8/3

5.A18-B To protect radio astronomy service stations operating in the frequency band 252-265 GHz, the pfd level resulting from transmissions of radiolocation stations operating in 252-265 GHz shall not exceed -216dB(W/(m² · Hz)) at the radio astronomy station. (WRC-27)

Reasons: To provide protection for radio astronomy systems operating on a primary basis in the 252-265 GHz band from new RLS allocations. These levels will also serve to protect RAS systems operating in the adjacent 250-252 GHz band.

ADD USA/4611A8/4

5.A18-C The frequency bands 275-296 GHz and 356-439 GHz are identified for use by administrations for the implementation of radiolocation service applications. The usage of those frequency bands by applications of the radiolocation service does not preclude use by, and does not establish priority over, any other applications of radio services in the range of 275-450 GHz. Unwanted emissions from the RLS stations into the band 296-356 GHz shall not exceed the following limits:

- -60 dBW/200 MHz for vehicular radars;
- -37 dBW/200 MHz for other radars. (WRC-27)

Reasons: To identify the frequency bands 275-296 GHz and 356-439 GHz for RLS while ensuring protection of EESS (passive).

ADD USA/4611A8/5

5.A18-D To protect radio astronomy service stations operating in the frequency band designated by footnote **5.565** in the ranges 275-296 GHz and 356-439 GHz, the pfd level resulting from transmissions of radiolocation stations operating in these bands shall not exceed the following limits at the radio astronomy station:

- 1) -216dB(W/(m² · Hz)) in 275-296 GHz
- 2) -213dB(W/(m² · Hz)) in 356-371 GHz
- 3) -208dB(W/(m² · Hz)) in 388-424 GHz
- 4) -207dB(W/(m² · Hz)) in 426-439 GHz.

Reasons: To provide protection for radio astronomy systems operating in the 275-296 GHz and 356-439 GHz identified in footnote 5.565 for RAS operation from new RLS allocations.

MOD USA/4611A8/6

RESOLUTION 750 (REV.WRC-27)

**Compatibility between the Earth exploration-satellite service (passive)
and relevant active services**

The World Radiocommunication Conference ([Shanghai, 2027](#)),

considering

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f) that long-term protection of the EESS in the frequency bands 23.6-24 GHz, 31.3-31.5 GHz, 50.2-50.4 GHz, 52.6-54.25 GHz, 86-92 GHz, and 250-252 GHz is vital to weather prediction and disaster management, and measurements at several frequencies must be made simultaneously in order to isolate and retrieve each individual contribution;

g) that, in many cases, the frequency bands adjacent to or nearby passive service frequency bands are used and will continue to be used for various active service applications;

h) that it is necessary to ensure equitable burden-sharing for achieving compatibility between active and passive services operating in adjacent or nearby frequency bands,

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TABLE 1

EESS (passive) frequency band	Active service frequency band	Active service	Limits of unwanted emission power from active service stations in a specified bandwidth within the EESS (passive) frequency band ¹
...	...	...	...
250-252 GHz	252-265 GHz	Radiolocation	-34* dBW into the 200 MHz of the EESS (passive)

Notes to Table 1:

...

* [The unwanted emissions power density from any station operating in the Radiolocation service delivered by its transmitter to its antenna.](#)

Reasons: To add a mandatory unwanted emission limit to protect adjacent band EESS (passive) service.

SUP **USA/4611A8/7**

RESOLUTION 663 (REV.WRC-23)

Studies on possible new additional 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

The World Radiocommunication Conference (Dubai, 2023),

Reasons:
Consequential action to suppress Res.633 after the agenda item is satisfied.

FOR AGENDA

RCS 2982/2

- UNITED STATES OF AMERICA

DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

AGENDA ITEM 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);*

Proposal:

The attached is a proposed revision to the existing DIAP (to which the US is an author and signatory) based on the outcome of ITU-R Working Party 5B. The proposed revisions are shown in track changes (USA2) and highlighted in turquoise.



PLENARY MEETING

**ANNEX to document
CITEL/GT/CMR-27/doc.
309/26
10 April 2026
Original: English**

Member States of the Inter-American Telecommunication Commission (CITEL)

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 1.9

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);

BACKGROUND:

Source: United States 6454

The High Frequency (HF) band has been identified as an effective alternative to provide much-needed integrated and interoperable Beyond-Line-of-Sight (BLOS) communications capabilities. HF is also a critical and affordable option when other communications services are unavailable due to natural disasters or other national emergencies. The challenge with meeting the growing requirement for modern HF is the need for increased bandwidth. These bandwidth needs would be required to achieve higher data rates and improved voice quality communications while not impeding the legacy frequency needs of incumbent users, groups, or countries. Appendix 26 of the ITU Radio Regulations currently limits Aeronautical Mobile (OR) Service (AM(OR)S) to a maximum bandwidth of 2.8 kHz.

There are modern wideband HF (WBHF) technologies available that enable the flexibility to use wider channel bandwidths within advanced digital HF. This includes enhanced applications that can support a shared environment while also maximizing spectrum efficiency. Current wideband technology and methodologies are available that automate the optimization of the Radio Frequency (RF) environment while preventing any harmful interference to existing users in, or adjacent to, a desired HF frequency range.

WRC-23 through Resolution 411 (WRC-23) resolves to invite the Radiocommunication Sector to review Appendix 26 of the Radio Regulations and consider necessary changes, as appropriate, to Appendix 26, on the basis of studies without modifying the existing area allotments, and while taking into account that the current use of the narrowband systems shall remain unchanged and shall not be impacted nor precluded by the revision of Appendix 26.

Source: United States 6454

MOD DIAP/1.9/1

APPENDIX 26 (REV.WRC-27)

Provisions and associated Frequency Allotment Plan for the aeronautical mobile (OR) service in the bands allocated exclusively to that service between 3 025 kHz and 18 030 kHz

Reasons: The asterisk is no longer relevant.

MOD USA/1.9/2

26/2.2 Allotment in the aeronautical mobile (OR) service

A frequency allotment in the aeronautical mobile (OR) service which comprises:

- a frequency channel from the channels appearing in the channelling arrangement in No. 26/3²;
- an occupied bandwidth of up to 2.8 kHz, situated wholly within the frequency channel concerned;
- a power within the limits laid down in No. 26/4.4 or specified against the allotted frequency channel;
- an allotment area which is the area in which the aeronautical station can be situated, and which coincides with all or part of the territory of the country, or of the geographical area, as indicated against the frequency channel concerned in the Frequency Allotment Plan. (WRC-27)

Reasons: Added footnote to indicate that channels may now be aggregated with this update. The word occupied added to be consistent with other provisions in Appendix 26.

[USA note: The US proposes to delete this modification from this proposal and retain the existing language contained in 26/3.5. Therefore there is no need for text modification.]

MOD USA/1.9/3

26/3.6 The channelling arrangement specified in No. 26/3.1 does not prejudice the rights of administrations to establish, and to notify assignments to stations in the aeronautical mobile (OR) service other than those using radiotelephony, provided that:

- for single channel or non-contiguous aggregation, the occupied bandwidth does not exceed 2 800 Hz and is situated wholly within one frequency channel;
- for contiguous aggregation, wider occupied bandwidths can be implemented using currently allotted frequency channels;
- the limits of unwanted emission are met (see No. 26/4.6). (WRC-27)

² The channels appearing in No. 26/3 may be aggregated to provide wideband communication and shall be established in accordance with No. 26/3.7 (WRC-27)

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26/3.5 The aeronautical radiotelephone stations shall use only single-sideband emissions (J(2,3,7,9)E). The upper sideband shall be employed, and the assigned frequency (see No. 1.148) shall be 1 400 Hz higher than the carrier (reference) frequency.⁴

Reasons: Updated emission designators consistent with modification to 26/4.2. This aligns with updates to Appendix 27 made at WRC-23.⁴

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Reasons: Adding language to specify aggregation of channels. Additionally, this proposal adds provision 26/4.6 to include the unwanted emissions in this Appendix. Therefore the reference has been updated.

ADD USA/1.9/4

26/3.7 Individual non-contiguous or contiguous channels complying with the provisions of the Plan³ contained in this Appendix may be aggregated to provide wideband communication without changing the Plan of individual channels. Any aggregation of channels shall be situated wholly within the respective frequency arrangements listed in Part III. (WRC-27)

Reasons: This provision specifies how to implement aggregation of channels without modification to the channel Plan. The footnote specifies the specific technical provisions that need to be followed in order to comply.

MOD USA/1.9/5

26/4.2 Telephony – single-sideband suppressed carrier

– J(2,3,7,9)E (WRC-27)

Reasons: Update emission designators to be consistent with updates to Appendix 27 made at WRC-23.

MOD USA/1.9/6

26/4.3 Telegraphy and data transmission

– A1A, A1B, F1B;

– (A,H)2(A,B);

– (R,J)2(A,B,D);

– J(7,9)(B,D,X);

– D(1,2)D;

– G1D. (WRC-27)

Reasons: Update emission designators to be consistent with updates to Appendix 27 made at WRC-23 as well as adding a new emission designator that implements modern modulation techniques.

MOD USA/1.9/7

Class of emission	Power limit values (peak envelope power supplied to the antenna)	
	Aeronautical station	Aircraft station
J(2,3,7,9)E	36 dBW (PX)	23 dBW (PX)
A1A, A1B	30 dBW (PX)	17 dBW (PX)

³ The provisions related to the carrier and assigned frequencies (Nos. 26/3.1, 26/3.5 and 26/3.6), class of emission (Nos. 26/4.2 and 26/4.3), power limits (Nos. 26/4.4 and 26/4.5), out-of-band spectrum mask (No. 26/4.6) and the compatibility (Part IV). (WRC-27)

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F1B	30 dBW (PX)	17 dBW (PX)	26/4.4
A2A, A2B	32 dBW (PX)	19 dBW (PX)	
H2A, H2B	33 dBW (PX)	20 dBW (PX)	
(R,J)2(A,B,D)	36 dBW (PX)	23 dBW (PX)	
J(7,9)(B,D,X)	36 dBW (PX)	23 dBW (PX)	
D(1,2)D	36 dBW (PX)	23 dBW (PX)	
G1D	36 dBW (PX)	23 dBW (PX)	

Unless otherwise specified in Part III of this Appendix, the following transmitter power limits (i.e. power supplied to the antenna) shall be applied:

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WRC-27

Reasons: Update emission designators to be consistent with updates to Appendix 27 made at WRC-23 as well as adding a new emission designator that implements modern modulation techniques.

ADD USA/1.9/8

26/4.6 Tolerance for levels of emission outside the necessary bandwidth

Aircraft station and aeronautical station transmitters shall comply with the following minimum attenuation below peak envelope power:

Frequency separation Δ (kHz) ^{Note 1}	Minimum attenuation below peak envelope power (PX) (dB)
$1.5 < \Delta < 4.5$	30
$4.5 < \Delta < 7.5$	38
$7.5 \leq \Delta$	Aircraft stations: 43 Aeronautical stations: Note 2

Note 1: The frequency separation Δ is defined as follows:

- for single channel or individual channels in non-contiguous aggregation this is the frequency separation from the assigned frequency;
- for emissions in contiguous aggregation this is the frequency separation from the centre of the first and the last individual channels.

Note 2: For transmitter power up to and including 50 W: $43 + 10 \log_{10} (P_X) (W)$. For transmitter powers more than 50 W, the attenuation shall be at least 60 dB. (WRC-27)

Reasons: This new provision takes the emission mask from Appendix 27 that is previously referenced in 26/3.6 and moves it here to remove reference to another Appendix. Additionally, note 1 was added to the frequency separation to indicate how this emission mask is to be applied to aggregated channels.

ADD USA/1.9/9

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26/7.bis. The procedures in Nos. 26/7.1, 26/7.2, and 26/7.3 above do not apply to wide-band channels formed by aggregation of individual channels pursuant to 26/3.7. (WRC-27)

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Reasons: This provision has been included because provisions 26/7.1 through 26/7.3 pertain to requesting allotments and renouncing allotments, therefore applying these existing provisions to wide-band channels would allow for altering the allotment plan which would be outside of the scope of Resolution 411 (WRC-23).

SUP DIAP/1.9/10

RESOLUTION 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

Reasons: The work for this agenda item has been completed.

UNITED STATES OF AMERICA
DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

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AGENDA ITEM 1.17: *To consider the regulatory provisions (and possible assignments to the meteorological aids service on a primary bases) for receive-only space weather sensors and their protection in the Radio Regulations, taking into account the results of the ITU Radiocommunication Sector studies, in accordance with **Resolution 682 (WRC 23)**.*

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BACKGROUND:

Space weather events can cause harm to important sectors of national economies, security and human welfare. As such, space weather data is important, and regulatory protection is needed for space weather observation systems, including receive-only sensors that measure low-level emissions from sources such as the Sun, the Earth's atmosphere and other celestial bodies. Article **29B** and Resolution **675 (WRC-23)** defines space weather and designates space weather sensors to the meteorological aids service in the subset meteorological aids service (MetAids) (space weather). However, no notification of frequency assignments to a station used for space weather observation be made by administrations under MetAids (space weather) until WRC-27 introduces the corresponding allocations in Article **5**. Resolution **682 (WRC-23)** calls for studies on system characteristics, spectrum needs, and appropriate protection criteria for receive-only space weather sensors. Additionally, it calls for sharing and compatibility studies of receive-only sensors for potential new primary allocations to MetAids (space weather) in six specific frequency bands (27.5-28.0 MHz, 29.7-30.2 MHz, 32.2-32.6 MHz, 37.5-38.325 MHz, 73.0-74.6 MHz and 608-614 MHz) without claiming protection from, or constraining the future development of, incumbent services in these or adjacent frequency bands. Lastly, it calls for studies on possible regulatory provisions to accommodate the notifications of receive-only space weather sensor stations for inclusion in the Master International Frequency Register (MIFR).

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The importance of space weather radiocommunication applications has been emphasized by several international bodies, including the World Meteorological Organization (WMO), the Intergovernmental Panel on Climate Change (IPCC), the United Nations Office for Disaster Risk Reduction (UNDRR), the International Civil Aviation Organization (ICAO), the United Nations Office for Outer Space Affairs (UNOOSA). Furthermore, Resolution **136** (Rev. Bucharest, 2022) of the Plenipotentiary Conference underscores the important role of telecommunications and information technologies in monitoring, early warning, prevention and mitigation of emergency and disaster situations.

In carrying out the studies under WRC-27 agenda item 1.17, it is important to recognize that while space weather data products are used for forecasts and warnings related to public safety, the provisions of No. **1.59** and **4.10** do not apply. Additionally, it is important to recognize that the current provisions of Article **11** do not allow an administration to notify a frequency assignment to a receive-only terrestrial radio station, except for certain types of station (see **11.2**, **11.9** and **11.12**). Therefore, the procedure for notifying receive-only MetAids (space weather) stations currently does not exist. Furthermore, some receive-only space weather sensors in operation utilize bands not currently allocated to the MetAids service, and some of these sensors need to continue their current operation. Lastly, the studies under this agenda item consider receive-only space weather sensors with the understanding that they will be deployed only at a limited number of specific locations and not in a ubiquitous manner.

Report ITU-R RS.2456 provides information on radio spectrum-reliant sensors and systems that are operating in support of space weather monitoring, prediction and warnings. Additionally, there are ongoing efforts within ITU-R to determine the spectrum requirements and protection criteria of receive-only space weather sensors.

As stated in Resolution **682 (WRC-23)**, any new allocations to MetAids (space weather) shall not claim protection from, or constrain the future development of, incumbent services in the frequency bands considered in the Resolution, or in adjacent bands.

For the 608 – 614 MHz band, there are a number of allocations, among those include the broadcasting service on a primary basis in Regions 1 and 3 and in the adjacent bands in Region 2. Furthermore, this band is also allocated to the mobile service on a primary basis in Region 3 and on a secondary basis in Europe. In the adjacent bands, among other allocations, the mobile service is allocated on a primary basis, including IMT identifications in several countries across all three ITU Regions.

The United States recognizes that space weather phenomena pose a significant threat to ground-based and space-based critical infrastructure, modern technological systems, and humans working in space. The United States supports the consideration of new primary allocations to MetAids (space weather) in the six specified frequency bands and the associated regulatory provisions for ground-based, receive-only space weather sensors in the Radio Regulations, taking into account the results of the studies under Resolution **682 (WRC-23)**. Any allocations to MetAids (space weather) made at WRC-27 shall not claim protection from or constrain the future development of incumbent services in the specified frequency bands or in adjacent bands.

PROPOSAL

The United States proposes new primary allocations to the meteorological aids service (space weather) allocations in the 27.5-28.0 MHz, 29.7-30.2 MHz, 32.2-32.6 MHz, 37.5-38.325 MHz, 73.0-74.6 MHz, and 608-614 MHz frequency bands. It also proposes new footnotes in the Table of Frequency Allocations of RR Article 5 stipulating that stations operating in the meteorological aids service (space weather) allocations are limited to ground-based receive-only sensors, and shall not claim protection from, nor constrain the future development of, incumbent services in these frequency bands or in adjacent bands.

The United States also proposes modifications to RR Article 11 to allow an administration to notify a frequency assignment to a receive-only station operating in the meteorological aids service (space weather) allocations, and modifications to Annex 1 of RR Appendix 4 to facilitate including characteristics of stations operating in the meteorological aids service (space weather) in the MIFR.

Finally, Resolution **682 (WRC-23)** would be consequentially suppressed.



PLENARY MEETING

**Addendum 17 to
Document 4526-E
27 April 2026
Original: English**

United States of America

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 1.17

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)**;

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations
(See No. 2.1)

MOD

27.5-40.98 MHz

Allocation to services		
Region 1	Region 2	Region 3
27.5-28	METEOROLOGICAL AIDS METEOROLOGICAL AIDS (space weather) <u>ADD 5.A117 ADD 5.B117</u> FIXED MOBILE	
28-29.7	AMATEUR AMATEUR-SATELLITE	
29.7-30.005	METEOROLOGICAL AIDS (space weather) <u>ADD 5.A117 ADD 5.C117</u> FIXED MOBILE	
30.005-30.01	METEOROLOGICAL AIDS (space weather) <u>ADD 5.A117 ADD 5.D117</u> SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH	
30.01-30.2	METEOROLOGICAL AIDS (space weather) <u>ADD 5.A117 ADD 5.E117</u> FIXED MOBILE	
30.2-32.2	FIXED MOBILE	
32.2-32.6	METEOROLOGICAL AIDS (space weather) <u>ADD 5.A117 ADD 5.F117</u> FIXED MOBILE	
32.6-37.5	FIXED MOBILE	
37.5-38.25	METEOROLOGICAL AIDS (space weather) <u>ADD 5.A117 ADD 5.G117</u> FIXED MOBILE Radio astronomy 5.149	

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38.25-38.325 METEOROLOGICAL AIDS (space weather) ADD 5.A117 ADD 5.H117 FIXED MOBILE	38.25-38.325 METEOROLOGICAL AIDS (space weather) ADD 5.A117 ADD 5.H117 FIXED MOBILE	38.25-38.325 METEOROLOGICAL AIDS (space weather) ADD 5.A117 ADD 5.H117 FIXED MOBILE
38.325-39 FIXED MOBILE	38.325-39.986 FIXED MOBILE	38.325-39.5 FIXED MOBILE
39-39.5 FIXED MOBILE Radiolocation 5.132A 5.159		
39.5-39.986 FIXED MOBILE		39.5-39.986 FIXED MOBILE RADIOLOCATION 5.132A
39.986-40 FIXED MOBILE Space research		39.986-40 FIXED MOBILE RADIOLOCATION 5.132A Space research
40-40.02 FIXED MOBILE Earth exploration-satellite (active) 5.159A Space research		40-40.02 FIXED MOBILE Earth exploration-satellite (active) 5.159A Space research
40.02-40.98	FIXED MOBILE Earth exploration-satellite (active) 5.159A 5.150	

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Reasons: To add new primary frequency allocations to the meteorological aids service for space weather sensors with appropriate footnotes.

ADD

5.A117 The use of frequency bands 27.5-28.0 MHz, 29.7-30.2 MHz, 32.2-32.6 MHz, 37.5-38.325 MHz, 73.0-74.6 MHz and 608-614 MHz by the meteorological aids service (space weather) is limited to ground-based receive-only space weather sensors.

Reasons: To add new primary meteorological aids service (space weather) allocations in the Table of Frequency Allocation in accordance with RR No. **29B.1**, and to limit the use of these allocations to ground-based receive-only space weather sensors in accordance with Resolution 682 (WRC-23).

ADD

5.B117 Stations operating in the meteorological aids service (space weather) in the frequency band 27.5-28 MHz shall not claim protection from, nor constrain the future development of, stations of other applications of the meteorological aids service, fixed and mobile services allocated on a primary basis in this frequency

band or fixed, mobile except aeronautical mobile, amateur and amateur-satellite services allocated on a primary basis in adjacent bands.

Reasons: To add new primary meteorological aids service (space weather) allocations without claiming protection from, nor constraining the future developments of, incumbent services in this frequency band or in adjacent bands, in accordance with Resolution 682 (WRC-23).

ADD

5.C117 Stations operating in the meteorological aids service (space weather) in the frequency band 29.7-30.005 MHz shall not claim protection from, nor constrain the future development of, fixed and mobile services allocated on a primary basis in this frequency band, or fixed, mobile, amateur, amateur-satellite, space operation and space research services allocated on a primary basis in adjacent bands.

Reasons: To add new primary meteorological aids service allocations without claiming protection from, nor constraining the future developments of, incumbent services in this frequency band or in adjacent bands, in accordance with Resolution 682 (WRC-23).

ADD

5.D117 Stations operating in the meteorological aids service (space weather) in the frequency band 30.005-30.01 MHz shall not claim protection from, nor constrain the future development of fixed, mobile, space operation and space research services allocated on a primary basis in this frequency band, or fixed and mobile services allocated on a primary basis in adjacent bands.

Reasons: To add new primary meteorological aids service allocations without claiming protection from, nor constraining the future developments of, incumbent services in this frequency band or in adjacent bands, in accordance with Resolution 682 (WRC-23).

ADD

5.E117 Stations operating in the meteorological aids service (space weather) in the frequency band 30.01-30.2 MHz shall not claim protection from, nor constrain the future development of, fixed and mobile services allocated on a primary basis in this frequency band, or fixed, mobile, space operation and space research services allocated on a primary basis in adjacent bands.

Reasons: To add new primary meteorological aids service allocations without claiming protection from, nor constraining the future developments of, incumbent services in this frequency band or in adjacent bands, in accordance with Resolution 682 (WRC-23).

ADD

5.F117 Stations operating in the meteorological aids service (space weather) in the frequency band 32.2-32.6 MHz shall not claim protection from, nor constrain the future development of, fixed and mobile services allocated on a primary basis in this frequency band or in adjacent frequency bands

Reasons: To add new primary meteorological aids service allocations without claiming protection from, nor constraining the future developments of, incumbent services in this frequency band or in adjacent bands, in accordance with Resolution 682 (WRC-23).

ADD

5.G117 Stations operating in the meteorological aids service (space weather) in the frequency band 37.5-38.25 MHz shall not claim protection from, nor constrain the future development of, fixed and mobile services allocated on a primary basis in this frequency band, or fixed, mobile except aeronautical mobile, aeronautical radionavigation and broadcasting services allocated on a primary basis in adjacent bands.

Reasons: To add new primary meteorological aids service allocations without claiming protection from, nor constraining the future developments of, incumbent services in this frequency band or in adjacent bands, in accordance with Resolution 682 (WRC-23).

ADD

5.H117 Stations operating in the meteorological aids service (space weather) in the frequency band 38.25-38.325 MHz shall not claim protection from, nor constrain the future development of, fixed and mobile services allocated on a primary basis in this frequency band or in adjacent frequency bands.

Reasons: To add new primary meteorological aids service allocations without claiming protection from, nor constraining the future developments of, incumbent services in this frequency band or in adjacent bands, in accordance with Resolution 682 (WRC-23).

MOD

47-75.2 MHz

Allocation to services		
Region 1	Region 2	Region 3
47-50 BROADCASTING Earth exploration-satellite (active) 5.159A 5.162A 5.163 5.164 5.165	47-50 FIXED MOBILE Earth exploration-satellite (active) 5.159A	47-50 FIXED MOBILE BROADCASTING Earth exploration-satellite (active) 5.159A 5.162A
50-52 BROADCASTING Amateur 5.166B 5.166C 5.166D 5.166E 5.169B 5.162A 5.164 5.165 5.166A 5.169 5.169A	50-54 AMATEUR 5.162A 5.167 5.167A 5.168 5.170	
52-68 BROADCASTING 5.162A 5.163 5.164 5.165 5.169 5.169A 5.169B 5.171	54-68 BROADCASTING Fixed Mobile 5.172	54-68 FIXED MOBILE BROADCASTING 5.162A
68-73 FIXED MOBILE except aeronautical mobile 5.175	68-72 BROADCASTING Fixed Mobile 5.173 72-73 FIXED MOBILE	68-73 FIXED MOBILE 5.176

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73-74.6 METEOROLOGICAL AIDS (space weather) ADD 5.A117 ADD 5.I117 FIXED MOBILE except aeronautical mobile -5.149 5.177 ▾	73-74.6 METEOROLOGICAL AIDS (space weather) ADD 5.A117 ADD 5.J117 RADIO ASTRONOMY -5.178 -	73-74.6 METEOROLOGICAL AIDS (space weather) ADD 5.A117 ADD 5.K117 FIXED MOBILE 5.149 5.176 ▾
74.6-74.8 FIXED MOBILE except aeronautical mobile 5.179	74.6-74.8 FIXED MOBILE	74.6-74.8 FIXED MOBILE 5.179
74.8-75.2	AERONAUTICAL RADIONAVIGATION 5.180 5.181	

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Reasons: To add new primary frequency allocations to the meteorological aids service for space weather sensors with appropriate footnotes.

ADD

5.I117 In Region 1, stations operating in the meteorological aids service (space weather) in the frequency band 73-74.6 MHz shall not claim protection from, nor constrain the future development of, fixed, mobile except aeronautical mobile and broadcasting services allocated on a primary basis in this frequency band or fixed, mobile except aeronautical mobile, aeronautical radionavigation and broadcasting services allocated on a primary basis in adjacent bands.

Reasons: To add new primary meteorological aids service (space weather) allocations without claiming protection from, nor constraining the future developments of, incumbent services in this frequency band or in adjacent bands, in accordance with Resolution 682 (WRC-23).

ADD

5.J117 In Region 2, stations operating in the meteorological aids service (space weather) in the frequency band 73-74.6 MHz shall not claim protection from, nor constrain the future development of, fixed and mobile services allocated on a primary basis in adjacent frequency bands.

Reasons: To add new primary meteorological aids service (space weather) allocations without claiming protection from, nor constraining the future developments of, incumbent services in this frequency band or in adjacent bands, in accordance with Resolution 682 (WRC-23).

ADD

5.K117 In Region 3, stations operating in the meteorological aids service (space weather) in the frequency band 73-74.6 MHz shall not claim protection from, nor constrain the future development of, fixed, mobile and broadcasting services allocated on a primary basis in this frequency band or fixed, mobile, aeronautical radionavigation and broadcasting services allocated on a primary basis in adjacent bands.

Reasons: To add new primary meteorological aids service (space weather) allocations without claiming protection from, nor constraining the future developments of, incumbent services in this frequency band or in adjacent bands, in accordance with Resolution 682 (WRC-23).

MOD

460-890 MHz

Allocation to services		
Region 1	Region 2	Region 3
460-470	FIXED MOBILE 5.286AA 5.287 5.288 Meteorological-satellite (space-to-Earth) 5.290 5.289	
470- 608	470-512 BROADCASTING Fixed Mobile 5.292 5.293 5.295	470-585 FIXED MOBILE 5.296A BROADCASTING
	512-608 BROADCASTING	5.291 5.298
		585-608 FIXED MOBILE 5.296A BROADCASTING RADIONAVIGATION 5.305
5.291A 5.294 5.295A 5.296 5.300 5.304	5.295 5.297	
608-614 METEOROLOGICAL AIDS (space weather) ADD 5.A117 ADD 5.L117 BROADCASTING	608-614 METEOROLOGICAL AIDS (space weather) ADD 5.A117 ADD 5.M117 RADIO ASTRONOMY Mobile-satellite except aeronautical mobile-satellite (Earth-to-space)	608-610 METEOROLOGICAL AIDS (space weather) ADD 5.A117 ADD 5.N117 FIXED MOBILE 5.296A BROADCASTING RADIONAVIGATION 5.149 5.305 5.306 5.307
		610-614 METEOROLOGICAL AIDS (space weather) ADD 5.A117 ADD 5.N117 FIXED MOBILE 5.296A BROADCASTING 5.149 5.305 5.306 5.307
5.295A 5.296 5.300 5.304		
614-694 BROADCASTING	614-698 BROADCASTING Fixed 5.309 Mobile 5.308 5.293 5.308A	614-890 FIXED MOBILE 5.296A 5.313A 5.314A 5.317A BROADCASTING
5.295A 5.296 5.300 5.307A 5.307B 5.312		

Deleted: 694

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Deleted: 5.149

Deleted: 5.306 5.307B 5.312

Deleted: 5.313A 5.314A 5.317A

Deleted: 5.320

Deleted: 470

Deleted: 610

Deleted: 5.149 5.291A 5.294

Deleted: 5.304 5.306

694-790 MOBILE except aeronautical mobile 5.312A 5.312B 5.317A BROADCASTING 5.300 5.312	698-806 MOBILE 5.312B 5.317A BROADCASTING Fixed 5.309 5.293
790-862 FIXED MOBILE except aeronautical mobile 5.312B 5.316B 5.317A BROADCASTING 5.312 5.319	806-890 FIXED MOBILE 5.312B 5.317A BROADCASTING
862-890 FIXED MOBILE except aeronautical mobile 5.312B 5.317A BROADCASTING 5.322 5.319 5.323	 5.317 5.318
	5.320

Deleted: 5.149 5.305 5.306 5.307

Reasons: To add new primary frequency allocations to the meteorological aids service for space weather sensors with appropriate footnotes.

ADD

5.L117 In Region 1, stations operating in the meteorological aids service (space weather) in the frequency band 608-614 MHz shall not claim protection from, nor constrain the future development of, broadcasting service allocated on a primary basis in the same and broadcasting and mobile except aeronautical mobile services allocated on a primary basis in adjacent bands.

Reasons: To add new primary meteorological aids service allocations without claiming protection from, nor constraining the future developments of, incumbent services in this frequency band or in adjacent bands, in accordance with Resolution 682 (WRC-23).

ADD

5.M117In Region 2, stations operating in the meteorological aids service (space weather) in the frequency band 608-614 MHz shall not claim protection from, nor constrain the future development of, broadcasting, fixed and mobile services allocated on a primary basis in adjacent frequency bands.

Reasons: To add new primary meteorological aids service allocations without claiming protection from, nor constraining the future developments of, incumbent services in this frequency band or in adjacent bands, in accordance with Resolution 682 (WRC-23).

ADD

5.N117 In Region 3, stations operating in the meteorological aids service (space weather) in the frequency bands 608-614 MHz shall not claim protection from, nor constrain the future development of, fixed, mobile, broadcasting and radionavigation services allocated on a primary basis in this frequency band and in adjacent bands.

Reasons: To add new primary meteorological aids service allocations without claiming protection from, nor constraining the future developments of, incumbent services in this frequency band or in adjacent bands, in accordance with Resolution 682 (WRC-23).

ARTICLE 11

Notification and recording of frequency assignments^{1, 2, 3, 4, 5, 6, 7} (WRC-19)

Section I – Notification

ADD

11.12bis Any frequency to be used by a particular receive-only meteorological aids land station operating in the meteorological aids (space weather) allocations may be notified if it is desired that such data be included in the Master Register.

Reasons: Revision of Article 11 is required to allow for the registration in the MIFR of a receive-only meteorological aids land station operating in the meteorological aids (space weather) allocations in the MIFR.

Section II – Examination of notices and recording of frequency assignments in the Master Register

MOD

11.31 a) with respect to its conformity with the Table of Frequency Allocations¹² and the other provisions¹³ of these Regulations, except those relating to conformity with the procedures for obtaining coordination or the probability of harmful interference, or those relating to conformity with a plan, as appropriate, which are the subject of the following sub-paragraphs;^{MOD14}

Reasons:

MOD

¹⁴ **11.31.3** Notices relating to radio astronomy stations and receive-only meteorological aids land stations operating in the meteorological aids (space weather) allocations are examined with respect to No. 11.31 only.

Reasons: RR Nos. 11.32 to 11.34 are not applicable to receive-only meteorological aids land station operating in the meteorological aids (space weather) allocations, due to the nature of such stations.

APPENDIX 4 (REV.WRC-23)

Consolidated list and tables of characteristics for use in the application of the procedures of Chapter III

ANNEX 1

Characteristics of stations in the terrestrial services¹

¹ The Radiocommunication Bureau shall develop and keep up-to-date forms of notice to meet fully the statutory provisions of this Appendix and related decisions of future conferences. Additional information on

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Footnotes to Tables 1 and 2

the items listed in this Annex together with an explanation of the symbols is to be found in the Preface to the BR IFIC (Terrestrial Services).

MOD

TABLE 1 (Rev.WRC-23)

Characteristics for terrestrial services

Column No.	Item identifier	Notice related to Description of data items and requirements
1		GENERAL INFORMATION AND FREQUENCY CHARACTERISTICS
1.1	B	the symbol of the notifying administration (see the Preface)
1.2	D	the provision code of the Radio Regulations under which the notice has been submitted
1.3	E	the resubmission indicator In the case of a VHF/UHF broadcasting station, or a typical transmitting station, required for an assignment subject to the GE06 Regional Agreement if the notice is resubmitted in the application of Article 11 In the case of a transmitting station, or a receiving land station, required for an assignment subject to the GE06 Regional Agreement or Nos. 9.16, 9.18 or 9.19 if the notice is resubmitted in the application of Article 11
1.4		Assignment and allotment identification information
1.4.1	SYNC	the identification symbols for the synchronized, or single-frequency, network In the case of a VHF/UHF broadcasting station, required for a digital broadcasting assignment in a synchronized or single frequency network subject to the GE06 Regional Agreement In the case of an LF/MF broadcasting station, required for an assignment in a synchronized or single frequency network
1.4.2	ID1	the unique identification code given by the administration to the assignment or allotment Required for assignments subject to the GE06 Regional Agreement, and optional for assignments not subject to this Agreement
1.4.3		For assignments in the bands and services governed by the GE06 Regional Agreement only:
1.4.3.1	ID2	the unique identification code given by the administration for the associated allotment Required for a digital broadcasting assignment linked to an allotment, or converted from an allotment, within the GE06 Plan
1.4.3.2	ID3	the unique identification code given by the administration to the digital broadcasting Plan entry for which § 5.1.3 of the GE06 Agreement is to be applied Required if the notified assignment is to be operated under the mask of a digital broadcasting Plan entry in accordance with § 5.1.3 of the GE06 Regional Agreement
1.4.3.3	DEC	the digital broadcasting plan entry code that identifies the category of Plan entry to which the assignment belongs
1.4.3.4	DAC	the digital broadcasting assignment code

Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21	Receiveserve-only space weather stations, for the application of No. 11.12bis	Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
X	X	X	X	X	X	X	X	B
X	X	X	X	X	X	X	X	D
+		+	+		+			E
+	+							SYNC
+	O	+	+		+	O		ID1
+								ID2
+		+	+					ID3
X								DEC
X								DAC

Column No.	Item identifier	Notice related to Description of data items and requirements
1.5		Frequency information
1.5.1	1A	the assigned frequency, as defined in Article 1 In the case of a transmitting station, required for all services, except adaptive systems in the fixed or mobile service operating in the bands between 300 kHz and 28 MHz (see also Resolution 729 (Rev.WRC-07)) In the case of an HF broadcasting station under Article 12, required if neither the preferred band nor reference frequency is provided
1.5.2	1B	the reference frequency, as defined in Article 1 Required if the modulation envelope is asymmetric
1.5.3	1G	the alternative frequency
1.5.4	1X	the channel number of the proposed or allotted channel Required for submissions in accordance with Nos. 25/1.1.1, 25/1.1.2 or 25/1.25 of Appendix 25 if the assistance of the Bureau is not requested under No. 25/1.3.1 of Appendix 25
1.5.5	1Y	the channel number of the alternative proposed channel
1.5.6	1Z	the channel number of the channel to be replaced Required if the administration needs to replace its existing allotted channel
1.5.7	1AA	the lower limit of the usable frequency range within which the carrier and the bandwidth of the emission will be located Required for adaptive systems in the fixed or mobile service operating in the bands between 300 kHz and 28 MHz (see also Resolution 729 (Rev.WRC-07))
1.5.8	1AB	the upper limit of the usable frequency range within which the carrier and the bandwidth of the emission will be located Required for adaptive systems in the fixed or mobile service operating in the bands between 300 kHz and 28 MHz (see also Resolution 729 (Rev.WRC-07))
1.5.9	1C	the preferred band, in MHz In the case of maritime mobile frequency allotment, required if the assistance of the Bureau is requested under No. 25/1.3.1 of Appendix 25 In the case of an HF broadcasting station under Article 12, required for notices if assistance is requested in accordance with No. 7.6
1.5.10		For digital broadcasting (except assignments subject to § 5.1.3 of the GE06 Regional Agreement):
1.5.10.1	1EO	the frequency offset, in kHz Required if the centre frequency of the emission is offset from the assigned frequency

Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21	Receiveserve-only space weather stations, for the application of No. 11.12bis	Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
X	X	+	X	X	X		+	1A
		+	+		+		+	1B
							O	1G
						+		1X
						O		1Y
						+		1Z
		+						1AA
		+						1AB
						+	+	1C
+								1EO

Column No.	Item identifier	Notice related to Description of data items and requirements
1.5.11		For analogue television broadcasting:
1.5.11.1	1E	the vision carrier frequency offset, in multiples of 1/12 of the line frequency of the television system concerned, expressed by a number (positive or negative) Required if the vision carrier frequency offset, in kHz, (1E1) is not provided for assignments subject to the ST61, GE89 or GE06 Regional Agreements
1.5.11.2	1E1	the vision carrier frequency offset, in kHz, expressed by a number (positive or negative) Required if the vision carrier frequency offset, in multiples of 1/12 of the line frequency (1E) is not provided for assignments subject to the ST61, GE89 or GE06 Regional Agreements
1.5.11.3		For the case where the sound carrier frequency offset is different from the vision carrier frequency offset:
1.5.11.3.1	1EA	the sound carrier frequency offset, in multiples of 1/12 of the line frequency of the television system concerned, expressed by a number (positive or negative) Required if the sound carrier frequency offset, in kHz, (1E1A) is not provided for assignments subject to the ST61, GE89 or GE06 Regional Agreements
1.5.11.3.2	1E1A	the sound carrier frequency offset, in kHz, expressed by a number (positive or negative) Required if the sound carrier frequency offset, in multiples of 1/12 of the line frequency (1EA) is not provided for assignments subject to the ST61, GE89 or GE06 Regional Agreements
1.5.12		For receive-only space weather station
1.5.12.1	1SW1	the bandwidth centered on the assigned frequency, in kHz
2		DATE OF OPERATION
2.1	2C	the date (actual or foreseen, as appropriate) of bringing the frequency assignment (new or modified) into use
2.2	2E	the date for the end of operation of a frequency assignment In the case of a VHF/UHF broadcasting station, required, in the application of Article 11, when the operation of an assignment is limited to a specific period of time under § 4.1.5.4 of the GE06 Regional Agreement In the case of a transmitting station, a receiving land station, or a typical transmitting station, required, in the application of Article 11, when the operation of an assignment is limited to a specific period of time under § 4.2.5.5 of the GE06 Regional Agreement
2.3	2F	the season of operation code
2.4	10CA	the start date for the transmission
2.5	10CB	the stop date for the transmission
2.6	10CC	the days of operation for the transmission during the HFBC schedule
3		CALL SIGN AND STATION IDENTIFICATION
3.1	3A1	the call sign used in accordance with Article 19 In the case of a transmitting station, for the fixed service below 28 MHz, mobile service, meteorological aids service, radiolocation service between 3 and 50 MHz (operating in accordance with Resolution 612 (Rev.WRC-12)), or standard frequency and time signal

Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21	Receive-serve-only space weather stations, for the application of No. 11.12bis	Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.2, 25/1.25)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
+								1E
+								1E1
+								1EA
+								1E1A
				X				1SW1
X	X	X	X	X	X	X		2C
+		+	+		+			2E
							X	2F
							X	10CA
							X	10CB
							X	10CC
O	O	+					O	3A1

		service, in application of Article 11, required if the station identification (3A2) is not provided
Column No.	Item identifier	Notice related to Description of data items and requirements
3.2	3A2	the station identification used in accordance with Article 19 In the case of a transmitting station, for the fixed service below 28 MHz, mobile service, meteorological aids service, radiolocation service between 3 and 50 MHz (operating in accordance with Resolution 612 (Rev.WRC-12)), or standard frequency and time signal service, in application of Article 11, required if the call sign (3A1) is not provided
4		LOCATION OF THE TRANSMITTING ANTENNA(S)
4.1	4A	the name of the locality by which the transmitting station is known or in which it is situated
4.2	4AA	the name of the location of the intended coast station Required for submissions in accordance with No. 25/1.1.1 of Appendix 25
4.3	4B	the code of the geographical area in which the transmitting station is located (see the Preface)
4.4	4C	the geographical coordinates of the transmitter site Latitude and longitude are provided in degrees, minutes and seconds
4.5	4CA	the geographical coordinates of the intended coast station Latitude and longitude are provided in degrees, minutes and seconds Required for submissions in accordance with No. 25/1.1.1 of Appendix 25
4.6	4H	HFBC site code <i>Note</i> – The code is assigned by the Bureau prior to commencement of the Article 12 procedure and represents the location of the station, its geographical area and geographical coordinates
4.7		For an area in which transmitting stations operate:
4.7.1	4CC	the geographical coordinates of the centre of the circular zone, in which mobile transmitting stations associated with a receiving land station, or a typical transmitting station are operating Latitude and longitude are provided in degrees, minutes and seconds In the case of a receiving land station, required: – for the maritime radionavigation service; and – for other services if the code of a geographical area or standard defined area (4E) is not provided In the case of a typical transmitting station, required if a geographical area or standard defined area (4E) is not provided
4.7.2	4D	the nominal radius, in km, of the circular zone, in which mobile transmitting stations associated with a receiving land station, or a typical transmitting station are operating In the case of a receiving land station, required: – for the maritime radionavigation service; and – for other services if the code of a geographical area or standard defined area (4E) is not provided

Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21	Receiveserve-only space weather stations, for the application of No. 11.12bis	Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
O	O	+					O	3A2
X	X	X						4A
						+		4AA
X	X	X						4B
X	X	X						4C
						+		4CA
							X	4H
			+		+			4CC
			+		+			4D

		In the case of a typical transmitting station, required if a geographical area or standard defined area (4E) is not provided
Column No.	Item identifier	Notice related to Description of data items and requirements
4.7.3	4E	the code of the geographical area or standard defined area (see the Preface) <i>Note</i> – The standard defined area for a receiving land station in the maritime mobile service may be a maritime zone. The standard defined area for a maritime mobile frequency allotment is the allotment area In the case of a receiving land station, for all services, except the maritime radionavigation service, required if a circular zone (4CC and 4D) is not provided In the case of a typical transmitting station, required if a circular zone (4CC and 4D) is not provided
4.8	4G	the ground conductivity Required for an assignment subject to the GE75 Regional Agreement
5		LOCATION OF THE RECEIVING ANTENNA(S)
5.1	5A	the name of the locality by which the receiving station is known or in which it is situated In the case of a transmitting station, required for an associated receiving station in the fixed service if the geographical coordinates of a given reception zone (5CA) are not provided
5.2	5B	the code of the geographical area in which the receiving station(s) is located (see the Preface) In the case of a transmitting station, required for an associated receiving station in the fixed service if the geographical coordinates of a given reception zone (5CA) are not provided
5.3	5C	the geographical coordinates of the site of the receiving station Latitude and longitude are provided in degrees, minutes and seconds In the case of a transmitting station, required for an associated receiving station in the fixed service if the geographical coordinates of a given reception zone (5CA) are not provided
5.4		For an area in which receiving stations operate:
5.4.1	5CA	the geographical coordinates of a given reception zone A minimum of 3 geographical coordinates are to be provided. All geographical coordinates (latitude and longitude) are provided in degrees, minutes and seconds For an associated receiving station in the fixed service, required if the name of the locality (5A), geographical area (5B) and geographical coordinates (5C) are not provided For all other services, except where the assignment is subject to the GE06 Agreement, required if neither a circular area (5E and 5F) nor a geographical area or standard defined area of reception (5D) is provided

Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21	Receiveserve-only space weather stations, for the application of No. 11.12bis	Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
			+		+	X		4E
	+							4G
		+	X	X				5A
		+	X	X				5B
		+	X	X				5C
		+						5CA

Column No.	Item identifier	Notice related to Description of data items and requirements
5.4.2	5D	the code of the geographical area or standard defined area of reception (see the Preface) <i>Note</i> – The standard defined area of a transmitting station may be represented by a maritime zone or aeronautical zone. The standard defined area of a maritime mobile frequency allotment is a maritime zone. The standard defined area of an HF broadcasting station subject to Article 12 is represented by a CIRAF zone In the case of a transmitting station, except transmitting stations in the fixed service, maritime radionavigation service, aeronautical radionavigation service subject to the GE85-MM-R1 Regional Agreement or the maritime mobile service subject to the GE85-MM-R1 Regional Agreement, required if neither a circular receiving area (5E and 5F) nor geographical coordinates of a given reception zone (5CA) is provided
5.4.3	5E	the geographical coordinates of the centre of the circular receiving area Latitude and longitude are provided in degrees, minutes and seconds Required: – for the maritime radionavigation service, aeronautical radionavigation service subject to the GE85-MM-R1 Regional Agreement or the maritime mobile service subject to the GE85-MM-R1 Regional Agreement; and – for all other services, except the fixed service, if neither a geographical area or standard defined area of reception (5D) nor the geographical coordinates of a given reception zone (5CA) is provided
5.4.4	5F	the radius, in km, of the circular receiving area Required: – for the maritime radionavigation service, aeronautical radionavigation service subject to the GE85-MM-R1 Regional Agreement or the maritime mobile service subject to the GE85-MM-R1 Regional Agreement; and – for all other services, except the fixed service, if neither the geographical area or standard defined area of reception (5D) nor the geographical coordinates of a given reception zone (5CA) is provided
5.5	5G	the maximum length of the circuit, in km, for non-circular receiving areas Stations in the HF bands only
6		CLASS OF STATION AND NATURE OF SERVICE
6.1	6A	the class of station, using the symbols from the Preface
6.2	6B	the nature of service, using the symbols from the Preface In the case of a transmitting station, required for all services, except the broadcasting service
7		CLASS OF EMISSION AND NECESSARY BANDWIDTH <i>(in accordance with Article 2 and Appendix 1)</i>
7.1	7A	the class of emission In the case of a VHF/UHF broadcasting station, required for digital broadcasting assignments
7.2	7AB	the necessary bandwidth

Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21	Receiveserve-only space weather stations, for the application of No. 11.12bis	Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
		+				X	X	5D
		+						5E
		+						5F
		O				O		5G
X	X	X	X	X	X	X	X	6A
		+	X	X	X	X		6B
+	X	X	X		X	X		7A
+	X	X	X		X	X	X	7AB

		In the case of a VHF/UHF broadcasting station, required for analogue sound and digital broadcasting assignments
Column No.	Item identifier	Notice related to Description of data items and requirements
7.3		System characteristics:
7.3.1	7A1	the code describing the frequency stability (RELAXED, NORMAL or PRECISION) Required for analogue television broadcasting
7.3.2	7AA	the code for the type of modulation The type of modulation denotes the use of DSB, SSB or any new modulation techniques recommended by ITU-R In the case of an LF/MF broadcasting station, required for a digital assignment subject to the GE75 Regional Agreement
7.3.3	7B1	the adjacent channel protection ratio, in dB Required for the GE75 Regional Agreement
7.3.4	7B2	the “RJ 81 class” (A, B or C) Required for the RJ81 Regional Agreement
7.3.4.1	7B3	the code rate Required for digital assignments subject to the GE75 Regional Agreement
7.3.5	7G	the system code <i>Note</i> – The code identifies the category of system to which the station belongs and hence its protection requirements In the VHF band two codes are required for protection from T-DAB and DVB-T In the UHF band only one code is required for protection from DVB-T Required for an assignment subject to the GE06 Regional Agreement
7.3.6	7C1	the code identifying the television system (see the Preface) Required for television broadcasting assignments, except assignments subject to § 5.1.3 of the GE06 Regional Agreement
7.3.7	7C2	the code corresponding to the colour system (see the Preface) Required for analogue television broadcasting
7.3.8	7D	the code corresponding to the sound broadcasting transmission system (see the Preface) <i>Note</i> – For LF/MF systems, the signal may consist of analogue or digital modulation or data or some combination of them: the latter case is referred to as hybrid modulation In the case of a VHF/UHF broadcasting station, required for sound broadcasting assignments, except assignments subject to the GE06 Regional Agreement In the case of an LF/MF broadcasting station, required for an assignment with digital or hybrid modulation
7.3.9		For the GE06 Regional Agreement (except notices subject to § 5.1.3 of the GE06 Regional Agreement):
7.3.9.1	7H	the reference planning configuration (see the Preface) Required for digital sound broadcasting
7.3.9.2	7J	the type of spectrum mask
7.3.9.3	7K	the reception mode (see the Preface)

Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21	Receiveserve-only space weather stations, for the application of No. 11.12bis	Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
+								7A1
	+						X	7AA
	+							7B1
	+							7B2
	+							7B3
		+	+		+			7G
+								7C1
+								7C2
+	+							7D
+								7H
X								7J
+								7K

		Required for digital television broadcasting
Column No.	Item identifier	Notice related to Description of data items and requirements
7.3.10		For the fixed service in the bands shared with space services and any type of modulation as applicable:
7.3.10.1	7E	the peak to peak frequency deviation, in MHz
7.3.10.2	7F	the sweep frequency, in kHz, of the energy dispersal waveform
8		POWER CHARACTERISTICS
8.1	8	the symbol (X, Y or Z, as appropriate) describing the type of power (see Article 1) corresponding to the class of emission
8.2	8A	the power delivered to the antenna transmission line, in kW
8.3	8AA	the power delivered to the antenna, in dBW For stations where the power delivered to the antenna cannot be measured: – the total radiated power (TRP*); or – the calculated TRP (e.i.r.p. minus antenna directivity); or – the calculated power delivered to the antenna (e.i.r.p. minus maximum antenna gain (9G)) * The TRP is to be understood here as the integral of the power transmitted from all antenna elements in different directions over the entire radiation sphere In the case of a transmitting station, required for an assignment: – in the frequency bands below 28 MHz, in all services except the radionavigation service; or – in the frequency bands above 28 MHz shared with space services; or – in the frequency bands above 28 MHz not shared with space services: • in the aeronautical mobile service, meteorological aids service; or • in all other services, if the radiated power is not supplied In the case of a receiving land station, required if the associated transmitting station’s radiated power is not supplied In the case of a typical transmitting station, required if the radiated power is not supplied
8.4	8AB	the maximum power density¹ (dB(W/Hz)) for each carrier type averaged over the worst 4 kHz band for carriers below 15 GHz, or averaged over the worst 1 MHz band for carriers above 15 GHz, supplied to the antenna transmission line For the fixed service in the bands shared with space services

Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21	Receiveserve-only space weather stations, for the application of No. 11.12bis	Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.2.5)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
		C						7E
		C						7F
X	X	X	X		X	X	X	8
	X						X	8A
								8AA
		+	+		+	X		
		C						8AB

Column No.	Item identifier	Notice related to Description of data items and requirements
8.5	8AC	the maximum power density (dB(W/Hz)) averaged over the worst 4 kHz band, calculated for the maximum effective radiated power <i>Note</i> – For a receiving land station, the maximum power density refers to the associated transmitting station In the case of a VHF/UHF broadcasting station, required for assignments subject to § 5.1.3 of the GE06 Regional Agreement In the case of a transmitting station, a receiving land station, or a typical transmitting station, required for assignments subject to the GE06 Regional Agreement
8.6	8B	the radiated power, in dBW, in one of the forms described in Nos. 1.161 to 1.163 <i>Note</i> – Where adaptive systems in the fixed or mobile service operating in the bands between 300 kHz and 28 MHz (see also Resolution 729 (Rev.WRC-07)) use automatic power control, the radiated power includes the level of power control listed under 8BA For assignments in all services and frequency bands, except assignments subject to the GE06 Regional Agreement, required if the power delivered to the antenna (8AA), or the maximum antenna gain (9G), is not provided For an assignment subject to the GE06 Regional Agreement, required if the power delivered to the antenna (8AA) is not provided
8.7	8BA	the range of power control, in dB Required for adaptive systems in the fixed or mobile service operating in the bands between 300 kHz and 28 MHz (see also Resolution 729 (Rev.WRC-07)), if automatic power control is used
8.8	8BH	the maximum effective radiated power, in dBW, of the horizontally polarized component Required for horizontal or mixed polarization
8.9	8BV	the maximum effective radiated power, in dBW, of the vertically polarized component Required for vertical or mixed polarization
8.10	8BT	the maximum effective radiated power, in dBW, in the plane defined by the beam tilt angle For a digital broadcasting assignment in the UHF band subject to the GE06 Regional Agreement only
8.11	8D	the vision-to-sound carrier power ratio, in dB Required for analogue television broadcasting
8.12	9L	the maximum effective monopole radiated power, in dB(kW) Required for the GE75 Regional Agreement

Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21		Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.2, 25/1.25)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
+		+	+		+			8AC
		+	+		+			8B
		+						8BA
+								8BH
+								8BV
O								8BT
+								8D
	+							9L

Column No.	Item identifier	Notice related to Description of data items and requirements
8.13		For the RJ81 and RJ88 Regional Agreements:
8.13.1	9I	the r.m.s. value of radiation The product of the r.m.s. characteristic field strength in the horizontal plane and the square root of the power
8.13.2	9IA	the value of the radiation at the central azimuth of the augmentation, in mV/m at 1 km Required for antenna radiation pattern type “M” (see 9O)
8.13.3	9P	the value of the special quadrature factor, in mV/m at 1 km <i>Note</i> – A special quadrature factor may be used with antenna pattern type “M” or “E” to replace the normal expanded quadrature factor when special precautions are taken to ensure pattern stability
9		ANTENNA CHARACTERISTICS
9.1		For a transmitting or receiving antenna:
9.1.1	9	the indicator showing whether the antenna is directional (D) or non-directional (ND) In the case of a receiving land station, required for an assignment subject to the GE06 Regional Agreement
9.1.2	9D	the code indicating the type of polarization (see the Preface) In the case of a transmitting station, required for an assignment: – in the fixed service in the bands shared with space services; or – subject to the GE06 Regional Agreement In the case of a receiving land station, required for an assignment subject to the GE06 Regional Agreement
9.1.3	9E	the height of the antenna above ground level, in metres In the case of a VHF/UHF broadcasting station, required for the ST61, GE84, GE89 or GE06 Regional Agreements, and optional for assignments not subject to these Agreements In the case of a transmitting station, required for an assignment: – in the bands shared with space services; or – subject to the GE06 Regional Agreement In the case of a receiving land station, required for an assignment subject to the GE06 Regional Agreement

Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21	Receiveserve-only space weather stations, for the application of No. 11.12bis	Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.2, 25/1.25)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
	X							9I
	+							9IA
	O							9P
X		X	+			X	X	9
X		+	+					9D
+		+	+					9E

9.2		For a directional transmitting or receiving antenna:
9.2.1	9C	the total angular width of the radiation main lobe (beamwidth) measured horizontally in a plane containing the direction of maximum radiation, in degrees, within which the power radiated in any direction does not fall more than 3 dB below the power radiated in the direction of maximum radiation In the case of a transmitting station, required for all assignments, except assignments subject to GE06 Regional Agreement where it is optional In the case of a receiving land station, for an assignment subject to the GE06 Regional Agreement only
Column No.	Item identifier	Notice related to Description of data items and requirements
9.2.2	9GL	the antenna gain towards the local horizon For an assignment subject to the GE06 Regional Agreement only
9.2.3	9K	the lowest total receiving system noise temperature, in kelvins For an associated receiving antenna in the fixed service operating in the bands shared with space services only
9.3		For a transmitting antenna:
9.3.1	9EA	the altitude of the site above mean sea level, in metres In the case of a VHF/UHF broadcasting station, required for assignments subject to the ST61, GE84, GE89, or GE06 Regional Agreements, and optional for assignments not subject to these Agreements In the case of a transmitting station, required for an assignment: – in the fixed or mobile service in the bands shared with space services; or – subject to the GE06 Regional Agreement
9.3.2	9EB	the maximum effective height of the antenna, in metres, above the mean level of the ground between 3 and 15 km from the transmitting antenna In the case of a transmitting station, required for an assignment subject to the GE06 Regional Agreement
9.3.3	9EC	the effective height of the antenna, in metres, above the mean level of the ground between 3 and 15 km from the transmitting antenna, at 36 different azimuths in 10° intervals (i.e. 0°, 10°, ..., 350°), measured in the horizontal plane from True North in a clockwise direction In the case of a transmitting station, required for an assignment subject to the GE06 Regional Agreement

		+	O			X		9C
Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21	Receiveserve-only space weather stations, for the application of No. 11.12bis	Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.2, 25/1.25)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
		O	O					9GL
		C						9K
+		+						9EA
X		+						9EB
X		+						9EC

9.3.4	9G	the maximum antenna gain (isotropic, relative to a short vertical antenna or relative to a half-wave dipole, as appropriate) of the transmitting antenna (see No. 1.160) For a directional antenna, the gain is in the direction of maximum radiation In the case of a transmitting station, or a typical transmitting station: – for all frequency bands and services, except assignments subject to the GE06 Regional Agreement, required if the antenna is: – directional, including where the antenna beam is rotating or swept; or – non-directional, and the power to the antenna (8AA) or the radiated power (8B) is not provided – for an assignment subject to the GE06 Regional Agreement required if the radiated power (8B) is not provided In the case of a maritime mobile frequency allotment, required if the antenna is directional, including where the antenna beam is rotating or swept
Column No.	Item identifier	Notice related to Description of data items and requirements
9.3.5	9M	the transmitting antenna design frequency
9.3.6	9S	the beam tilt angle, in degrees The beam tilt angle is measured from the horizontal plane towards ground and the sign of the angle is negative <i>Note</i> – In some broadcasting definitions, the angle may have the opposite sign For a digital broadcasting assignment in the UHF band subject to the GE06 Regional Agreement only
9.3.7	9J	the measured radiation pattern of the antenna, the reference radiation pattern or the symbols in standard references to be used for coordination
9.4		For a directional transmitting antenna where the antenna beam is rotating or swept:
9.4.1	9AB1	the start azimuth for the range of operational angles for the antenna’s main beam axis, measured in the horizontal plane from True North in a clockwise direction
9.4.2	9AB2	the end azimuth for the range of operational angles for the antenna’s main beam axis, measured in the horizontal plane from True North in a clockwise direction
9.5		For a directional transmitting antenna where the antenna beam is not rotating or swept:
9.5.1	9A	the azimuth of maximum radiation of the transmitting antenna, measured in the horizontal plane from True North in a clockwise direction
9.5.2	9B	the elevation angle of maximum directivity, in degrees Required for an assignment in the bands shared with space services
9.5.3	9R	the slew angle measured between the azimuth of maximum radiation and the direction of unslewed radiation
9.5.4	9NH	the value of attenuation of the horizontally polarized component, at 36 different azimuths in 10° intervals (i.e. 0°, 10°, ..., 350°), measured in the horizontal plane from True North in a clockwise direction, with respect to the maximum effective radiated power of this component, in dB For all assignments, except digital broadcasting assignments subject to the GE06 Regional Agreement and broadcasting assignments subject to § 5.1.3 of the GE06 Regional Agreement, required if the polarization is horizontal or mixed

		+			+	+		9G
Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21	Receiveserve-only space weather stations, for the application of No. 11.12bis	Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
							X	9M
O							X	9S
		O					X	9J
		X				X		9AB1
		X				X		9AB2
		X				X	X	9A
		+						9B
							X	9R
+								9NH

9.5.5	9NV	the value of attenuation of the vertically polarized component, at 36 different azimuths in 10° intervals (i.e. 0°, 10°, ..., 350°), measured in the horizontal plane from True North in a clockwise direction, with respect to the maximum effective radiated power of this component, in dB For all assignments, except digital broadcasting assignments subject to the GE06 Regional Agreement and broadcasting assignments subject to § 5.1.3 of the GE06 Regional Agreement, required if the polarization is vertical or mixed
Column No.	Item identifier	Notice related to Description of data items and requirements
9.5.6	9UH	the value of attenuation of the horizontally polarized component in the horizontal plane, normalized to 0 dB, at 36 different azimuths in 10° intervals (i.e. 0°, 10°, ..., 350°), measured in the horizontal plane from True North in a clockwise direction, with respect to the maximum radiated power of this component, in dB In the case of a VHF/UHF broadcasting station, for a digital broadcasting assignment subject to the GE06 Regional Agreement and an assignment subject to § 5.1.3 of the GE06 Regional Agreement, required if the polarization is horizontal or mixed In the case of a transmitting station, for an assignment subject to § 5.1.3 of the GE06 Regional Agreement, required if the polarization is horizontal or mixed
9.5.7	9UV	the value of attenuation of the vertically polarized component in the horizontal plane, normalized to 0 dB, at 36 different azimuths in 10° intervals (i.e. 0°, 10°, ..., 350°), measured in the horizontal plane from True North in a clockwise direction, with respect to the maximum radiated power of this component, in dB In the case of a VHF/UHF broadcasting station, for a digital broadcasting assignment subject to the GE06 Regional Agreement and an assignment subject to § 5.1.3 of the GE06 Regional Agreement, required if the polarization is vertical or mixed In the case of a transmitting station, for an assignment subject to § 5.1.3 of the GE06 Regional Agreement, required if the polarization is vertical or mixed
9.6	9Q	the symbol identifying the type of antenna Type A – a simple vertical antenna Type B – a directional or omnidirectional antenna of complex construction
9.7		For a type A antenna (simple vertical antenna):
9.7.1	9EP	the transmitting antenna's physical length in metres Required for the GE75 Regional Agreement
9.7.2	9F	the electrical height of the antenna, in degrees Required for the RJ81 or RJ88 Regional Agreements
9.8		For a station subject to the GE75 Regional Agreement with a type B antenna (a directional antenna, or omnidirectional antenna of complex construction):
9.8.1	9GH	the antenna gain, in dB, in the horizontal plane, at 36 different azimuths in 10° intervals (i.e. 0°, 10°, ..., 350°), measured in the horizontal plane from True North in a clockwise direction

+	Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	+							9NV
	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2		X						
	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	+	+						
	Receiving land stations, for the application of No. 11.9 and No. 9.21								
	<u>Receive-serve-only space weather stations, for the application of No. 11.12bis</u>								
	Typical transmitting stations, for the application of No. 11.17								
	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)								
	Broadcasting stations in the HF bands, for the application of No. 12.16								
	Item identifier		9Q	9UV	9UH				

9.8.2	9GV	the antenna gain, in dB, in the vertical plane, at 36 different azimuths in 10° intervals (i.e. 0°, 10°, ..., 350°) measured in the horizontal plane from True North in a clockwise direction, and at ten different elevations in 10° intervals (i.e. 0°, 10°, ..., 90°) measured in the vertical plane <i>Note</i> – If administrations have difficulty in providing this information, they can provide a reference to any other information that may be of assistance (e.g. ITU-R Recommendation, antenna pattern) Required for an assignment to be used for night-time operation
Column No.	Item identifier	Notice related to Description of data items and requirements
9.9		For a station subject to the RJ81 or RJ88 Regional Agreements with a type B antenna (a directional antenna, or omnidirectional antenna of complex construction):
9.9.1	9O	the symbol identifying the type of antenna radiation pattern (T, M, or E)
9.9.2		For antenna radiation pattern type M:
9.9.2.1	9NA	the serial number of the augmentation as described by items 9IA, 9AA and 9CA
9.9.2.2	9AA	the central azimuth of the augmentation (centre of the span) in degrees
9.9.2.3	9CA	the total span of the augmentation, in degrees
9.9.3		For each tower of a type B antenna in the RJ81 or RJ88 Regional Agreements:
9.9.3.1	9T1	the serial number of each of the towers whose characteristics are described in items 9T2 to 9T8
9.9.3.2	9T8	the symbol corresponding to the tower structure
9.9.3.3	9T7	the electrical height, in degrees, of the tower under consideration Required if the tower is not top-loaded nor sectionalized (see 9.9.4)
9.9.3.4	9T2	the ratio of the tower field to the field of the reference tower Required if the antenna consists of two or more towers
9.9.3.5	9T3	the positive or negative phase difference in the tower field with respect to the field of the reference tower, in degrees Required if the antenna consists of two or more towers
9.9.3.6	9T4	the electrical spacing of the tower from the reference point, in degrees Required if the antenna consists of two or more towers
9.9.3.7	9T5	the angular orientation of the tower from the reference point, in degrees (clockwise) from True North Required if the antenna consists of two or more towers
9.9.4		For each tower of a type B antenna that is top-loaded or sectionalized in accordance with the Regional Administrative MF Broadcasting Conference (Region 2) Rio de Janeiro, 1981 or 1988 Agreements:
9.9.4.1	9T9A	the description of a top-loaded or sectionalized tower
9.9.4.2	9T9B	the description of a top-loaded or sectionalized tower Required if tower structure symbol (9T8) is 1, 2, 5, 6, 7, 8 or 9
9.9.4.3	9T9C	the description of a top-loaded or sectionalized tower

			Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21							9GV
			Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	+						
			Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21							
			Receiving land stations, for the application of No. 11.9 and No. 9.21							
			<u>Receiveserve-only space weather stations, for the application of No. 11.12bis</u>							
			Typical transmitting stations, for the application of No. 11.17							
			Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)							
			Broadcasting stations in the HF bands, for the application of No. 12.16							
			Item identifier							
									9O	
				X					9NA	
				X					9AA	
				X					9CA	
				X					9T1	
				X					9T8	
									9T7	
				+					9T2	
				+					9T3	
				+					9T4	
				+					9T5	
				X					9T9A	
				+					9T9B	
				+					9T9C	

		Required if the tower structure symbol (9T8) is 2, 5, 7 or 8
9.9.4.4	9T9D	the description of a top-loaded or sectionalized tower Required if tower structures symbol (9T8) is 2, 5 or 8
9.10		For a receiving antenna of space weather station:
9.10.1		For minimum/maximum antenna main beam elevation:
9.10.1.1	9SW1	the minimum elevation angle of the main beam, in degrees, from the horizontal plane
9.10.1.2	9SW2	the maximum elevation angle of the main beam, in degrees, from the horizontal plane
9.10.2		For operating azimuths of antenna main beam
9.10.2.1	9SW3	the minimum azimuth angle of the main beam, in degrees, clockwise from True North
9.10.2.2	9SW4	the maximum azimuth angle of the main beam, in degrees, clockwise from True North
9.10.3		For other antenna characteristics
9.10.3.1	9SWA	the maximum effective antenna gain, in dBi
9.10.3.2	9SWB	the half-power beamwidth, in degrees
Column No.	Item identifier	Notice related to Description of data items and requirements
10		HOURS OF OPERATION
10.1	10B	the regular hours of operation (in hours and minutes from ... to ...) of the frequency assignment, in UTC
10.2	10BA	the local operation period code (see the Preface)
10.3	10D	the estimated peak hours of traffic
10.4	10E	the estimated daily volume of traffic
11		COORDINATION AND AGREEMENT
11.1	11	the symbol of each administration with which coordination has been successfully effected Required if coordination is necessary and has been obtained pursuant to the relevant provisions of the Radio Regulations
11.2	11D	a declaration by the notifying administration that all conditions associated with the remark are fully met for recording the submitted assignment in the Master International Frequency Register Required for a digital broadcasting assignment subject to § 5.1.2 of the GE06 Regional Agreement and for the broadcasting and other primary services assignments notified pursuant to No. 5.1.3 of the Agreement
11.3	11C	a signed commitment from the notifying administration that the submitted assignment for recording in the Master International Frequency Register shall not cause unacceptable interference and shall not claim protection Required for an assignment subject to § 5.1.8 of the GE06 Regional Agreement
11.4	11E	a signed commitment from the notifying administration that the submitted assignment for recording in the Master International Frequency Register shall not cause unacceptable interference and shall not claim protection Required for an assignment subject to § 5.2.6 of the GE06 Regional Agreement

	+							9T9D
				X				9SW1
				X				9SW2
				X				9SW3
				X				9SW4
				X				9SWA
				X				9SWB
Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21	Receiveserve-only space weather stations, for the application of No. 11.12bis	Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
X	O	X	X		X	X	X	10B
	X							10BA
						X		10D
						X		10E
+	O	+	+		O	+		11
+		+	+					11D
+								11C
		+	+		+			11E

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11.5	11F	Recognition by the notifying administration that the registration of assignments in the aeronautical mobile (R) service in the 5 030-5 091 MHz frequency band accords with the purposes of ITU, including No. 7 of Article 1 of the ITU Constitution. Required for an assignment in aeronautical mobile (R) service in the frequency band 5 030-5 091 MHz
11.6	11G	a commitment from the notifying administration that the aggregate power flux-density (pfd) received from stations in the aeronautical mobile (OR) service at the location of any radio astronomy station operating in this frequency band shall be in compliance with the protection criteria provided in Recommendations ITU-R RA.769-2 and ITU-R RA.1513-2 Required for an assignment in the aeronautical mobile (OR) service in the frequency bands 15.41-15.7 GHz and 22-22.2 GHz
11.7	11H	a commitment from the notifying administration that the unwanted equivalent isotropically radiated power (e.i.r.p.) of stations operating in the aeronautical mobile (OR) service shall not exceed –23 dBW in any 100 MHz band in the frequency band 22.21-22.5 GHz Required for an assignment in the aeronautical mobile (OR) service in the frequency band 22-22.2 GHz
Column No.	Item identifier	Notice related to Description of data items and requirements
12		OPERATING ADMINISTRATION OR AGENCY
12.1	12A	the symbol for the operating agency
12.2	12B	the symbol for the address of the administration responsible for the station and to which communication should be sent on urgent matters regarding interference, quality of emissions and questions referring to the technical operation of the circuit (see Article 15, also the Preface) In the case of a VHF/UHF broadcasting station, transmitting station, or a receiving land station, required for application of Article 11
13		REMARKS
13.1	13C	Remarks for assisting the Bureau in processing the notice

Reasons:

		+	+		+			11F
		+	+		+			11G
		+	+		+			11H
Broadcasting (sound and television) stations in the VHF/UHF bands up to 960 MHz, for the application of No. 11.2 and No. 9.21	Broadcasting (sound) stations in the LF/MF bands, for the application of No. 11.2	Transmitting stations (except broadcasting stations in the planned LF/MF bands, in the HF bands governed by Article 12, and in the VHF/UHF bands up to 960 MHz), for the application of No. 11.2 and No. 9.21	Receiving land stations, for the application of No. 11.9 and No. 9.21	Receiveserve-only space weather stations, for the application of No. 11.12bis	Typical transmitting stations, for the application of No. 11.17	Maritime mobile frequency allotment, for the application of plan modification under Appendix 25 (Nos. 25/1.1.1, 25/1.1.2, 25/1.25)	Broadcasting stations in the HF bands, for the application of No. 12.16	Item identifier
O	O	O	O	<u>O</u>	O		O	12A
+	X	+	+	<u>X</u>	X		X	12B
O	O	O	O	<u>O</u>	O	O	O	13C

SUP

RESOLUTION 682 (WRC-23)

**Consideration of regulatory provisions and potential primary allocations
to the meteorological aids service (space weather) to accommodate receive-only
space weather sensor applications in the Radio Regulations**

The World Radiocommunication Conference (Dubai, 2023),

Reasons: Work is complete on Agenda Item 1.17, therefore Resolution 682 (Rev. WRC-23) is no longer required.

- **FOR AGENDA
RCS 3005/1**
- **UNITED STATES OF AMERICA**
- **DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE**

Agenda Item 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);*

BACKGROUND (Issue A/Resolves 1)

The EESS (passive) relies on detection of weak, natural radio frequency emissions occurring at specific frequencies for measuring conditions in the Earth's atmosphere and on its surface. Due to the weak nature of these natural RF emissions passive sensors require sensitivity that makes them vulnerable to interference from unwanted emissions occurring within the passive bands from active services operating in adjacent frequency bands.

Resolution **750 (Rev.WRC-19)**, initially developed as the outcome of WRC-07 Agenda Item 1.20, addresses the compatibility between the EESS (passive) in some bands subject to RR No. **5.340** and relevant active services in adjacent frequency bands by providing limits for the unwanted emission levels of active service stations. This Resolution has been updated at subsequent WRCs to cover compatibility scenarios previously not addressed.

Above 81 GHz, Resolution **750 (Rev.WRC-19)** includes unwanted emission levels from the fixed service operating in 81-86 GHz and 92-94 GHz into the passive frequency band 86-92 GHz. Other scenarios involving active services above 81 GHz adjacent to frequency bands subject to RR No. **5.340** are not yet included in Resolution **750 (Rev.WRC-19)**.

Active service system development and deployment in frequency bands above 81 GHz is now occurring, necessitating the development of unwanted emission limits to protect EESS (passive) operations in frequency bands subject to RR No. **5.340** that are not currently addressed in Resolution **750 (Rev.WRC-19)**. A delay in establishing these limits will result in limits applied after significant system development and deployment has occurred, placing an unnecessary burden on the active services, and/or the EESS (passive) operations potentially inadequately protected from active service unwanted emissions.

ITU-R studies were completed under Resolution **712 (WRC-23)** *resolves 1* to determine any required regulatory measures for the protection of EESS (passive) where sufficient active service parameters were obtained from the relevant ITU-R working parties. Sufficient system parameters were not available for some active services under Agenda Item 1.18 *resolves 1*.

PROPOSAL

The United States proposes unwanted emission limits for the active services operating in the frequency bands adjacent to the EESS (passive) allocations subject to RR No. **5.340** (82-96 GHz, 114.25-116 GHz, 164-167 GHz and 200-209 GHz. For the radio services where system parameters were available to conduct compatibility studies, mandatory limits are proposed for Table 1 of Resolution **750**. For active services where parameters were not available, Resolution **731** is revised to address future work.

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations
(See No. 2.1)

MOD USA/4498A18/1

81-86 GHz

Allocation to services		
Region 1	Region 2	Region 3
81-84	FIXED ▼	
	FIXED-SATELLITE (Earth-to-space)	
	MOBILE	
	MOBILE-SATELLITE (Earth-to-space)	
	RADIO ASTRONOMY	
	Space research (space-to-Earth)	
84-86	5.149 5.561A MOD 5.338A ADD 5.A118B	
	FIXED ▼	
	FIXED-SATELLITE (Earth-to-space) 5.561B	
	MOBILE	
	RADIO ASTRONOMY	
	5.149 MOD 5.338A ADD 5.A118B	

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MOD USA/4498A18/2

86-111.8 GHz

Allocation to services		
Region 1	Region 2	Region 3
86-92	EARTH EXPLORATION-SATELLITE (passive)	
	RADIO ASTRONOMY	
	SPACE RESEARCH (passive)	
	5.340	
92-94	FIXED ▼	
	MOBILE	
	RADIO ASTRONOMY	
	RADIOLOCATION	
	5.149 MOD 5.338A ADD 5.A118B	

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MOD USA/4498A18/3

111.8-119.98 GHz

Allocation to services		
Region 1	Region 2	Region 3
111.8-114.25	FIXED ADD 5.A118A MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341 MOD 5.338A ADD 5.A118B	
114.25-116	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341	

MOD USA/4498A18/4

158.5-200 GHz

Allocation to services		
Region 1	Region 2	Region 3
158.5-164	FIXED ADD 5.118A FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) MOD 5.338A ADD 5.A118B	
164-167	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	
167-174.5	FIXED ADD 5.118A FIXED-SATELLITE (space-to-Earth) INTER-SATELLITE MOBILE 5.558 5.149 5.562D MOD 5.338A ADD 5.A118B	
...		
191.8-200	FIXED INTER-SATELLITE MOBILE 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.341 5.554 ADD 5.A118B	

MOD USA/4498A18/5

200-241 GHz

Allocation to services		
Region 1	Region 2	Region 3
200-209	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A	
209-217	FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.341 ADD 5.A118B	

MOD USA/4498A18/6

5.338A In the frequency bands 1 350-1 400 MHz, 1 427-1 452 MHz, 22.55-23.55 GHz, 24.25-27.5 GHz, 30-31.3 GHz, 49.7-50.2 GHz, 50.4-50.9 GHz, 51.4-52.4 GHz, 52.4-52.6 GHz, 81-86 GHz, 92-94 GHz, [111.8-114.25 GHz](#), [158.5-164 GHz](#), and [167-174.5 GHz](#)
Resolution **750 (Rev.WRC-27)** applies. (WRC-19)

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Reasons: To update the frequency bands under to which Resolution **750 (Rev. WRC-27)** applies.

ADD USA/4498A18/7

5.A.118A In the frequency bands 111.8-114.25 GHz, 158.5-164 GHz, and 167-174.5 GHz, stations of the Fixed Service shall not be employed for transmission at antenna elevation angles greater than 30°. (WRC-27)

5.A.118B For the mobile service in 81-86 GHz, 111.8-114.25 GHz, 158.5-164 GHz, 167-174.5 GHz, 191.8-200 GHz and 209-217 GHz; the mobile service (excluding RSST applications) and the radiolocation service (excluding FOD detection applications) in 92-94 GHz; mobile satellite service in 158-164 GHz and 191.8-200 GHz; inter-satellite service in 167-174.5 GHz and 191.8-200 GHz; the radionavigation service and radionavigation-satellite service in 191.8-200 GHz; the fixed service in 191.8-200 GHz; and the fixed service and fixed satellite service in 209-217 GHz, *resolves* 2 of Resolution **731 (Rev WRC-27)** applies. (WRC-27)

Reasons: To identify the services and frequency bands to which *resolves* 2 of Resolution **731 (Rev. WRC-27)** applies.

MOD USA/4498A18/8

RESOLUTION 750 (REV.WRC-27)

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**Compatibility between the Earth exploration-satellite service (passive)
and relevant active services**

The World Radiocommunication Conference (Shanghai, 2027),
considering

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a) that primary allocations have been made to various space services such as the fixed-satellite service (Earth-to-space), the space operation service (Earth-to-space) and the inter-satellite service and/or to terrestrial services such as the fixed service, the mobile service and the radiolocation service, hereinafter referred to as “active services”, in frequency bands adjacent or nearby to frequency bands allocated to the Earth exploration-satellite service (EESS) (passive), subject to No. 5.340;

b) that unwanted emissions from active services have the potential to cause unacceptable interference to EESS (passive) sensors;

c) that, for technical or operational reasons, the general limits in Appendix 3 may be insufficient in protecting the EESS (passive) in specific frequency bands;

d) that, in many cases, the frequencies used by EESS (passive) sensors are chosen to study natural phenomena producing radio emissions at frequencies fixed by the laws of nature, and therefore shifting frequency to avoid or mitigate interference problems is not possible;

e) that the frequency band 1 400-1 427 MHz is used for measuring soil moisture, and also for measuring sea-surface salinity and vegetation biomass;

f) that long-term protection of the EESS in the frequency bands 23.6-24 GHz, 31.3-31.5 GHz, 50.2-50.4 GHz, 52.6-54.25 GHz, 86-92 GHz, 114.25-116 GHz and 164-167 GHz is vital to weather prediction and disaster management, and measurements at several frequencies must be made simultaneously in order to isolate and retrieve each individual contribution;

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g) that, in many cases, the frequency bands adjacent to or nearby passive service frequency bands are used and will continue to be used for various active service applications;

h) that it is necessary to ensure equitable burden-sharing for achieving compatibility between active and passive services operating in adjacent or nearby frequency bands,

noting

a) that some of the compatibility studies between relevant active and passive services operating in adjacent and nearby frequency bands are documented in Report ITU-R SM.2092, Report ITU-R S.2463 and Report ITU-R RS.1.18 – EESS;

Deleted: and in

b) that the compatibility studies between International Mobile Telecommunications (IMT) systems in the frequency bands 1 375-1 400 MHz and 1 427-1 452 MHz and EESS (passive) systems in the frequency band 1 400-1 427 MHz are documented in Report ITU-R RS.2336;

c) that Report ITU-R F.2239 provides the results of studies covering various scenarios between the fixed service, operating in the frequency bands 81-86 GHz and/or 92-94 GHz, and the EESS (passive), operating in the frequency band 86-92 GHz;

d) that Report ITU-R F. 2558 provides the results of studies covering various scenarios between the fixed service, operating in the frequency bands 111.8-114.25 GHz, 151.5-164 GHz and 167-174.8 GHz, and the EESS (passive), operating in the frequency band 114.25-116 GHz and 164-167 GHz; e) that Recommendation ITU-R RS.2017 provides the interference criteria for satellite passive remote sensing,

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d...

noting further

that, for the purpose of this Resolution:

– point-to-point communication is defined as radiocommunication provided by a link, for example a radio-relay link, between two stations located at specified fixed points;

– point-to-multipoint communication is defined as radiocommunication provided by links between a single station located at a specified fixed point (also called “hub station”) and a number of stations located at specified fixed points (also called “customer stations”);

FOD applications operating in the radiolocation service is defined as radars deployed along airport runways for the purpose on detecting foreign object debris (FOD) that can damage aircraft (see Report ITU-R M.2501);

RSTT applications operating in the mobile service are defined as radio communication between on-board radio equipment and related radio infrastructure located along trackside that carries train control, voice dispatching, command, operational information as well as monitoring data (see Report ITU-R M.2418),

recognizing

a) that studies documented in Report ITU-R SM.2092 do not consider point-to-multipoint communication links in the fixed service in the frequency bands 1 350-1 400 MHz and 1 427-1 452 MHz;

b) that, in the frequency band 1 427-1 452 MHz, mitigation measures, such as channel arrangements, improved filters and/or guardbands, may be necessary in order to meet the unwanted emission limits for IMT stations in the mobile service specified in Table 1 of this Resolution;

c) that, in the frequency band 1 427-1 452 MHz, IMT mobile stations typically perform better than the equipment specifications as stated by relevant standards organizations, which may be taken into account in meeting the limits specified in Table 1 (see also sections 4 and 5 of Report ITU-R RS.2336),

resolves

1 that unwanted emissions of stations brought into use in the frequency bands and services listed in Table 1 below shall not exceed the corresponding limits in that table, subject to the specified conditions;

2 to urge administrations to take all reasonable steps to ensure that unwanted emissions of active service stations in the frequency bands and services listed in Table 2 below do not exceed the recommended maximum levels contained in that table, noting that EESS (passive) sensors provide worldwide measurements that benefit all countries, even if these sensors are not operated by their country;

3 that the Radiocommunication Bureau shall not make any examination or finding with respect to compliance with this Resolution under either Article 9 or 11, TABLE 1

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EESS (passive) frequency band	Active service frequency band	Active service	Limits of unwanted emission power from active service stations in a specified bandwidth within the EESS (passive) frequency band ¹
...			
86-92 GHz	81-86 GHz	Fixed-satellite (E-to-s)	-39.2 – 16.3(f – 86) dBW/100 MHz for 86.05 ≤ f < 87 GHz -59 dBW/100 MHz for 87 ≤ f ≤ 91.95 GHz
86-92 GHz	92-94 GHz	Mobile service (RSTT applications)	-54 dBW in any 100 MHz of the EESS (passive) band

EESS (passive) frequency band	Active service frequency band	Active service	Limits of unwanted emission power from active service stations in a specified bandwidth within the EESS (passive) frequency band ¹
86-92 GHz	92-94 GHz	Radiolocation service (FOD applications)	-42 dBW in any 100 MHz of the EESS (passive) band
114.25-116 GHz	111.8-114.25 GHz	Fixed	-30.4 - 14(f - 114.25) dBW/100 MHz for 114.3 ≤ f ≤ 115.25 GHz -44.4 dBW/100 MHz for 115.25 ≤ f ≤ 116 GHz
164-167 GHz	158.5-164 GHz	Fixed	-28.1 - 14 (f - 164) dBW/100 MHz for 164.05 ≤ f ≤ 165 GHz -42.1 dBW/100 MHz for 165 ≤ f ≤ 166.95 GHz
	167-174.5 GHz	Fixed	-42.1 dBW/100 MHz for 164.05 ≤ f ≤ 166 GHz -28.1 - 14 (167 - f) dBW/100 MHz for 166 ≤ f ≤ 166.95 GHz

Notes to Table 1:

¹ The unwanted emission power level is to be understood here as the level measured at the antenna port, unless it is specified in terms of total radiated power (TRP).

² This limit does not apply to mobile stations in the IMT systems for which the notification information has been received by BR by 28 November 2015. For those systems, -60 dBW/27 MHz applies as the recommended value.

³ The unwanted emission power level is to be understood here as the level measured with the mobile station transmitting at an average output power of 15 dBm.

⁴ The limits apply under clear-sky conditions. During fading conditions, the limits may be exceeded by earth stations when using uplink power control.

⁵ The unwanted emission power level is considered in terms of TRP. The TRP is to be understood here as the integral of the power transmitted from all antenna elements in different directions over the entire radiation sphere.

^a A limit of -39 dB(W/200 MHz) will apply to IMT base stations brought into use after 1 September 2027. This limit will not apply to IMT base stations which have been brought into use prior to this date. For those IMT base stations, the limit of -33 dB(W/200 MHz) will continue to apply after this date.

^b A limit of -35 dB(W/200 MHz) will apply to IMT mobile stations brought into use after 1 September 2027. This limit will not apply to IMT mobile stations which have been brought into use prior to this date. For those IMT mobile stations, the limit of -29 dB(W/200 MHz) will continue to apply after this date.

⁶ Compliance with these limits may include the consideration of additional mitigation techniques, which require further studies by ITU-R.

.../...

Reasons: To update Resolution 750 (Rev. WRC-19) with the results of studies under WRC-27 agenda item 1.18 (*resolves 1*).

MOD USA/4498A18/9

RESOLUTION 731 (REV.WRC-27)

Consideration of sharing and adjacent-band compatibility between passive and active services above 71 GHz

The World Radiocommunication Conference ([Shanghai, 2027](#)),

considering

a) that the changes made to the Table of Frequency Allocations by WRC-2000 in frequency bands above 71 GHz were based on the requirements known at the time of that conference;

b) that the passive service spectrum requirements above 71 GHz are based on physical phenomena and therefore are well known, and are reflected in the changes made to the Table of Frequency Allocations by that conference;

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- c) that several frequency bands above 71 GHz are already used by the Earth exploration-satellite service (EESS) (passive) and space research service (passive) because they are unique bands for the measurement of specific atmospheric parameters;
- d) that frequency bands in the frequency range 275-1 000 GHz are identified for use by administrations for passive service applications in No. 5.565, without precluding the use of this frequency range by active service applications, and urging administrations to take all practicable steps to protect the passive service applications from harmful interference;
- e) that there is currently only limited knowledge of requirements and implementation plans for the active services that will operate in frequency bands above 71 GHz;
- f) that, in the past, technological developments have led to viable communication systems operating at increasingly higher frequencies, and that this can be expected to continue so as to make communication technology available in the future in the frequency bands above 71 GHz;
- g) that, in the future, alternative spectrum needs for the active and passive services should be accommodated when the new technologies become available;
- h) that, following the revisions to the Table of Frequency Allocations by WRC-2000, sharing studies may still be required for services in some frequency bands above 71 GHz;
- i) that WRC-27 considered the results of studies for unwanted emission limits applicable to active services operating in frequency bands adjacent to the frequency bands 86-92 GHz, 114.25-166 GHz, 164-167 GHz and 200-209 GHz, subject to RR No. 5.340;
- j) that WRC-27 could not establish the unwanted emission limits applicable to some active services due to unavailability of system parameters for those active radio services;
- k) that interference criteria for passive sensors have been developed and are given in Recommendation ITU-R RS.2017;
- l) that protection criteria for radio astronomy have been developed and are given in Recommendations ITU-R RA.769 and ITU-R RA.1513 and Report ITU-R RA.2189;
- m) that several satellite downlink allocations have been made in frequency bands adjacent to those allocated to the radio astronomy service;
- n) that sharing criteria for active and passive services in frequency bands above 71 GHz have not yet been fully developed within the ITU Radiocommunication Sector (ITU-R),

recognizing

- a) that several frequency bands above 71 GHz are subject to No. 5.340, and all emissions are prohibited in these bands;
- b) that, to the extent practicable, the burden of sharing among active and passive services should be equitably distributed among the services to which allocations are made,

resolves

to invite a future competent world radiocommunication conference to consider the results of ITU-R studies referred to in *invites the ITU Radiocommunication Sector* below with a view to taking the necessary action, as appropriate, in order to accommodate the emerging requirements of active services, taking into account the requirements of the passive services, in frequency bands above 71 GHz,

urges administrations

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to note the possibility of changes to Article 5 to accommodate emerging requirements for active services, as indicated in this Resolution, and to take this into account in the development of national policies and regulations,

invites the ITU Radiocommunication Sector

1 to continue its studies to determine if and under what conditions sharing is possible between active and passive services in the frequency bands above 71 GHz, such as, but not limited to, 116-122.25 GHz, 174.8-182 GHz, 185-190 GHz and 235-238 GHz;

2 to develop characteristics for active services sufficient to enable adjacent-band compatibility studies between the EESS (passive) and active services shown in Table 1 below, and conduct those compatibility studies in order to determine mandatory unwanted emission limits for the active services to protect the EESS (passive);

Deleted: to study under what conditions passive services operating in allocated frequency bands 100-102 GHz, 148.5-151.5 GHz, 182-185 GHz, 190-191.8 GHz and 226-231.5 GHz are compatible with active services allocated to adjacent bands;

TABLE 1

Frequency bands to be studied and corresponding active services to be included

<u>EESS (passive) frequency band</u>	<u>Active service frequency band</u>	<u>Active service</u>
<u>86-92 GHz</u>	<u>81-86 GHz</u>	<u>Mobile service</u>
	<u>92-94 GHz</u>	<u>MS (excluding RSST applications), Radiolocation service (excluding FOD detection applications)</u>
<u>114.25-116 GHz</u>	<u>111.8-114.25 GHz</u>	<u>Mobile service</u>
<u>148.5-151.5 GHz</u>	<u>141-148.5 GHz</u>	<u>Fixed service, Mobile service, Radiolocation service</u>
	<u>151.5-155.5 GHz</u>	<u>Fixed service, Mobile service, Radiolocation service</u>
<u>164-167 GHz</u>	<u>158.5-164 GHz</u>	<u>Mobile service, Mobile-satellite service (space-to-Earth)</u>
	<u>167-174.5 GHz</u>	<u>Inter-satellite service, Mobile service</u>
<u>182-185 GHz</u>	<u>174.8-182 GHz</u>	<u>Inter-satellite service</u>
	<u>185-190 GHz</u>	<u>Inter-satellite service</u>
<u>190-191.8 GHz</u>	<u>185-190 GHz</u>	<u>Inter-satellite service</u>
	<u>191.8-200 GHz</u>	<u>Fixed service, Inter-satellite service, Mobile service, Mobile satellite service, Radionavigation service (RNS), Radionavigation-satellite service (RNSS)</u>
<u>200-209 GHz</u>	<u>191.8-200 GHz</u>	<u>Fixed service, Inter-satellite service, Mobile service, Mobile-satellite service, Radionavigation service, Radionavigation- satellite service</u>
	<u>209-217 GHz</u>	<u>Fixed service, Fixed satellite service (Earth-to-space), Mobile service</u>
<u>226-231.5 GHz</u>	<u>217-226 GHz</u>	<u>Fixed service, Fixed satellite service (Earth-to-space), Mobile service</u>
	<u>231.5-235 GHz</u>	<u>Fixed service, Fixed satellite service (space-to-Earth), Mobile service</u>

3 to conduct studies to determine the specific conditions to be applied to the land-mobile and fixed-service applications to ensure the protection of EESS (passive) applications in the frequency bands 296-306 GHz, 313-318 GHz and 333-356 GHz;

4 to study means of avoiding adjacent-band interference from space services (downlinks) into radio astronomy frequency bands above 71 GHz;

5 to take into account the principles of burden-sharing to the extent practicable in their studies;

6 to complete the necessary studies when the technical characteristics of the active services in these frequency bands are known;

7 to develop Recommendations specifying sharing criteria for those frequency bands where sharing is determined to be feasible under invites the ITU Radiocommunication Sector 1;

8 to develop Recommendations and/or Reports specifying unwanted emission limits necessary to ensure protection of the EESS (passive) as requested under invites the ITU Radiocommunication Sector 2, instructs the Secretary-General

to bring this Resolution to the attention of the international and regional organizations concerned.

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Reasons: To update Resolution 731 (Rev. WRC-23) with the results of WRC-27 agenda item 1.18 (*resolves I*).

SUP USA/4498A18/10

RESOLUTION 712 (WRC-23)

Studies on compatibility between the Earth exploration-satellite service (passive), the radio astronomy service in certain bands above 76 GHz, and active services in adjacent and nearby frequency bands

Reasons: The work under Resolution 712 (WRC-23) is complete.

UNITED STATES OF AMERICA

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 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);*

BACKGROUNDExecutive Summary of Issue B

Under *Resolves* 2 of Resolution 712 (WRC-23), the 2027 world radiocommunication conference was invited “to determine, based on the results of studies, any required regulatory measures regarding the protection of the RAS in the frequency bands listed in Table 2 and update Resolution 739 (Rev.WRC-19) accordingly”.

TABLE 2, RESOLUTION 712 (WRC-23)

RAS frequency bands to be studied and corresponding active services to be included

Radio astronomy frequency band	Active satellite service frequency band	Active satellite service (space-to-Earth)
76-81 GHz	71-76 GHz	Fixed-satellite service (FSS), mobile-satellite service (MSS), broadcasting-satellite service (BSS)
130-134 GHz	123-130 GHz	FSS, MSS, radionavigation-satellite service (RNSS)
164-167 GHz	167-174.5 GHz	FSS
226-231.5 GHz	232-235 GHz	FSS

The objective of this agenda item, in particular *resolves* 2 of Resolution 712 (WRC-23), is to determine, on the basis of the results of ITU-R studies, whether regulatory measures are required to ensure the protection of the radio astronomy service (RAS) operating in the frequency bands listed in Table 2 of Resolution 712 (WRC-23), and, where appropriate, to consider any update of Resolution 739 (Rev.WRC-19) accordingly.

This proposal provides the U.S. method also submitted to ITU-R Working Party 7D (February 2026).

WAC_27_050

PROPOSAL

The United States proposes modifications to Resolution **739 (Rev. WRC-19)**, and proposes suppression of Resolution **712 (WRC-23)** since it is no longer required.



PLENARY MEETING

**Addendum 18 to
Document 4575-E
26 May 2026
Original: English**

United States of America

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 1.18

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)**;

RESOLUTION 739 (REV.WRC-19)

Compatibility between the radio astronomy service and the active space services in certain adjacent and nearby frequency bands

MOD USA/4575A18/1

ANNEX TO RESOLUTION 739 (REV.WRC-19)

Unwanted emission threshold levels

The unwanted emission threshold levels applicable to geostationary space stations are given in Table 1 in terms of power flux-density (pfd) in a reference bandwidth produced at a radio astronomy station.

In Table 1, the unwanted emission threshold levels given in the fourth, sixth and eighth columns (associated with the reference bandwidth contained in the adjacent columns) should be met by any GSO space station operating in the frequency bands indicated in the second column at the radio astronomy station operating in the frequency band mentioned in the third column.

The unwanted emission threshold levels applicable to space stations of a non-geostationary-satellite (non-GSO) system are given in Table 2 in terms of the equivalent power flux-density (epfd) produced at a radio astronomy station in a reference bandwidth by all the space stations in a non-GSO system that are visible to the radio astronomy station considered, not to be exceeded during a given percentage of time, over the whole sky.

In Table 2, the epfd value given in the fourth, sixth and eighth columns (associated with the reference bandwidths contained in the adjacent column) should be met by all the space stations of a non-GSO system operating in the frequency bands indicated in the second column at the radio astronomy station operating in the frequency band mentioned in the third column. The epfd value at a given radio astronomy station shall be evaluated by using the antenna pattern and the radio astronomy service maximum antenna gain given in Recommendation ITU-R RA.1631-0. Guidance on the calculation of epfd can be found in Recommendations ITU-R S.1586 and ITU-R M.1583. The elevation angles of the radio astronomy stations to be taken into account in the epfd calculation are those higher than the minimum elevation angle θ_{min} of the radio telescope. In the absence of such information, a value of 5° shall be taken. The percentage of time during which the epfd level shall not be exceeded is mentioned in Note ⁽¹⁾ to Table 2.

Some sections of Report ITU-R SM.2091 indicate levels of unwanted emissions in radio astronomy frequency bands that certain satellite systems, by design, do not exceed.

TABLE 1
pfd thresholds for unwanted emissions from any GSO space station
at a radio astronomy station

Space service	Space service frequency band	Radio astronomy frequency band	Single dish, continuum observations		Single dish, spectral line observations		VLBI		Condition of application: the API is received by BR following the entry into force of the Final Acts of:
			pfd ⁽¹⁾	Reference bandwidth	pfd ⁽¹⁾	Reference bandwidth	pfd ⁽¹⁾	Reference bandwidth	
			(dB(W/m ²))	(MHz)	(dB(W/m ²))	(kHz)	(dB(W/m ²))	(kHz)	
MSS (space-to-Earth)	387-390	322-328.6	−189	6.6	−204	10	−177	10	WRC-07
BSS MSS (space-to-Earth)	1 452-1 492 1 525-1 559	1 400-1 427	−180	27	−196	20	−166	20	WRC-03
MSS (space-to-Earth) MSS (space-to-Earth)	1 525-1 559 1 613.8-1 626.5	1 610.6-1 613.8	NA	NA	−194	20	−166	20	WRC-03
RNSS (space-to-Earth)	1 559-1 610	1 610.6-1 613.8	NA	NA	−194	20	−166	20	WRC-07
BSS FSS (space-to-Earth)	2 655-2 670	2 690-2 700	−177	10	NA	NA	−161	20	WRC-03
FSS (space-to-Earth)	2 670-2 690	2 690-2 700 (in Regions 1 and 3)	−177	10	NA	NA	−161	20	WRC-03
	(GHz)	(GHz)	–	–	–	–	–	–	
BSS	21.4-22.0	22.21-22.5	−146	290	−162	250	−128	250	WRC-03 for VLBI, and WRC-07 for other types of observation
			–	(GHz)	–	(MHz)	–	(MHz)	
FSS MSS BSS	71-76	76-81	−146	5	−165	1	−129	1	WRC-27
FSS MSS RNSS	123-130	130-134	−140	4	−160	1	−123	1	WRC-27

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FSS	167-174.5	164-167	-138	3	-158	1	-121	1	WRC-27
FSS	232-235	226-231.5	-134	5.5	-154	1	-117	1	WRC-27

NA: Not applicable, measurements of this type are not made in this frequency band.

⁽¹⁾ Integrated over the reference bandwidth with an integration time of 2 000 s.

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TABLE 2

**epfd thresholds⁽¹⁾ for unwanted emissions from all space stations of a non-GSO satellite system
at a radio astronomy station**

Space service	Space service frequency band	Radio astronomy frequency band	Single dish, continuum observations		Single dish, spectral line observations		VLBI		Condition of application: the API is received by BR following the entry into force of the Final Acts of:
			epfd ⁽²⁾	Reference bandwidth	epfd ⁽²⁾	Reference bandwidth	epfd ⁽²⁾	Reference bandwidth	
	(MHz)	(MHz)	(dB(W/m ²))	(MHz)	(dB(W/m ²))	(kHz)	(dB(W/m ²))	(kHz)	
MSS (space-to-Earth)	137-138	150.05-153	-238	2.95	NA	NA	NA	NA	WRC-07
MMSS (space-to-Earth)	157.1875-157.3375 161.7875-161.9375	150.05-153	-238	2.95	NA	NA	NA	NA	WRC-19
MMSS (space-to-Earth)	157.1875-157.3375 161.7875-161.9375	322-328.6	-240	6.6	-255	10	-228	10	WRC-19
MSS (space-to-Earth)	387-390	322-328.6	-240	6.6	-255	10	-228	10	WRC-07
MSS (space-to-Earth)	400.15-401	406.1-410	-242	3.9	NA	NA	NA	NA	WRC-07
MSS (space-to-Earth)	1 525-1 559	1 400-1 427	-243	27	-259	20	-229	20	WRC-07
RNSS (space-to-Earth) ⁽³⁾	1 559-1 610	1 610.6-1 613.8	NA	NA	-258	20	-230	20	WRC-07
MSS (space-to-Earth)	1 525-1 559	1 610.6-1 613.8	NA	NA	-258	20	-230	20	WRC-07
	(GHz)	(GHz)	=	(GHz)	=	(MHz)	=	(MHz)	
FSS MSS BSS	71-76	76-81	-229	5	-248	1	-212	1	WRC-27
FSS MSS RNSS	123-130	130-134	-219	4	-239	1	-202	1	WRC-27

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FSS	167-174.5	164-167	-219	3	-239	1	-202	1	WRC-27
ESS	232-235	226-231.5	-217	5.5	-237	1	-200	1	WRC-27

NA: Not applicable, measurements of this type are not made in this frequency band.

- (1) These epfd thresholds should not be exceeded for more than 2% of time.
- (2) Integrated over the reference bandwidth with an integration time of 2 000 s.
- (3) This Resolution does not apply to current and future assignments of the radionavigation-satellite system GLONASS/GLONASS-M in the frequency band 1 559-1 610 MHz, irrespective of the date of receipt of the related coordination or notification information, as appropriate. The protection of the radio astronomy service in the frequency band 1 610.6-1 613.8 MHz is ensured and will continue to be in accordance with the bilateral agreement between the Russian Federation, the notifying administration of the GLONASS/GLONASS-M system, and IUCAF, and with subsequent bilateral agreements with other administrations.

Reasons:

To update Resolution **739 (Rev. WRC-19)** with the results of studies under WRC-27 agenda item 1.18.

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RESOLUTION 712 (WRC-23)

Studies on compatibility between the Earth exploration-satellite service (passive), the radio astronomy service in certain bands above 76 GHz, and active services in adjacent and nearby frequency bands

The World Radiocommunication Conference (Dubai, 2023),

Reasons: The work under Resolution **712 (WRC-23)** is complete.