



## Radiocommunication Bureau (BR)

Circular Letter  
CCRR/75

9 August 2024

### To Administrations of Member States of ITU

Subject: **Draft rules of procedure to reflect WRC-23 decisions**

At its 96<sup>th</sup> meeting, the Radio Regulations Board (RRB) considered the impact of WRC-23 decisions and the general practice of the Radiocommunication Bureau in relation to current rules of procedure. As a result, the Board agreed on the schedule for the approval of draft new and modified rules of procedure contained in Document [RRB24-1/1\(Rev.2\)](#). Accordingly, the Bureau prepared a set of draft new or modified rules of procedure annexed to this Circular Letter:

- **Annex 1:** Addition of new rules of procedure on Nos. **5.457D**, **5.457E** and **5.457F** pursuant to Resolution **220 (WRC-23)**;
- **Annex 2:** Addition of new rules of procedure on Nos. **5.461**, **5.461AC** and **5.529A**;
- **Annex 3:** Addition of new rules of procedure on Nos. **5.474A**, **5.475A** and **5.478A** and relevant modifications to the rules of procedure related to Annex 2 to Appendix 4 (addition of new rules of procedure on item C.8.b.3.c with simultaneous suppression of the rules of procedure on item A.17.d)
- **Annex 4:** Addition of new rules of procedure on No. **5.480A** pursuant to Resolution **219 (WRC-23)**;
- **Annex 5:** Modification to existing rules of procedure on No. **9.11A**;
- **Annex 6:** Modification to existing rules of procedure on No. **9.27**;
- **Annex 7:** Modification to existing rules of procedure on No. **11.13**;
- **Annex 8:** Modification to existing rules of procedure on Nos. **11.31** and **11.32** following modifications to data items in Annex 2 to Appendix 4;
- **Annex 9:** Modification to existing rules of procedure on No. **11.43A**;
- **Annex 10:** Addition of new rules of procedure on No. **22.5K**;
- **Annex 11:** Addition of new rules of procedure on Annex 2 to Appendix 4 related to items A.4.b.7.d.1, A.27.b, A.33a and A.36.c;
- **Annex 12:** Addition of new rules of procedure on § 4.1.32 of Article 4 of Appendix **30A** and on § 6.39 of Article 6 of Appendix **30B**;
- **Annex 13:** Addition of new rules of procedure on Resolution **678 (WRC-23)**;
- **Annex 14:** Addition of new rules of procedure on the calculation of power-flux density levels produced by aeronautical earth stations in motion (A-ESIM) and their validation with the limits contained in Annex 3 to Resolution **169 (Rev.WRC-23)**, Annex 2 to Resolution **121 (WRC-23)** and Annex 2 to Resolution **123 (WRC-23)**.

In accordance with No. **13.17** of the Radio Regulations, these draft rules of procedure are made available to administrations for comments before being submitted to RRB pursuant to No. **13.14**. As indicated in No. **13.12A d)** of the Radio Regulations, any comments that you may wish to submit should reach the Bureau no later than **14 October 2024, 1600 UTC** in order to be considered at the 97<sup>th</sup> RRB meeting, scheduled for 11 – 19 November 2024. Comments should be sent by e-mail to [rrb@itu.int](mailto:rrb@itu.int).

Mario Maniewicz  
Director

#### **Annexes: 14**

Distribution:

- Administrations of Member States of ITU
- Members of the Radio Regulations Board

## Annex 1

Addition of new rules of procedure on Nos. **5.457D**, **5.457E** and **5.457F** pursuant to Resolution **220 (WRC-23)**

### Rules concerning

#### ARTICLE 5 of the RR

ADD

<b>5.457D, 5.457E and 5.457F</b>
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1 These provisions stipulate that the use of the frequency bands 6 425-7 125 MHz (in Region 1 and some countries in Regions 2 and 3) and 7 025-7 125 MHz (in Region 3) by the terrestrial component of International Mobile Telecommunications (IMT) shall be in accordance with Resolution **220 (WRC-23)**.

Resolution **220 (WRC-23)** specifies the technical conditions for the terrestrial component of IMT within the band 6 425-7 125 MHz. Accordingly, *resolves* 2 of Resolution **220 (WRC-23)** specifies that in order to ensure protection for the FSS (Earth-to-space), the level of expected equivalent isotropically radiated power (e.i.r.p.) spectral density emitted by an IMT base station as a function of the vertical angle above the horizon shall not exceed the values given in *resolves* 2 of that Resolution. No. **21.5** does not apply.

2 Considering that Appendix **4** does not contain the required data items to notify information on the expected e.i.r.p. spectral density mask specified in *resolves* 2 of Resolution **220 (WRC-23)**, the Board decided that when notifying frequency assignments for use by IMT base stations subject to *resolves* 2 of Resolution **220 (WRC-23)**, administrations notifying such frequency assignments (i.e. with the nature of service "IM") in the band 6 425-7 075 MHz shall provide in the "Remarks" field of each notice a commitment that the relevant IMT base station meets the expected e.i.r.p. spectral density mask specified in *resolves* 2 of Resolution **220 (WRC-23)**, for example, by the statement "complies with *resolves* 2 of Res. **220**". When examining compliance with *resolves* 2 of Resolution **220 (WRC-23)**, the Bureau shall accept a notice with the commitment statement that it is in compliance with this Resolution. In the absence of such a commitment, the notified frequency assignment will receive an unfavourable regulatory finding under No. **11.31**.

**Reasons:** *The World Radiocommunication Conference (Dubai, 2023) (WRC-23) adopted Nos. 5.457D, 5.457E and 5.457F identifying the additional frequency bands for the implementation of the terrestrial component of IMT systems subject to Resolution 220 (WRC-23). Resolves 2 of Resolution 220 (WRC-23) specifies that in order to ensure protection for the FSS (Earth-to-space), the level of expected e.i.r.p. spectral density emitted by an IMT base station as a function of the vertical angle above the horizon shall not exceed the values given in resolves 2 of that Resolution, (No. 21.5 does not apply).*

*The proposed rules of procedure are to provide guidance on how the expected e.i.r.p. should be notified by administrations and the compliance with those values by an IMT base station in the frequency band 6 425-7 075 MHz to be examined by the Bureau.*

*Effective date of application of these Rules: 1 January 2025.*

## Annex 2

Addition of new rules of procedure on Nos. **5.461**, **5.461AC** and **5.529A**

### Rules concerning

#### ARTICLE 5 of the RR

ADD

<b>5.461</b>
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The Board noted that the World Radiocommunication Conference (Dubai, 2023) had decided on specific conditions for the application of No. **9.21** for geostationary-satellite orbit (GSO) mobile-satellite service (MSS) networks and non-geostationary-satellite orbit (non-GSO) MSS systems in the frequency bands 7 250-7 375 MHz (space-to-Earth) and 7 900-8 025 MHz (Earth-to-space), i.e. that coordination under No. **9.21** shall not apply to GSO MSS networks for which complete coordination information is received by the Bureau as of 1 January 2025 with respect to non-GSO systems for which complete coordination or notification information, as appropriate, is received by the Bureau as of 1 January 2025.

Also, this provision stipulates that non-GSO systems for which complete coordination or notification information, as appropriate, is received by the Bureau as of 1 January 2025 shall not cause unacceptable interference to, or claim protection from, GSO MSS networks operating in accordance with the Radio Regulations.

The Board concluded that the application of No. **9.21** for satellite networks and systems in the MSS in the frequency bands 7 250-7 375 MHz (space-to-Earth) and 7 900-8 025 MHz (Earth-to-space) is as described in the Table below.

	Incoming		Existing		No. 9.21 applicability (see Preface to the BR IFIC (space services), Table 11A.1)
	Network/system	Date of receipt of coordination information (No. 9.6)	Network/system	Date of receipt of coordination (No. 9.6) or first notification information (No. 11.2)	
<b>7 250-7 375 MHz</b>					
GSO vs non-GSO	GSO MSS	< 01.01.2025	Non-GSO FSS or MSS	Any	YES (9.21/B)
	GSO MSS	>= 01.01.2025	Non-GSO FSS or MSS	< 01.01.2025	YES (9.21/B)
	GSO MSS	>= 01.01.2025	Non-GSO FSS or MSS	>= 01.01.2025	NO
	Non-GSO MSS	Any	GSO MSS or FSS	Any	YES (9.21/A)
GSO vs GSO	GSO MSS	Any	GSO MSS or FSS	Any	YES (9.21/A)
GSO, non-GSO vs terrestrial	GSO MSS Non-GSO MSS	Any	Terrestrial	Any	NO
<b>7 900-8 025 MHz</b>					
GSO vs non-GSO	GSO MSS	< 01.01.2025	Non-GSO FSS or MSS	Any	YES (9.21/B)
	GSO MSS	>= 01.01.2025	Non-GSO FSS or MSS	< 01.01.2025	YES (9.21/B)
	GSO MSS	>= 01.01.2025	Non-GSO FSS or MSS	>= 01.01.2025	NO
	Non-GSO MSS	Any	GSO MSS or FSS	Any	YES (9.21/A)
GSO vs GSO	GSO MSS	Any	GSO MSS or FSS	Any	YES (9.21/A)
GSO, non-GSO vs terrestrial	GSO MSS Non-GSO MSS	Any	Terrestrial	Any	YES (9.21/C)

**Reasons:** To deactivate the application of No. 9.21 in one direction only (in the case of GSO MSS satellite networks received after 1 January 2025 versus non-GSO MSS satellite systems received after 1 January 2025, see No. 5.461).

Effective date of application of this Rule: 1 January 2025.

**ADD****5.461AC**

This provision stipulates that, in the frequency band 7 375-7 750 MHz, non-geostationary-satellite orbit (non-GSO) systems operating in the fixed-satellite service (FSS) for which complete coordination or notification information, as appropriate, is received by the Bureau as of 1 January 2025 shall not cause unacceptable interference to, or claim protection from, geostationary-satellite orbit networks in the maritime mobile-satellite service operating in accordance with the Radio Regulations.

Since non-GSO systems in the FSS in the frequency band 7 375-7 750 MHz (space-to-Earth) are not subject to the coordination procedure under Section II of Article 9, the Board concluded that No. **5.461AC** applies to non-GSO systems operating in the FSS for which complete notification information is received by the Bureau as of 1 January 2025.

**ADD****5.529A**

This provision stipulates that, in the frequency bands 20.2-21.2 GHz and 30-31 GHz, non-geostationary-satellite orbit (non-GSO) systems for which complete coordination or notification information, as appropriate, is received by the Bureau as of 1 January 2025 shall not cause unacceptable interference to, or claim protection from, geostationary-satellite orbit networks in the mobile-satellite service (MSS) operating in accordance with the Radio Regulations.

Since non-GSO systems in the fixed-satellite service (FSS) or MSS in the frequency bands 20.2-21.2 GHz and 30-31 GHz are not subject to the coordination procedure under Section II of Article 9, the Board concluded that No. **5.529A** applies to non-GSO systems operating in the FSS or MSS for which complete notification information is received by the Bureau from 1 January 2025.

**Reasons:** *To clarify that, in the cases referred to in Nos. **5.461AC** and **5.529A**, non-GSO networks are not subject to coordination.*

*Effective date of application of these Rules: 1 January 2025.*

### Annex 3

Addition of new rules of procedure on Nos. **5.474A**, **5.475A** and **5.478A** and relevant modifications to the rules of procedure related to Annex 2 to Appendix 4 (addition of new rules of procedure on item C.8.b.3.c with simultaneous suppression of the rules of procedure on item A.17.d)

#### Rules concerning

#### ARTICLE 5 of the RR

ADD

<b>5.474A, 5.475A, 5.478A</b>
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1 Pursuant to Nos. **5.474A**, **5.475A** and **5.478A** of the Radio Regulations, the Board noted that the use of active sensors in the space research service (SRS) (active) in the frequency band 9 300-9 900 MHz and in the Earth exploration-satellite service (EESS) (active) in the frequency band 9 200-10 400 MHz requires demonstration of compliance of such use with those footnotes, which means that the different sub-bands may only be used in a specific order based on the increasing requirement of the necessary bandwidth:

- 1.1 For active sensors in both the SRS (active) and the EESS (active), the frequency bands shall be used and submitted for registration in the following manner:
- For necessary bandwidths of 300 MHz or less, only the frequency band 9 500-9 800 MHz shall be used.
  - For necessary bandwidths greater than 300 MHz but less than or equal to 500 MHz, part or the whole of the frequency band 9 300-9 500 MHz, in addition to the frequency band 9 500-9 800 MHz, shall be used.
  - For necessary bandwidths greater than 500 MHz but less than or equal to 600 MHz, part or the whole of the frequency band 9 800-9 900 MHz, in addition to the frequency band 9 300-9 800 MHz, shall be used.
- 1.2 For the EESS (active) only, in addition to the conditions listed in § 1.1, the following additional frequency bands may be used and submitted for registration:
- For necessary bandwidths greater than 600 MHz but less than or equal to 1 200 MHz, part or the whole of the frequency bands 9 200-9 300 MHz and/or 9 900-10 400 MHz, in addition to the frequency band 9 200-9 900 MHz, may be used.

2 The Board further noted that non-geostationary-satellite orbit (non-GSO) systems in the SRS (active) and the EESS (active) are not subject to a coordination procedure in the frequency band 9 300-9 900 MHz and shall therefore be submitted in an advance publication of information in accordance with Section I of Article 9.

3 Since the use of the EESS (active) in the frequency bands 9 200-9 300 MHz and 9 900-10 400 MHz is subject to an agreement to be obtained under No. **9.21**, satellite networks and systems shall be submitted in a request for coordination under No. **9.30**. For those frequency bands to be validly submitted in a coordination request, the Board concluded that the frequency band 9 300-9 900 MHz shall be submitted, either at the same time or in an earlier submission, under the same satellite name (in the case of a non-GSO system, this submission shall be done through advance

publication information); otherwise, the relevant frequency assignments shall not be considered compliant with the Table of Frequency Allocations.

4 When an administration submits a notification under No. **11.2** containing frequency assignments to a station in the EESS (active) in the frequency band 9 200-10 400 MHz and/or in the SRS (active) in the frequency band 9 300-9 900 MHz, the Board decided that the following rules shall apply:

- When an administration submits a notification in the frequency band 9 300-9 500 MHz, the frequency band 9 500-9 800 MHz shall be notified in the same service and under the same satellite name, either at the same time or in an earlier submission, and the necessary bandwidth shall be greater than 300 MHz (see No. **5.475A**).
- When an administration submits a notification in the frequency band 9 800-9 900 MHz, the frequency band 9 300-9 800 MHz shall be notified in the same service and under the same satellite name, either at the same time or in an earlier submission, and the necessary bandwidth shall be greater than 500 MHz (see No. **5.478A**).
- When an administration submits a notification in the frequency bands 9 200-9 300 MHz and 9 900-10 400 MHz, the frequency band 9 300-9 900 MHz shall be notified in the EESS (active) and under the same satellite name, either at the same time or in an earlier submission, and the necessary bandwidth shall be greater than 600 MHz (see No. **5.474A**).

When the above conditions are not met, the relevant frequency assignments shall not be considered compliant with the Table of Frequency Allocations under No. **11.31** of the Radio Regulations and shall be given an unfavourable finding and returned to the notifying administration.

5 Notification submissions with separate assigned frequencies and bandwidths within the frequency bands 9 200-9 300 MHz, 9 300-9 800 MHz, 9 800-9 900 MHz and 9 900-10 400 MHz will receive separate findings based on the relevant allocation status for each of the frequency bands.

6 The Board recalled that notification submissions of a frequency assignment with an assigned frequency bandwidth overlapping the frequency band 9 800-9 900 MHz will receive a single finding based on a secondary allocation status in accordance with § 5.5 of the rules of procedure on No. **11.31**.

7 Finally, the Board decided that, in order for the Bureau to be able to examine the above-mentioned submissions under No. **11.31**, the information on the necessary bandwidth (item C.8.b.3.c of Annex 2 to Appendix 4) shall be provided for all such submissions, except in the case where only the frequency band 9 500-9 800 MHz is used.



**Rules concerning**  
**APPENDIX 4 to the RR**

**An. 2**

**ADD**

**C.8.b.3.c**

The Board noted that the World Radiocommunication Conference (Dubai, 2023) (WRC-23) added item C.8.b.3.c in order for notifying administrations to submit the necessary bandwidth for active sensors. WRC-23 made the submission of that item mandatory only for active sensors operating in the Earth exploration-satellite service (EESS) (active) in the frequency bands 9 200-9 300 MHz and 9 900-10 400 MHz.

However, in order for the Bureau to be able to examine conformity with respect to Nos. **5.475A** and **5.478A**, the necessary bandwidth information is also required for active sensors operating in the EESS (active) and the space research service (SRS) (active) when the frequency bands 9 300-9 500 MHz and 9 800-9 900 MHz are used.

Therefore, the Board decided that the necessary bandwidth information under item C.8.b.3.c is also required for active sensors operating in the EESS (active) and the SRS (active) using the frequency bands 9 300-9 500 MHz and 9 800-9 900 MHz at the stage of advance publication of information under Section I of Article **9** (for non-geostationary-satellite orbit systems), at the stage of request for coordination (for geostationary-satellite orbit networks) and at the stage of notification under Article **11**.

See also the rules of procedure on Nos. **5.474A**, **5.475A** and **5.478A**.

**SUP**

**A.17.d**

**Reasons:** *Following the revisions to the Table of Frequency Allocations by WRC-07 and WRC-15, the allocations to the SRS (active) and/or to the EESS (active) were extended from 300 MHz to 1 200 MHz in the frequency bands 9 500-9 800 MHz and 9 200-10 400 MHz with certain conditions attached to the use of those extended frequency bands contained in Nos. **5.474A**, **5.475A** and **5.478A**.*

*1 Those footnotes limit the use of the specific frequency bands to satellite systems that cannot be fully accommodated within an earlier allocated frequency band, as shown in chronological order of the allocations as follows:*

- 1.1 The band 9 500-9 800 MHz was the first frequency sub-band allocated to the SRS (active) and the EESS (active), at WRC-97;*
- 1.2 At WRC-07, the use of the SRS (active) and the EESS (active) was extended to the frequency bands 9 300-9 500 MHz and 9 800-9 900 MHz under the following conditions:*
  - No. **5.475A** indicates that the use of the frequency band 9 300-9 500 MHz is limited to systems requiring a necessary bandwidth greater than 300 MHz that cannot be fully accommodated within the frequency band 9 500-9 800 MHz.*

- No. **5.478A** indicates that the use of the frequency band 9 800-9 900 MHz is limited to systems requiring a necessary bandwidth greater than 500 MHz that cannot be fully accommodated within the frequency band 9 300-9 800 MHz.

1.3 WRC-15 further extended the use of the EESS (active) to the frequency bands 9 200-9 300 MHz and 9 900-10 400 MHz with the following condition:

- No. **5.474A** indicates that the use of the frequency bands 9 200-9 300 MHz and 9 900-10 400 MHz by the EESS (active) is limited to systems requiring a necessary bandwidth greater than 600 MHz that cannot be fully accommodated within the frequency band 9 300-9 900 MHz.

2 Other relevant regulatory aspects in the frequency band 9 200-10 400 MHz are listed below:

2.1 The use by the EESS (active) in the frequency bands 9 200-9 300 MHz and 9 900-10 400 MHz in accordance with No. **5.474A** is subject to coordination under No. **9.21** with respect to countries listed in that footnote. However, for non-geostationary-satellite orbit systems, the use of the EESS (active) and the SRS (active) in the frequency band 9 300-9 900 MHz is not subject to the coordination procedure under Section II of Article 9. As a result, a coordination request is required for the use of the EESS (active) in the frequency bands 9 200-9 300 MHz and 9 900-10 400 MHz and advance publication information is required for the use of the EESS (active) and the SRS (active) in the frequency band 9 300-9 900 MHz.

2.2 The EESS (active) and the SRS (active) are allocated on a secondary basis in the frequency band 9 800-9 900 MHz.

2.3 The chart below illustrates the regulatory situation of the allocation to the SRS (active) and/or the EESS (active) in the frequency band 9 200-10 400 MHz:

	9200	9300	9500	9800	9900	10400 (MHz)
Regulatory Procedures						
NGSO	No.9.21 (CRC)	No. 9.1(API)	No. 9.1 (API)	No,9.1(API)	No. 9.21 (CRC)	
GSO	No. 9.7 No. 9.21 (CRC)	No. 9.7(CRC)	No. 9.7(CRC)	No. 9.7(CRC)	No. 9.7 No. 9.21 (CRC)	
Service status	Primary	Primary	Primary	Secondary	Primary	
Service Allocation	EESS(active)	EESS(active) SRS(active)	EESS(active) SRS(active)	EESS(active) SRS(active)	EESS(active)	
Limitations of use	No. 5.474A  Can only be used when 9300-9900 MHz can no longer fully accommodate its use	No. 5.475A  Can only be used when 9500-9800 MHz can no longer fully accommodate its use	None	No. 5.478A  Can only be used when 9300-9800 MHz can no longer fully accommodate its use	No. 5.474A  Can only be used when 9300-9900 MHz can no longer fully accommodate its use	

3 Other regulatory provisions to take into consideration are listed below:

- 3.1 *WRC-23 added item C.8.b.3.c in Annex 2 to Appendix 4 in order to require the submission of the necessary bandwidth for active sensors operating in the EESS (active) in the frequency bands 9 200-9 300 MHz and 9 900-10 400 MHz.*
- 3.2 *In order to examine conformity with respect to Nos. 5.475A and 5.478A, the necessary bandwidth information is also required for active sensors operating in the EESS (active) and the SRS (active). Therefore, the application of item C.8.b.3.c to require submission of the necessary bandwidth should also be extended to active sensors operating in the EESS (active) and the SRS (active) in the frequency band 9 300-9 900 MHz.*
- 4 *Since WRC-23 decided on a new Appendix 4 item, namely item C.8.b.3.c, to request submission of the necessary bandwidth information, the existing rules of procedure on item A.17.d can be suppressed.*

*Effective date of application of this Rule: 1 January 2025.*

## Annex 4

### Addition of new rules of procedure on No. **5.480A** pursuant to Resolution **219 (WRC-23)**

#### Rules concerning

#### ARTICLE 5 of the RR

ADD

<b>5.480A</b>
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1 This provision stipulates that the use of the frequency band 10-10.5 GHz (in some Region 2 countries) by the terrestrial component of International Mobile Telecommunications (IMT) shall be in accordance with Resolution **219 (WRC-23)**.

2 Appendix **4** does not contain data items providing information that would enable examination of the compliance with the requirements of *resolves* 3, 4 and 5 of Resolution **219 (WRC-23)**.

Consequently, the Board decided that when administrations notify frequency assignments for use by IMT base stations subject to *resolves* 3, 4 and 5 of Resolution **219 (WRC-23)** (i.e. with the nature of service "IM") in the frequency band 10-10.5 GHz, they shall provide in the "Remarks" field of each notice a commitment that the IMT base station meets the levels specified in *resolves* 3, 4 and 5 of Resolution **219 (WRC-23)**, for example, by the statement "complies with *resolves* 3, 4 and 5 of **Res. 219**". When examining compliance with *resolves* 3, 4 and 5 of Resolution **219 (WRC-23)**, the Bureau shall accept such a notice with the commitment statement that it is in compliance with the Resolution. In the absence of such a commitment, the notified frequency assignment will receive an unfavourable regulatory finding under No. **11.31**.

**Reasons:** *The World Radiocommunication Conference (Dubai, 2023) (WRC-23) adopted No. 5.480A identifying an additional frequency band for IMT systems subject to the application of Resolution 219 (WRC-23). However, there are no means for the Bureau to check compliance with the e.i.r.p limit for elevation angles higher than 34 degrees and the total radiated power (TRP) in the out-of-band domain specified in resolves 3, 4 and 5 of that Resolution.*

*The proposed rule of procedure is to provide guidance on how administrations should notify the e.i.r.p. mask and the TRP, and how the Bureau should examine the compliance of those values of IMT stations.*

*Effective date of application of this Rule: 1 January 2025.*

## Annex 5

Modification to existing rules of procedure on No. **9.11A**

## Rules concerning

## ARTICLE 9 of the RR\*

**9.11A****MOD**

TABLE 9.11A-1

**Applicability of the provisions of Nos. 9.11A-9.14 to stations of space services**

1	2	3		4		5	6	7
Frequency band (MHz)	Footnote No.in Article 5	Space services mentioned in a footnote referring to Nos. <b>9.11A</b> , <b>9.12</b> , <b>9.12A</b> , <b>9.13</b> or <b>9.14</b> , as appropriate		Other space services or systems to which Nos. <b>9.12</b> to <b>9.14</b> provisions(s) apply equally, as appropriate		Applicable Nos. <b>9.12</b> to <b>9.14</b> provision(s), as appropriate	Terrestrial services in respect of which No. <b>9.14</b> apply equally	Notes
2 483.5-2 500	<b>5.402</b>	MOBILE-SATELLITE RADIODETERMINATION-SATELLITE	↓	---		<b>9.12, 9.12A, 9.13, 9.14</b>	FIXED MOBILE RADIOLOCATION (Region 2, Region 3) (see also Nos. <b>5.398A</b> & <b>5.399</b> )	
<a href="#">2 483.5-2 500</a>	<a href="#">5.402</a>	<a href="#">Radiodetermination satellite (Region 1 and Region 3)</a>	↓	—		<a href="#">9.12, 9.12A, 9.13</a>	<a href="#">— (See No. 5.399)</a>	

**Reason:** *The allocation of the frequency band 2 483.5-2 500 MHz to the radiodetermination-satellite service in Regions 1 and 3 was upgraded to primary status by the World Radiocommunication Conference (Geneva, 2012) (WRC-12).*

*Effective date of application of this Rule: immediately after approval.*

\* This Rule of Procedure refers to Articles **9**, **11**, to Articles 4 and 5 of Appendices **30** and **30A**, and to Articles 6 and 8 of Appendix **30B** of the Radio Regulations.

**MOD**

1	2	3	4	5	6	7	
Frequency band (GHz)	Footnote No. in Article 5	Space services mentioned in a footnote referring to Nos. <b>9.11A</b> , <b>9.12</b> , <b>9.12A</b> , <b>9.13</b> or <b>9.14</b> , as appropriate	Other space services or systems to which Nos. <b>9.12</b> to <b>9.14</b> provisions(s) apply equally, as appropriate	Applicable Nos. <b>9.12</b> to <b>9.14</b> provision(s), as appropriate	Terrestrial services in respect of which No. <b>9.14</b> apply equally	Notes	
17.3-17.7	<b>5.516</b>	FIXED-SATELLITE (non-GSO) (Region 1 and Region 3)	↑	FIXED-SATELLITE (non-GSO) (Region 1 and Region 2) BROADCASTING-SATELLITE (Nonnon-GSO) (Region 2)	↓	<b>9.12</b>	---
	<b>5.484A</b>	FIXED-SATELLITE (non-GSO) (Region 2)	↓	FIXED-SATELLITE (non-GSO) (Region 1) FIXED-SATELLITE (non-GSO) (Region 1 and Region 3)	↓ ↑	<b>9.12</b>	---

**Reason:** Changes resulting from the inclusion of No. **9.12** in the frequency band 17.3-17.7 GHz (space-to-Earth) in Region 2 and the modification of No. **5.517** under WRC-23 agenda item 1.19.

Effective date of application of this Rule: 1 January 2025.

**ADD**

TABLE 9.11A-2

**Applicability of the provisions of No. 9.15 to earth stations of a non-geostationary satellite network and No. 9.16 to stations of terrestrial services**

1	2	3	4	5	6	7
Frequency band (MHz)	Footnote No. in Article 5	Terrestrial services to which No. <b>9.16</b> applies and in respect of which No. <b>9.15</b> applies	Space services mentioned in a footnote referring to No. <b>9.11A</b> to which No. <b>9.15</b> applies and in respect of which No. <b>9.16</b> applies		Applicable Nos. <b>9.15</b> , <b>9.16</b> provision(s)	Notes
117.975-137	<b>5.198A</b>	AERONAUTICAL MOBILE (R) AERONAUTICAL MOBILE (OR) ( <b>5.201</b> , <b>5.202</b> )	AERONAUTICAL MOBILE-SATELLITE (R) (non-GSO)	↑↓	<b>9.15</b>	6

<sup>6</sup> The provisions of No. **9.16** do not apply to the aeronautical mobile (R) and aeronautical mobile (OR) services (see No. **5.198A**).

**Reason:** Changes resulting from the new aeronautical mobile-satellite (R) allocation in the band 117.975-137 MHz made by WRC-23 under agenda item 1.7.

Effective date of application of this Rule: 1 January 2025.

## Annex 6

### Modification to existing rules of procedure on No. 9.27

#### Rules concerning

#### ARTICLE 9 of the RR\*

#### MOD

<b>9.27</b>
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*[Editor's note: no change is proposed to sections 1 and 3 of the existing rules.]*

#### 2 Modification of characteristics of a satellite network during coordination

2.1 After an administration informs the Bureau of a modification of characteristics of its network, it is essential to establish its proper coordination requirements with respect to other administrations, i.e. with which administration(s), and for which of their network(s), the modified part of the network needs to effect coordination before it can be notified for recording.

2.2 The guiding principles for dealing with modifications are:

- general obligation to effect coordination before notification (No. 9.6), and
- the fact that coordination is not required when the nature of the change is such as not to increase the interference to or from, as the case may be, the assignments of another administration, as specified in Appendix 5.

2.3 Based on these principles, and provided that the appropriate coordination trigger limit is exceeded, the modified part of the network will need to effect coordination with respect to space networks that are to be taken into account for coordination:

- a) networks with "2D-Date"<sup>2</sup> before D1<sup>3</sup>;
- b) networks with "2D-Date" between D1 and D2<sup>4</sup>, where the nature of the change is such as to increase the interference to or from, as the case may be, the assignments of these networks. In case of GSO networks referred to in No. 9.7, including those to which the coordination arc approach has been applied (see No. 9.7 of Table 5-1 of Appendix 5), the increase of interference will be measured in terms of  $\Delta T/T$ , or pfd values when Resolution 553 (Rev.WRC-15) or Resolution 554 (WRC-12) apply. In case of non-GSO

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\* This Rule of Procedure refers to Articles 9, 11, to Articles 4 and 5 of Appendices 30 and 30A, and to Articles 6 and 8 of Appendix 30B of the Radio Regulations.

<sup>2</sup> The "2D-Date" is the date from which an assignment is taken into account as defined in § 1 e) of Appendix 5.

<sup>3</sup> D1 is the original "2D-Date" of the network undergoing modification.

<sup>4</sup> D2 is the date of receipt of request for modification. Concerning the date of receipt, see the Rule of Procedure on Receivability.

networks referred to in No. **9.7B**, the increase of interference will be measured in terms of a cumulative distribution function (**CDF**) of equivalent power-flux density (epfd) produced to these earth stations.

In cases involving non-GSO networks or systems referred to in Nos. **9.12**, **9.12A**, **9.13** or **9.21**, the increase in interference will be measured in terms of a CDF of the interference levels into the subsequently submitted non-GSO systems or GSO networks, expressed as an interference-to-noise (I/N) ratio for various locations and percentages of time. In conducting such analyses, the Bureau will consider only levels of I/N ratio equal to or greater than  $-30$  dB.

2.3.1 Where the coordination requirements of the modification involve any network under *b*) above, the modified assignments will have D2 as their “2D-Date”. Otherwise, they will retain D1 as their “2D-Date”.

2.3.2 In case of successive modifications of the same part of the network, if the next modification (compared with the previous modification) does not increase the interference to or from a particular network not included in the coordination requirements under *b*) above, that particular network will not be included in the coordination requirements of that next modification.

2.3.3 If it is not possible to verify that there is no increase of interference (e.g. in the absence of appropriate criteria or calculation methods), the “2D-Date” of the modified assignments will be D2.

2.4 When the frequency assignments of non-GSO networks or systems are subject to epfd limits contained in Nos. **22.5C**, **22.5D** and **22.5F**, and/or to coordination under No. **9.7B**, administrations may wish to modify previously submitted data required for Article **22** examination<sup>5</sup>. As the modified parameters are not used for coordination between non-GSO networks or systems, the modified frequency assignments will retain D1 as their “2D-Date” provided that:

- a) the previous assignments received favourable findings under No. **11.31** with respect to Article **22**;
- b) the modified assignments received a favourable finding under No. **11.31** with respect to Article **22** using the latest version of the epfd validation software;
- c) the modified assignments, in case that they are subject to No. **9.7B**, retain D1 as their “2D-Date” in accordance with §§ 2.3 to 2.3.2 above.

2.5 After having examined the modified network as described in § 2.3 and § 2.4 above, the Bureau shall publish the modification, including its coordination requirements, in the appropriate Special Section for comments by administrations within the usual 4-month period, as appropriate. Initial characteristics are thus replaced by the published modified characteristics, and only the latter will be taken into account in subsequent applications of No. **9.36**.

**Reasons:** *At its 95<sup>th</sup> meeting (4-8 March 2024), the Radio Regulations Board concluded that an increase in the aggregate I/N level representing a degradation of 0.004 dB of a modified satellite system could be considered as negligible. The Board further instructed the Bureau to confirm with ITU-R Working Party 4A that that level could be considered as negligible. At its meeting in May 2024, Working Party 4A agreed that, until Recommendation ITU-R S.1526 had been revised, it should be left to the Bureau to address the issue raised, based on its understanding and taking into account best and past practices.*

<sup>5</sup> Limited to the elements listed under A.14, A.4.b.6.a and A.4.b.7 of RR Appendix 4.



*At the 96<sup>th</sup> Board meeting (24-28 June 2026), the Bureau confirmed that treating I/N ratios of -30 dB as negligible was consistent with the existing practice of the Bureau where at least computational tolerances of 0.05 dB were used in its technical examination.*

*The Board decided to endorse the Bureau's decision to treat an I/N ratio of -30 dB as negligible and decided to reflect that decision in the rules of procedure on No. **9.27**.*

*Effective date of application of this Rule: immediately after approval.*

## Annex 7

### Modification to existing rules of procedure on No. 11.13

#### Rules concerning

#### ARTICLE 11 of the RR

#### MOD

#### 11.13

1 This provision stipulates that no notification shall be made of the frequencies that are prescribed for common use by stations of a given service. According to this provision, the Bureau established a list of the frequencies that enter into this category. This list is regularly updated and published in the Preface to the [International Frequency Information Circular \(BR IFIC\)](#) ~~International Frequency List (IFL)~~, in frequency order (Chapter VI of the Preface). The common frequencies appear in the Master International Frequency Register (Master Register) and in the [BR IFIC](#) ~~IFL~~.

**Reason:** Editorial modification by the World Radiocommunication Conference (Sharm el-Sheikh, 2019) (WRC-19) modified the IFL to the BR IFIC.

*Effective date of application of this Rule: immediately.*

2 A summary of the frequencies/frequency bands that are prescribed for common use, is given below:

- GMDSS frequencies for distress and safety calling using DSC techniques (2 187.5 kHz, 4 207.5 kHz, 6 312 kHz, 8 414.5 kHz, 12 577 kHz, 16 804.5 kHz and 156.525 MHz);
- ~~GMDSS frequencies for distress and safety traffic by NBDP telegraphy (2 174.5, 4 177.5, 6 268, 8 376.5, 12 520 and 16 695 kHz);~~
- GMDSS frequencies for distress and safety traffic by radiotelephony (2 182 kHz, 4 125 kHz, 6 215 kHz, 8 291 kHz, 12 290 kHz, 16 420 kHz and 156.8 MHz);
- International frequencies for search and rescue operations (2 182 kHz, 3 023 kHz, 5 680 kHz, 8 364 kHz, 10 003 kHz, 14 993 kHz, 19 993 kHz, 121.5 MHz, 123.1 MHz, 156.3 MHz, 156.8 MHz, 161.975 MHz, 162.025 MHz and 243 MHz);
- International frequencies for digital selective calling, for purposes other than distress and safety (455.5, 458.5, 2 177, 2 189.5, 4 208, 4 208.5, 4 209, 4 219.5, 4 220, 4 220.5, 6 312.5, 6 313, 6 313.5, 6 331, 6 331.5, 6 332, 8 415, 8 415.5, 8 416, 8 436.5, 8 437, 8 437.5, 12 577.5, 12 578, 12 578.5, 12 657, 12 657.5, 12 658, 16 805, 16 805.5, 16 806, 16 903, 16 903.5, 16 904, 18 898.5, 18 899, 18 899.5, 19 703.5, 19 704, 19 704.5, 22 374.5, 22 375, 22 375.5, 22 444, 22 444.5, 22 445, 25 208.5, 25 209, 25 209.5, 26 121, 26 121.5 and 26 122 kHz);
- [International frequencies for automatic connection system \(ACS\) using digital selective calling for ship and coast stations \(2 174.5, 4 177.5, 6 268, 8 376.5, 12 520 and 16 695 kHz\);](#)

**Reasons:** The World Radiocommunication Conference (Dubai, 2023) (WRC-23) modified No. 5.110 which led to a change in the usage of the frequencies 2 174.5 kHz, 4 177.5 kHz, 6 268 kHz, 8 376.5 kHz, 12 520 kHz and 16 695 kHz from international distress frequencies for narrow-band

direct-printing (NBDP) telegraphy to automatic connection system (ACS). Consequently, the provisions for GMDSS frequencies for distress and safety traffic by NBDP telegraphy (2 174.5, 4 177.5, 6 268, 8 376.5, 12 520 and 16 695 kHz) should be removed from the rules of procedure in Part A1, Section AR11. Accordingly, the provisions for ACS frequencies (2 174.5, 4 177.5, 6 268, 8 376.5, 12 520 and 16 695 kHz) should be added to the rules of procedure in Part A1, Section AR11.

*Effective date of application of this Rule: 1 January 2025.*

- ~~– International frequencies for selective calling using the sequential single frequency code system (2 170.5, 4 125, 4 417, 6 516, 8 779, 13 137, 17 302, 19 770, 22 756 and 26 172 kHz);~~
- International frequencies for radiotelephone calling (4 125, 4 417, 6 215, 6 516, 8 255, 8 779, 12 290, 12 359, 13 137, 16 420, 16 537, 17 302, 18 795, 19 770, 22 060, 22 756, 25 097 and 26 172 kHz);
- International ship-to-shore working or intership frequencies (2 045, 2 048, 2 635 and 2 638 kHz);
- 410 kHz, worldwide frequency for radio direction-finding in the maritime radionavigation services;
- 75 MHz, worldwide frequency assigned to aeronautical marker beacons.

### 3 NOC

**Reason:** Editorial modification reflecting the decisions of WRC-07 and removing the obsolete rules of procedure for sequential single frequency selective-calling systems used for calling ships described in the suppressed Recommendation ITU-R M.257-3 containing those frequencies (2 170.5, 4 125, 4 417, 6 516, 8 779, 13 137, 17 302, 19 770, 22 756 and 26 172 kHz).

*Effective date of application of this Rule: immediately.*

## Annex 8

Modification to existing rules of procedure on Nos. **11.31** and **11.32** following modifications to data items in Annex 2 to Appendix 4

### Rules concerning

#### ARTICLE 11 of the RR

#### MOD

<b>11.31</b>
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[Editor's note: No changes are proposed to §§ 1 to 7 of the Rules.]

#### ADD

8 For the examination of conformity with power limits, including power flux-density limits and e.i.r.p limits, the Board noted that the transmission characteristics defined at the emission level of a frequency assignment are used together with the associated antenna gain characteristics. The transmitted power levels are derived from Appendix 4 data items C.8.a.1/C.8.b.1 – maximum/total peak envelope power and items C.8.a.2/C.8.b.2 – the maximum power density. The Board decided that other Appendix 4 elements providing either maximum or average beam peak e.i.r.p. as a single value or as a function of the elevation angle (Appendix 4 data items B.4.b.4.a. B.4.b.4.abis, B.4.b.4.ater, B.4.b.4.b, B.4.b.4.c, B.4.b.4.cbis, B.4.b.4.cter, B.4.b.4.d) could not be used to calculate the transmitted power for the purpose of examination under No. **11.31**. However, those elements may be used during bilateral coordination between administrations.

**Reasons:** *The World Radiocommunication Conference (Dubai, 2023) (WRC-23) added four new optional Appendix 4 data items:*

- *B.4.b.4.abis for fixed beam pointed away from the nadir direction only, the maximum beam peak e.i.r.p./4 kHz eirp4kHzmax ( $\theta_e$ ) as a function of the elevation angle ( $\theta_e$ ) above the horizontal plane at the Earth's surface at the minimum altitude at which any satellite within the satellite system operates;*
- *B.4.b.4.ater for steerable beam, the maximum beam peak e.i.r.p./4 kHz eirp4kHzmax( $\theta_e$ ) as a function of the elevation angle ( $\theta_e$ ) above the horizontal plane at the Earth's surface;*
- *B.4.b.4.cbis for fixed beam pointed away from the nadir direction only, the maximum beam peak e.i.r.p./1 MHz eirp1MHzmax ( $\theta_e$ ) as a function of the elevation angle ( $\theta_e$ ) above the horizontal plane at the Earth's surface at the minimum altitude at which any satellite within the satellite system operates;*
- *B.4.b.4.cter for steerable beam, the maximum beam peak e.i.r.p./1 MHz eirp1MHzmax ( $\theta_e$ ) as a function of the elevation angle ( $\theta_e$ ) above the horizontal plane at the Earth's surface.*

*The Board concluded that those characteristics together with existing data items B.4.b.4.a, B.4.b.4.b, B.4.b.4.c and B.4.b.4.d could not be used for examinations under No. **11.31**, since the minimum*

required emission characteristics had already been provided under Appendix 4 data items C.8.a.1/C.8.b.1 and C.8.a.2/C.8.b.2 at the frequency assignment level, and findings were established per frequency assignment group and not at the beam level. Moreover, no validation method was available to verify whether those transmission characteristics at the beam level corresponded to the characteristics at the emission level.

Administrations may, however, wish to use such information during bilateral coordination.

## ADD

9 In cases where the satellite network or system containing frequency assignments to the service link (see information submitted under data item A.1.c of Annex 2 to Appendix 4) does not belong to the same notifying administration as the frequency assignments to the feeder link and the notifying administration of the satellite network or system containing the service link does not agree to such use, the Board decided that the latter administration shall inform the notifying administration of the feeder link and the Bureau. Following the receipt of such information and in the absence of any contrary information, the Bureau will review the finding of the frequency assignments to the feeder link under No. **11.31**.

**Reasons:** *The World Radiocommunication Conference (Dubai, 2023) (WRC-23) introduced data item A.1.c in Appendix 4 to request information on the identity of the satellite network or system containing frequency assignments to the service link. The submission of that information is required when it is different from the identity of the satellite network or system containing the feeder-link frequency assignments and is applicable for frequency assignments to space stations in frequency bands where the use of the allocation is limited to feeder links. The rules of procedure aim to clarify the examination procedure when the satellite network or system containing the service links does not belong to the same notifying administration.*

*Effective date of application of this Rule: January 2025.*

## MOD

**11.32**

### 1 Examination of a frequency assignment to a space station

1.1 The literal application of this provision would lead to the examination of the notified assignment with any station identified in application of No. **9.27** while this examination or a major part of it was already done during the application of the coordination procedure. The Board adopted a practical approach which consists of the following:

*[Editor's note: no change is proposed to the rest of the existing text of this paragraph.]*

1.2 The Board noted that [the World Radiocommunication Conference \(Dubai, 2023\) \(WRC-23\) suppressed the following data items in Annex 2 to Appendix 4: item A.4.b.4.g - the right ascension of the ascending node \(RAAN\), and items A.4.b.4.k/ A.4.b.4.l \(RR 2020 edition\) - the date and time at which the satellite is at the location defined by the longitude of the ascending node.](#) The Board

decided that information submitted prior to 1 January 2025 on the right ascension of the ascending node of orbital planes for non-geostationary satellite (non-GSO) systems subject to Section II of Article 9 should continue to be used during coordination (including during examination of a modification to frequency assignments of non-GSO systems in application of the rule of procedure on No. 9.27) when no information is available on the longitude of the ascending node (see data item A.4.b.4.j of Annex 2 to Appendix 4) for the same orbital plane or when it is different from the existing longitude of the ascending node.

**Reasons:** WRC-23 suppressed data items A.4.b.4.g - the right ascension of the ascending node (RAAN) and A.4.b.4.k/ A.4.b.4.l (RR 2020 edition) - the date and time at which the satellite is at the location defined by the longitude of the ascending node. The reference date and time in data items A.4.b.4.k/ A.4.b.4.l provided a relationship between the initial longitude of the ascending node (LAN) (see Appendix 4, data item A.4.b.4.j), which is a geocentric-based reference, and the right ascension of the ascending node, which is a celestial reference.

With the suppression of data elements A.4.b.4.g, A.4.b.4.k/ A.4.b.4.l (RR 2020 edition), Appendix 4 data element A.4.b.4.j should continue to represent the geocentric orientation of an orbital plane and should normally correspond to the previously submitted RAAN value. If the LAN is missing for any orbital plane, the Bureau will enter the value corresponding to the RAAN in A.4.b.4.j. Where the RAAN and LAN are different, the Bureau will consult the notifying administration to decide whether the value in A.4.b.4.j needs to be changed to the one provided for the RAAN. The rule is therefore proposed to clarify that the RAAN will continue to be used during coordination pending any corresponding alignment of the LAN by the Bureau.

Effective date of application of this Rule: 1 January 2025.

## Annex 9

### Modification to existing rules of procedure on No. **11.43A**

#### Rules concerning

#### ARTICLE 11 of the RR

#### MOD

<b>11.43A</b>
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1 Modification of a space network may take place during the coordination process; this case is covered in the comments under the Rules of Procedure concerning Nos. **9.27** (§ 2), **9.58**, **11.28** and **11.32**.

2 If the modification concerns the notification of assignment(s) in frequency band(s) not covered by other assignment(s) already recorded in the Master Register, No. **11.43A** does not apply and it will be processed under No. **11.2** or **11.9**, as appropriate.

The purpose of the examination under No. **11.43A** is to determine whether the coordination requirements remained unchanged or, where appropriate, whether the probability of harmful interference has not increased (see also the Rules of Procedure concerning Nos. **11.28** and **11.32**). In these cases, the provisions of No. **11.43B** apply with the effect of maintaining unchanged the status (Findings) and the date of receipt-protection of the assignment. If, due to the modifications, new coordination requirements are identified by comparing the level of interference (such as  $\Delta T/T$ ) (see also §§ 2.3 and 2.4 of the rules of procedure on No. 9.27) resulted from consideration of the initial characteristics and that of modified characteristics, then an unfavourable finding shall be given and the Form of Notice shall be returned to the notifying administration. The notifying administration should be requested to apply Section II of Article 9. The findings with respect to No. **11.32** are determined on the basis of the coordination agreements effected to meet the new coordination requirements. In the case, where the provisions of Nos. **11.32A** and **11.33** are applicable and the examinations show an increase in the probability of harmful interference compared with that which resulted from the initial examination, then the finding is unfavourable and the notice shall be returned in accordance with provision No. **11.38**. See also the Rules of Procedure under No. **11.43B**.

**Reason:** *To align the technical criteria used in the examination under No. **11.43A** with those used in the rules of procedure on No. **9.27**.*

*Effective date of application of this Rule: 1 January 2025.*

## Annex 10

### Addition of new rules of procedure on No. **22.5K**

#### Rules concerning

#### ARTICLE 22 of the RR

#### ADD

<b>22.5K</b>
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Noting that references to Resolution **76 (Rev.WRC-23)** were not updated by the World Radiocommunication Conference (Dubai, 2023) (WRC-23) in No. **22.5K**, the Board decided that the provision applies to non-geostationary satellite (non-GSO) systems operating in the fixed-satellite service in the frequency bands and regions listed in Tables 1A, 1B, 1C and 1D of Resolution **76 (Rev.WRC-23)**. In addition, the Board concluded that it does not apply to non-GSO systems operating in the fixed-satellite service in the frequency band 17.3-17.7 GHz in Region 2.

**Reasons:** WRC-23 reviewed Resolution **76 (Rev.WRC-23)** "Protection of geostationary fixed-satellite service and geostationary broadcasting-satellite service networks from the maximum aggregate equivalent power flux-density produced by multiple non-geostationary fixed-satellite service systems in frequency bands where equivalent power flux-density limits have been adopted". However No. **22.5K** was not revised to update the references to Resolution **76 (Rev.WRC-23)**.

*Resolves 1 and 2 as well as Tables 1A to 1D in Resolution **76 (Rev.WRC-23)** referred to in No. **22.5K** were not reviewed (except editorial modifications in resolves 2).*

*Table 1B of Resolution **76 (Rev.WRC-23)** with the limits on aggregate epfd on the downlink radiated by non-GSO FSS systems does not include the frequency band 17.3-17.7 GHz in Region 2 for which an additional allocation was made by WRC-23 in Region 2 and for which a single-entry epfd limit was included in Table 22-1B of Article **22** referred to in No. **22.5K**. The Board understood that there could be a reason not to include the frequency band 17.3-17.7 GHz in Resolution **76 (Rev.WRC-23)**. The operation of non-GSO FSS systems in that frequency band in Region 1 was not subject to Article **22** epfd limits on the downlink, even though the FSS (space-to-Earth) allocation in Region 1 was decided by the World Radiocommunication Conference (Geneva, 2003) (WRC-03). Thus, it might be complicated to apply an aggregate limit on operations of non-GSO systems in the frequency band 17.3-17.7 GHz in two regions without applying a single-entry limit in both regions.*

*The Board concluded that the revision of No. **22.5K** had been inadvertently omitted during WRC-23 and clarification was required on the scope of the application of No. **22.5K**.*

*Effective date of application of this Rule: 1 January 2025.*



## Annex 11

Addition of new rules of procedure on Annex 2 to Appendix 4 related to items A.4.b.7.d.1, A.27.b, A.33a and A.36.c

### Rules concerning

#### APPENDIX 4 to the RR

##### An. 2

#### ADD

##### A.4.b.7.d.1

The Board noted that the World Radiocommunication Conference (Dubai, 2023) had modified data item A.14.c.4, i.e. the type of mask, among one of the following types: (Earth-based exclusion zone angle, difference in longitude, latitude) or (satellite azimuth, satellite elevation, latitude mean power), to remove the reference to satellite-based exclusion zone angle and difference in longitude, latitude – the so-called X-DeltaLongitude mask. The change was made following the publication of Recommendation ITU-R S.1503-4, which had removed that type of mask.

The Board further noted that Recommendation ITU-R S.1503-4 also limited type of exclusion zone to only Earth-based exclusion zone by removing the satellite-based exclusion zone method; however, no change had been made to the description of item A.4.b.7.d.1 – *the type of zone (based on topocentric angle or satellite-based angle for establishing the exclusion zone)*.

Since only one type of exclusion zone, which shall be Earth-based (i.e. based on topocentric angle), can be used, the Board decided that notifying Administrations are not required to submit data item A.4.b.7.d.1 and that the Bureau shall apply the Earth-based exclusion zone method for all notices received as of 1 January 2025.

**Reasons:** *To avoid potential mismatches between type of exclusion zone method and type of pfd mask.*

*Effective date of application of this Rule: 1 January 2025.*

#### ADD

##### A.27.b

The Board noted that item A.27.b under Annex 2 to Appendix 4 is required only for non-geostationary-satellite orbit (non-GSO) space stations submitted in accordance with Resolution 679 (WRC-23).

The description of the item shares similarities with the text of *further resolves 2* of Resolution **679 (WRC-23)**; however:

- *further resolves 2* refers to a firm, objective, actionable, measurable and enforceable commitment; and
- the commitment under *further resolves 2* shall be provided not only by the notifying administration of a non-GSO system but also by the notifying administration of a geostationary-satellite orbit (GSO) network receiving in the frequency band 27.5-30 GHz.

Consequently, the Board concluded that the commitment referred to in item A.27.b shall be provided by the notifying administration of a GSO network or of a non-GSO system receiving in the frequency band 27.5-30 GHz. The Board recalled that notifying administrations providing a commitment under item A.27.b shall ensure that such commitments be firm, objective, actionable, measurable and enforceable.

**Reasons:** *In accordance with further resolves 1 d) of Resolution 679 (WRC-23), the notifying administration for a non-GSO system operating inter-satellite links and receiving in the frequency bands 27.5-29.1 GHz and 29.5-30 GHz or of a GSO network operating inter-satellite links and receiving in the frequency band 27.5-30 GHz is responsible for eliminating any case of unacceptable interference.*

*In accordance with further resolves 2 of Resolution 679 (WRC-23), the notifying administration for a GSO network or for a non-GSO system receiving in the frequency band 27.5-30 GHz shall submit a firm, objective, actionable, measurable and enforceable commitment that, in the event of reported unacceptable interference, it undertakes to immediately eliminate the interference or reduce it to an acceptable level, following the procedures outlined in further resolves 3 of that Resolution.*

*Item A.27.b under Annex 2 to Appendix 4 requires a commitment from the notifying administration of space stations receiving in the frequency band 27.5-30 GHz that, upon receiving a report of unacceptable interference, the notifying administration will follow the procedures under further resolves 3 of Resolution 679 (WRC-23). That commitment is required only from notifying administrations of non-GSO space stations submitted in accordance with that Resolution, which relates to the use of the frequency band 27.5-30 GHz. The description of the item is similar, but not identical, to the text of further resolves 2 of Resolution 679 (WRC-23).*

*This Rule aims to resolve those inconsistencies, while maintaining the responsibilities established in Resolution 679 (WRC-23), i.e. that the notifying administration of a non-GSO system operating inter-satellite links and receiving in the frequency bands 27.5-29.1 GHz and 29.5-30 GHz or of a GSO network operating inter-satellite links and receiving in the frequency band 27.5-30 GHz is responsible for eliminating any case of unacceptable interference.*

*Effective date of application of this Rule: 1 January 2025.*

## ADD

<b>A.33.a, A.36.c</b>
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The Board noted that a “point of contact” is mentioned in Resolutions **121 (WRC-23)**, **123 (WRC-23)**, **156 (Rev.WRC-23)**, **169 (Rev.WRC-23)**, **679 (WRC-23)** and **902 (Rev.WRC-23)** for various purposes.

However, only in two instances, i.e. with respect to *resolves 10.5* of Resolution **121 (WRC-23)** and *resolves 7.5* of Resolution **123 (WRC-23)**, information on the point of contact is included as a

requirement in Annex 2 to Appendix 4 (see mandatory items A.33.a and A.36.c). For both cases, it is indicated that the point of contact is for the purpose of tracing any suspected cases of unacceptable interference and that the point of contact is required to immediately respond to such requests.

Similar descriptions are given in Resolutions **169 (Rev.WRC-23)** and **679 (WRC-23)**: a point of contact is required for the purpose of tracing any suspected cases of unacceptable interference and responding immediately to such cases; however, no requirement to provide information on the point of contact is included in Annex 2 to Appendix 4. Noting the similarity of the requirements for the point of contact described in all those resolutions, the Board decided that item A.36.c of Annex 2 to Appendix 4 is also required for submissions of earth stations in motion under Resolutions **169 (Rev.WRC-23)** and **679 (WRC-23)**.

The information to be provided on the point of contact shall include the name of the person or entity and the e-mail address, contact telephone number and address. The information shall be captured along with other Appendix 4 data items using the Bureau's capture software. The Board noted that Resolution **121 (WRC-23)** mentions that the information should be published in a special section, whereas Resolution **123 (WRC-23)** contains no such mention.

However, the Board understands that all information required under Appendix 4 must be published, although not necessarily in a special section. The Board therefore concluded that the Bureau shall include the information in a reference database and make it available on its website and publish it along with other Appendix 4 data in a relevant special section or part of its International Frequency Information Circular (BR IFIC).

**Reasons:** *To clarify the process of submitting and publishing information on points of contact.*

*Effective date of application of this Rule: 1 January 2025*

## Annex 12

Addition of new rules of procedure on § 4.1.32 of Article 4 of Appendix **30A**  
and on § 6.39 of Article 6 of Appendix **30B**

### Rules concerning

#### APPENDIX 30A to the RR

(Rules are arranged by paragraph numbers of Appendix **30A**)

#### Art. 4

#### Procedures for modifications to the Region 2 feeder-link Plan or for additional uses in Regions 1 and 3

#### ADD

#### 4.1.32

1 This provision indicates to the Bureau how to generate the satellite antenna gain diagram for a frequency assignment in the Regions 1 and 3 feeder-link List when examining a submission under § 4.1.30. The first step to generate the diagram is to create the -10 dB contour of minimum ellipses for all territories inside each service area of the satellite network(s) identified under § 4.1.1b) of Appendix **30A**. A question arises as to which space station antenna pattern shall be used in application of § 4.1.32. The Board instructed the Bureau to use the Appendix **30A** reference receiving space station antenna pattern for Regions 1 and 3 without fast roll-off for creating the minimum ellipse covering a territory and the -10 dB contour of each individual minimum ellipse. The pattern corresponds to the pattern code APSRR\_403V01 in the Antenna Pattern Library maintained by the Bureau.

2 To ensure that there are enough test points to generate each minimum ellipse, the individual set of test points per national territory should be those contained in the corresponding feeder-link Plan assignment plus the originally submitted test points associated with the service area and located inside that territory. If the total number of test points for any territory in a service area is less than 20, the Bureau shall consult the notifying administration of the identified satellite network to find out whether it wishes to add more test points in that territory.

3 In creating the minimum ellipses, the Board decided that a rotation accuracy of  $1.0^\circ$  and a pointing error of  $0.1^\circ$  should be taken into account.

4 The test points taken from national assignments in the feeder-link Plan or added during the application of § 4.1.32 are only for the purpose of generating the minimum ellipses and the combined ellipses and will not be used in technical examinations.

**Reasons:** *The rule clarifies the space station antenna pattern and the approach to be used in generating the minimum ellipses and –10 dB contours in application of § 4.1.32. It also clarifies which test points as well as rotation accuracy and pointing error are to be used in the generation of the minimum ellipse and the combined ellipse.*

*Effective date of application of this Rule: 1 January 2025.*

## Rules concerning

### APPENDIX 30B to the RR

#### Art. 6

#### Procedures for the conversion of an allotment into an assignment for the introduction of an additional system or for the modification of an assignment in the List

#### ADD

#### 6.39

1 This provision indicates to the Bureau how to generate the uplink satellite antenna gain diagram for a frequency assignment to an additional system not subject to Resolution **170 (Rev.WRC-23)** or to a conversion of an allotment into a frequency assignment with modification outside the envelope of the allotment and not subject to Resolution **170 (Rev.WRC-23)** during the examination of a submission under § 6.37. The first step to generate the diagram is to create the -10 dB contour of minimum ellipses for all territories inside each service area of the satellite network identified under § 6.5. A question arises as to which space station antenna pattern shall be used in application of § 6.39. The Board instructed the Bureau to use the Appendix **30B** space station antenna co-polar pattern for receiving and transmitting antennas for all Regions without fast roll-off for creating the minimum ellipse covering a territory and the –10 dB contour of each individual minimum ellipse, as it is also used for the determination of coordination requirements and interference assessment in the FSS Plan. The co-polar pattern corresponds to the pattern code APSRR\_401V01 in the Antenna Pattern Library maintained by the Bureau.

2 To ensure that there are enough test points to generate each minimum ellipse, the individual set of test points per national territory should be those contained in the national allotment plus the originally submitted test points associated with the service area and located inside that territory. If the total number of the test points for any territory in a service area is less than 20, the Bureau shall consult the notifying administration of the identified satellite network to find out whether it wishes to add more test points in that territory.

3 In creating the minimum ellipses, the Board decided that a rotation accuracy of 1.0° and a pointing error of 0.1° should be taken into account.

4 The test points taken from the national allotment or added during the application of § 6.39 are only for the purpose of generating the minimum ellipses and the combined ellipses and will not be used in technical examinations.

**Reasons:** *This rule clarifies the space station antenna patterns and the approach to be used in generating the minimum ellipses and –10 dB contours in application of § 6.39. It also clarifies which test points as well as rotation accuracy and point error are to be used in the generation of the minimum ellipse and the combined ellipse.*

*Effective date of application of the Rule: 1 January 2025.*

## Annex 13

### Addition of new rules of procedure on Resolution **678 (WRC-23)**

#### Rules concerning

#### PART A1

ADD

### RESOLUTION 678 (WRC-23)

#### Use of the frequency band 14.8-15.35 GHz by the space research service (space-to-space) (Earth-to-space) (space-to-Earth) and associated transitional measures

1 For the Bureau to be able to examine compliance with the power flux-density (pfd) level contained in *resolves* 1.1 of Resolution **678 (WRC-23)**, the Board decided that a commitment not to exceed the pfd level of  $-156 \text{ dB(W/m}^2\text{)}$  for more than 2% of the time in a 50 MHz bandwidth in the frequency band 15.35-15.4 GHz, at any radio astronomy site observing in the frequency band 15.35-15.4 GHz, is required when notifying earth stations operating in the space research service in the frequency band 14.8-15.35 GHz.

**Reasons:** *The World Radiocommunication Conference (Dubai, 2023) (WRC-23) decided to upgrade the space research service in the frequency band 14.8-15.35 GHz. To protect radio astronomy sites observing in the frequency band 15.35-15.4 GHz, commitments A.17.g.1 and A.17.g.2 of Appendix 4 must be provided for non-geostationary satellite systems and geostationary satellite systems, respectively, to meet the pfd and epfd limits specified in resolves 1.2 and 1.3 of Resolution 678 (WRC-23). However, no such commitment existed for earth stations, even though resolves 1.1 required any earth station in the space research service operating in the frequency band 14.8-15.35 GHz to meet the specified pfd limits to protect radio astronomy sites observing in the frequency band 15.35-15.4 GHz.*

2 In *resolves* 1.5, three pfd limits on the Earth's surface are listed as applicable to space stations in the space research service in the frequency band 14.8-15.35 GHz. The pfd limit of  $-145.6 \text{ dB(W/(m}^2 \cdot \text{MHz))}$  produced at any point on the Earth's surface and not to be exceeded for more than 1% of time within a 24-hour period is applicable to space-to-space links. The Board decided that the Bureau should apply the following methodology in order to establish findings under No. **11.31** related to this pfd limit.

#### 2.1 Direction of transmission

A finding shall be established only for frequency assignments in the satellite transmitting beams. In the case of a receiving beam when transmission is carried out by an associated space station, the finding shall be established for the frequency assignments of this associated space station.

## 2.2 Case where both space stations are using the geostationary-satellite orbit

The pfd level is calculated using static geometry. The pfd limit is considered as having been exceeded if the pfd level of  $-145.6 \text{ dB(W/(m}^2 \cdot \text{MHz))}$  is exceeded at any point of the Earth' surface.

## 2.3 Case where any of the space stations is using a non-geostationary-satellite orbit

The pfd level is calculated at each grid point on the Earth's surface through a dynamic simulation over a sufficient simulation running time. For each time step, a space-to-space link is established using the two closest space stations.

To identify whether the pfd limit has been exceeded, the worst 24-hour period (i.e. having the maximum number of events exceeding the value of  $-145.6 \text{ dB(W/(m}^2 \cdot \text{MHz))}$  at any grid point) is considered.

## 2.4 Space station radiation antenna patterns

Administrations submitting space stations in the space research service in the frequency band 14.8-15.35 GHz shall either indicate a standard space station antenna radiation pattern or capture a non-standard antenna pattern in the Graphical Interference Management Software (GIMS).

## 2.5 Status of the notification of the associated space station

In cases where a space station is submitted for coordination, but the associated space station in the non-geostationary satellite orbit has not yet been communicated to the Bureau, the Bureau shall establish a qualified favourable finding that shall be reviewed at the notification stage.

In cases where a space station is submitted for notification, but the associated space station is not at the stage of advance publication, coordination (as appropriate) or notification, the corresponding frequency assignments of the submitted space station are considered non-receivable (see Section 4.3.3. of the rules on receivability).

**Reason:** *To clarify how the second pfd limit contained in resolves 1.5 of Resolution 678 (WRC-23) is examined under No. 11.31.*

*Effective date of application of this Rule: 1 January 2025.*



## Annex 14

Addition of new rules of procedure on the calculation of power-flux density levels produced by aeronautical earth stations in motion (A-ESIM) and their validation with the limits contained in Annex 3 to Resolution **169 (Rev.WRC-23)**, Annex 2 to Resolution **121 (WRC-23)** and Annex 2 to Resolution **123 (WRC-23)**

### Rules concerning

#### PART B

ADD

#### SECTION B8

**Calculation of power-flux density levels produced by aeronautical earth stations in motion (A-ESIM) and their validation with the limits contained in Annex 3 to Resolution 169 (Rev.WRC-23), Annex 2 to Resolution 121 (WRC-23) and Annex 2 to Resolution 123 (WRC-23)**

Annex 2 to Resolution **121 (WRC-23)** and Annex 2 to Resolution **123 (WRC-23)** contain methodologies and procedures to examine power flux-density levels at the Earth's surface produced by A-ESIM. The corresponding methodology for Resolution **169 (Rev.WRC-23)** is included in Recommendation ITU-R S.2158-0.

#### Reference bandwidth of the pfd limit

The three methodologies contain the same formula to calculate the transmission power from the maximum or minimum power spectral densities of A-ESIM.

Depending on the set of pfd limits that is considered (i.e. for A-ESIM altitudes up to 3 km or for those above 3 km), two different reference bandwidths need to be considered: 1 MHz and 14 MHz, respectively.

The Board noted that Note 2 of Recommendation ITU-R S.2158-0 indicates: "For the operation of emission bandwidth smaller than the reference bandwidth, this methodology is applicable provided that the notifying administration confirms that A-ESIM operates only one emission within the reference bandwidth. If there is no such confirmation, this methodology is not applicable." Moreover, the remark in Resolution **121 (WRC-23)** states that "the methodology assumes that only one emission within the reference bandwidth of 14 MHz is transmitted by A-ESIM".

As a consequence, the Board understood that the intentions of the World Radiocommunication Conference (Sharm el-Sheikh, 2019) (WRC-19) and the World Radiocommunication Conference (Dubai, 2023) (WRC-23) were to allow only one carrier emission to be in operation within the reference bandwidth of 14 MHz for all three cases addressed in Resolutions **121 (WRC-23)**, **123 (WRC-23)** and **169 (Rev.WRC-23)**.

The Board therefore concluded that when an Administration submits a frequency assignment to an A-ESIM with an emission bandwidth smaller than a 14 MHz reference bandwidth, it also commits to operate only one single emission with that given emission bandwidth in any 14 MHz bandwidth.

When an Administration wishes to simultaneously operate several transmissions with emission bandwidths smaller than a 14 MHz reference bandwidth, the emission characteristics of the carrier should be suitably modified to indicate that multiple channels per carrier will be operated within a single emission (see Appendix 1 to the Radio Regulations).

**Reason:** *To ensure that the results of the pfd-limit examination conducted by the Bureau are representative of actual operations of A-ESIM carriers within a 14 MHz reference bandwidth.*

### **Conditions for compliance with the pfd limits**

The methodology contained in Annex 2 to Resolution **121 (WRC-23)**, in Annex 2 to Resolution **123 (WRC-23)** or in Recommendation ITU-R S.2158-0 determines the maximum allowable power  $P_j$  for an A-ESIM transmitter.

The methodology then compares the computed  $P_j$  with the range of notified power levels of the A-ESIM emission. The minimum and maximum power values for emissions from the A-ESIM,  $P_{min\_emission,j}$  and  $P_{max\_emission,j}$ , are calculated from the minimum and maximum power spectral densities of the A-ESIM emission.

An A-ESIM transmission is permitted at a certain altitude  $j$ , if the following condition is met:

$$P_{max\_emission,j} > P_j > P_{min\_emission,j}$$

Considering that the condition will prevent the use of altitude  $j$  in cases where the allowable power is high enough to permit the operation of the A-ESIM with its maximum notified power spectral density, the Board concluded that the Bureau should also check the following condition:

$$P_j \geq P_{max\_emission,j}$$

Whenever that condition is met, it is understood that the entire range of power levels of an A-ESIM can be used.

**Reasons:** *It appears from the contribution in Document [4A/942](#), on page 15, that the added condition was inadvertently omitted in Recommendation ITU-R S.2158-0 as well as in the methodologies in Resolutions **121 (WRC-23)** and **123 (WRC-23)**. The absence of that condition may result in an unfavourable finding when the allowable power is above the maximum transmission power of an A-ESIM.*

*Effective date of application of this Rule: 1 January 2025.*

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