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| **The 6th Meeting of the APT Conference Preparatory Group for WRC-23 (APG23-6)** | **APG23-6/OUT-43** |
| 14 – 19 August 2023, Brisbane, Australia | 19 August 2023 |

Working Party 4

**APT VIEW and Preliminary APT Common Proposal**

**on WRC-23 agenda item 7 (TOPIC C)**

**Agenda Item 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.*

# Topic C: 7/8 & 20/30 GHz GSO MSS protection

## 1. Background

* Topic C under agenda item 7 was established to verify the effectiveness of the regulatory protection of geostationary satellite orbit (GSO) mobile-satellite service (MSS) from interference caused by non-GSO systems and networks, and to identify possible inconsistencies in the RR provisions of the Radio Regulations (RR) applicable to the frequency bands:
* 7 250-7 750 MHz (space-to-Earth);
* 7 900-8 025 MHz (Earth-to-space);
* 20.2-21.2 GHz (space-to-Earth); and
* 30-31 GHz (Earth-to-space).

**Information on on-going ITU-R Study**

* The CPM23-2 meeting (27 March – 6 April 2023) considered four input contributions towards the finalization of the draft CPM text as Annex 28 to Chairman’s Report (Document 4A/856 [Annex 28](https://www.itu.int/dms_ties/itu-r/md/19/wp4a/c/R19-WP4A-C-0856!N28!MSW-E.docx)). The meeting finalized on three methods to address this topic as contained in the [final CPM Report](https://www.itu.int/dms_pub/itu-r/md/19/cpm23.2/r/R19-CPM23.2-R-0001!!MSW-E.docx), as follows:

**Method** **C1** No changes to the Radio Regulations.

**Method** **C2** Add a newprovision in RR Article **22** extending the application of the concept of provisions of RR No. **22.2** for the protection of GSO satellite networks operating in the mobile-satellite service in the frequency bands under consideration in this topic.

Under this method, two alternatives are proposed for the modification ofRR No. **5.461** to indicate the specific conditions of application of RR No. **9.21**. *Alternative 1* specifies the conditions of the application of RR No. **9.21,** for GSO MSS networks with respect to non-GSO systems and for non-GSO MSS systems with respect to GSO MSS, while *Alternative 2* only specifies the conditions of the application of RR No. **9.21** for GSO MSS networks with respect to non-GSO systems.

**Method** **C3** Modification of RR No. **5.461** and the additions of two new footnotes in RR Article **5** extending the application of the concept of provisions of RR No. **22.2** for the protection of GSO satellite networks operating in the mobile-satellite service in the frequency bands under consideration in this topic.

Under this method, it is proposed for the modification ofRR No. **5.461** to indicate the specific conditions of application of RR No. **9.21**.

* The meeting noted that the protection of GSO MSS networks from emissions of non-GSO systems could be achieved by extending the concept of No. **22.2** to GSO MSS networks. However, such an approach appears to be incompatible with the application of No. **9.21** (seeking the agreements of administration).
* It was noted that No. **9.21** is the mechanism by which the status of the assignments to geostationary MSS network or to non-geostationary MSS systems is determined, and any modifications to the conditions of the application of No**. 9.21** are considered as an allocation issue and as such is outside the scope of Resolution **86** and agenda item 7.
* In this context, the decision to address this issue can only be made by WRC-23.
* There were no input contributions to the June/July 2023 meeting of WP 4A, and hence, no discussions on this topic.

2. Documents

* **Input Document(s):** [INP-39](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-39_Japan_WP4_Views_WRC-23_Agenda_Item_7.docx) (J), [INP-61](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-61_Thailand_WP4_PACP_WRC-23_Agenda_Items.docx) (THA), [INP-68](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-68_Iran_WP4_Preliminary_Views_on_WRC-23_Agenda_Items.docx) (IRN), [INP-83](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-83_Australia_WP4_PACP_WRC-23_Agenda_Items.docx) (AUS), [INP-90 Rev.1](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-90R1_KOR_WP4_PACP_WRC-23_Agenda_Items.docx) (KOR), [INP-106](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-106_China_WP4_PACP_WRC-23_Agenda_Items.docx) (CHN), [INP-112](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-112_Malaysia_WP4_PACP_WRC-23_Agenda_Items.docx) (MLA)
* **Information Document(s):** [INF-35](https://www.apt.int/sites/default/files/2023/08/APG23-6-INF-35_Brief_on_AI_7.docx) (DG 7 Chairs), [INF-45](https://www.apt.int/sites/default/files/2023/08/APG23-6-INF-45_Status_of_RCC_preparation_to_WRC-23.pdf) (RCC), [INF-46](https://www.apt.int/sites/default/files/2023/08/APG23-6-INF-46_Status_of_CEPT_preparation_for_WRC-23_and_RA-23.pdf) (CEPT), [INF-52](https://www.apt.int/sites/default/files/2023/08/APG23-6-INF-52_CITEL_preparation_for_WRC-23.pdf) (CITEL)

3. Summary of discussions

3.1 Summary of APT Members’ views

3.1.1 Japan - Document APG23-6/[INP-39](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-39_Japan_WP4_Views_WRC-23_Agenda_Item_7.docx)

* Japan supports protection of GSO satellite networks in the mobile-satellite service operating in the 7/8 GHz and 20/30 GHz bands from emissions of non-GSO satellite systems operating in the same frequency bands and identical directions, by means of appropriate regulatory solutions.
* Method C2 Alternative 2 can be supported.

3.1.2 Thailand (Kingdom of) - Document APG23-6/[INP-61](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-61_Thailand_WP4_PACP_WRC-23_Agenda_Items.docx)

* Thailand supports Method C3 in the CPM Report to extend the concept of RR No. 22.2 to GSO MSS with respect to non-GSO systems in the frequency bands 7 250-7 750 MHz (space-to-Earth), 7 900-8 025 MHz (Earth-to-space), 20.2-21.2 GHz (space-to-Earth) and 30-31 GHz (Earth-to-space) in the relevant provisions of RR Article 5.

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3.1.3 Iran (Islamic Republic of) - Document APG23-6/[INP-68](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-68_Iran_WP4_Preliminary_Views_on_WRC-23_Agenda_Items.docx)

* I.R. of Iran supports Method C3 as PACP proposal which it contains in the draft CPM23-2 Report. Under this method, it is proposed to extend the concept of RR No. 22.2 to GSO MSS with respect to non-GSO systems in the frequency bands 7 250-7 750 MHz (space-to-Earth), 7 900-8 025 MHz (Earth-to-space), 20.2-21.2 GHz (space-to-Earth) and 30-31 GHz (Earth-to-space) in the relevant provisions of RR Article 5. Therefore, it is proposed to modify RR No. 5.461 to indicate the specific conditions of application of RR No. 9.21 and extend the concept of RR No. 22.2 for the protection of GSO MSS networks in the frequency bands 7 250-7 375 MHz (space-to-Earth), 7 900-8 025 MHz (Earth-to-space). Furthermore, it is proposed to add two new footnotes RR No. 5.A7C3 and RR No. 5.B7C3 to extend the concept of RR No. 22.2 for the protection of GSO MSS networks in the frequency bands 7 375-7 750 MHz (space-to-Earth) and for the bands 20.2-21.2 GHz and 30-31 GHz, respectively.
* It is reiterated thatRR No. **22.2** has been designed as a general Rule to cover/address the protection of GSO satellite network from non-GSO satellite system without any reference tospecific frequency band(s). However, the objectives of that provision could be transposed/ included in RR No. **5.461** to meet and address the concerns of the GSO mobile satellite networks. In so doing, addition of so-called RR No. **22.2**bis in Article 22 of the RR referencing specific frequency bands which open those provisions to other frequency bands should be avoided. So, changes in the regulatory objectives RR No. Article **22** which covers all satellite systems are, therefore, inappropriate.
* With respect to deletion/removal of RR No. **9.21** from the footnote RR No. **5.461** is anotherissue and to be discussed, separately. At the time that mobile satellite networks were referred to in RR No. **5.461**, the legislator intended by using that inclusion which was introduced another safety valve and condition such as allocation to application of RR No. **9.21**. Considering that such application which is an admission to the Table of Frequency Allocation requiring to seek agreement from other administrations has no relation with protection of GSO satellite networks by non-GSO satellite systems Therefore, RR **9.21** is independent from the objectives RR Article **22.2**. However, retention or removal of RR No. **9.21** may be considered and decided by WRC-23, irrespective of RR No. **22.2.**
* Attention is drawn to the Note contained below:

NOTE: In order to protect the geostationary-satellite network in the mobile-satellite service from the non-geostationary-satellite system, the concept of RR No. **22.2** could be applied. However, this approach would create an inconsistency for GSO satellite networks in the mobile-satellite service which are obliged to apply RR No. **9.21**; this could be resolved by WRC-23 for which an example of the possible solution is described below.

Possible examples to address the above-mentioned inconsistency arising from the modification of RR No. **5.461**, as of the date 16 December 2023, assignments to GSO MSS satellite networks are not required to apply RR No. **9.21** with respect to non-GSO systems received by the Bureau from *[16 December 2023 or the date of entry into force of the Final Acts of WRC‑23]* are shown below.

3.1.4 Australia - Document APG23-6/[INP-83](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-83_Australia_WP4_PACP_WRC-23_Agenda_Items.docx)

* Australia supports necessary regulatory changes to protect GSO satellite networks in the MSS in 7/8 GHz and 20/30 GHz bands from emissions of NGSO satellite systems. For this particular case, in order to satisfy the requirement of the topic considered under this agenda item, Australia supports Methods that modify relevant provisions of Article 22 and where necessary, changes to modify the Article 5 footnotes. Australia supports the view that this should not provide a precedent for future changes to Article 5 being considered under Agenda Item 7.
* Australia supports the approach agreed at the CPM 23-2 that this topic should be considered at WRC-23 as stipulated in the note in the CPM report (pp. 840). Australia can support the proposed modifications to Annex 4 under Method C2.
* Australia does not propose a Preliminary APT Common Proposal for this topic.

3.1.5 Korea (Republic of) - Document APG23-6/[INP-90 Rev.1](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-90R1_KOR_WP4_PACP_WRC-23_Agenda_Items.docx)

* As the Republic of Korea supports extending the application of the concept of RR No. **22.2** for the protection of GSO MSS networks in the frequency bands 7 250-7 750 MHz (space-to-Earth), 7 900-8 025 MHz (Earth-to- space), 20.2-21.2 GHz (space-to-Earth) and 30-31 GHz (Earth-to-space), among the methods presented in the CPM Report, Methods C2 (Alternative 2) or C3 can be supported, preferring the latter.

3.1.6 China (People’s Republic of) - Document APG23-6/[INP-106](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-106_China_WP4_PACP_WRC-23_Agenda_Items.docx)

* China supports to comprise new or modified provisions extending the application of concept of RR No. 22.2 to provide protection for GSO satellite networks operating in the MSS in 7/8 & 20/30 GHz. Specifically, China supports Alternative 2 in Method C2 and Method C3 presented in the CPM Report.

3.1.7 Malaysia - Document APG23-6/[INP-112](https://www.apt.int/sites/default/files/2023/08/APG23-6-INP-112_Malaysia_WP4_PACP_WRC-23_Agenda_Items.docx)

* Malaysia supports development of regulatory provisions in addressing the shortcomings and other issues with respect to the protection of geostationary-satellite orbit (GSO) mobile-satellite-service (MSS) networks from non-GSO systems, by extending the concept of RR No. **22.2** to GSO MSS with respect to non-GSO systems in the 7250-7750 MHz (space-to-Earth), 7900-8025 MHz (Earth-to-space), 20.2-21.2 GHz (space-to-Earth) and 30-31 GHz (Earth-to-space) frequency bands.

3.2 Summary of issues raised during the meeting

* Some APT Members are of the view that the Methods to address this Topic should not provide a precedent for changes to allocations in Article 5 being considered under Agenda Item 7.
* Some APT Members are of the view that RR **9.21** is independent from the objectives RR Article **22.2**. However, retention or removal of RR No. **9.21** may be considered and decided by WRC-23, irrespective of RR No. **22.2.**

4. APT View(s)

* The APT has considered Agenda Item 7 Topic C and drafted a Preliminary APT Common Proposal on the matter. In addition, the APT has formed the following views on Agenda Item 7 Topic C.
* APT Members support protection of GSO satellite networks in the mobile-satellite service operating in the 7/8 GHz and 20/30 GHz bands from emissions of non-GSO satellite systems operating in the same frequency bands and identical directions, by means of appropriate regulatory solutions.
* APT Members support extending the application of concept of provisions of RR No. **22.2** for the protection of geostationary-satellite networks in the mobile-satellite service operating in the bands 7/8 GHz and 20/30 GHz from emissions of non-geostationary-satellite networks.
* APT Members support Method C3 in the CPM Report to address this topic.

5. Preliminary APT Common Proposal



6. Issues for Consideration at APG Coordination Meeting at WRC-23 (if any)

* None.

7. Views from Other Organisations

7.1 Regional Groups

7.1.1 ASMG – Document WRC-23-IRW-22/[5](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R19-2WSHWRC23-C-0005)

* Support the inclusion of new or modified footnotes in the Table of Frequency Allocations to broaden the scope of application of the provisions of No. **22.2** of the Radio Regulations to provide protection for GSO networks operating in the mobile-satellite service in the frequency bands defined in 7/8 and 20/30 GHz from satellite system emissions non-GSO operating in the same frequency bands and directions.

7.1.2 ATU – Document WRC-23- IRW-22/[2](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R19-2WSHWRC23-C-0002)

* Supportthe proposed regulatory solution to protect GSO MSS networks from the emissions of non-GSO systems and networks operating in the same bands and identical directions:
  + 1. 7 250-7 375 MHz (space-to-Earth),
    2. 7 900-8 025 MHz (Earth-to-space),
    3. 20.2-21.2 GHz (space-to-Earth), and
    4. 30-31 GHz (Earth-to-space).

7.1.3 CEPT – Document APG23-6/[INF-46](https://www.apt.int/sites/default/files/2023/08/APG23-6-INF-46_Status_of_CEPT_preparation_for_WRC-23_and_RA-23.pdf)

* CEPT supports the identification and definition of criteria, extensions and addition of provisions in order to quantify the protection of GSO networks operating in the MSS from interference caused by non-GSO networks or systems operating in the same frequency bands 7250-7750 MHz (space-to-Earth), 7900-8025 MHz (Earth-to-space), 20.2-21.2 GHz (space-to-Earth) and 30-31 GHz (Earth-to-space) and in identical directions.
* More specifically, CEPT supports:
* the modification of footnote RR No. 5.461 to exempt agreements under RR No. 9.21 regarding GSO networks in the MSS in the frequency bands 7250-7300 MHz and 7300-7375 MHz with respect to non-GSO systems for which complete coordination or notification information, as appropriate, are received by the Bureau after 15 December 2023.
* extend the provisions of RR No. 22.2 via an additional Article No. 22.2bis to GSO networks in the MSS in the concerned frequency bands.
* • introducing new RR Appendix 4 data items for assignments to non-GSO systems in the above-mentioned frequency bands to better facilitate analysis of potential interference for victim GSO networks.

7.1.4 CITEL – Document APG23-6/[INF-52](https://www.apt.int/sites/default/files/2023/08/APG23-6-INF-52_CITEL_preparation_for_WRC-23.pdf)

**Draft Inter-American Proposal (DIAP)**

* Some Administrations supports method C2 of the CPM report Topic C consisting in expanding the concept of RR No. 22.2 (i.e., non-GSO systems shall not cause unacceptable interference to GSO networks in the FSS and BSS) to GSO MSS in some specific portions of X and Ka bands and associated modifications to No. 5.461 relating to the application of No. 9.21.
* In this context, some administrations propose changes to RR No. 5.461 and also propose to add a new provision to Article 22 to expand the concept of No. 22.2 to GSO MSS in the subject frequency bands.

7.1.5 RCC – Document APG23-6/[INF-45](https://www.apt.int/sites/default/files/2023/08/APG23-6-INF-45_Status_of_RCC_preparation_to_WRC-23.pdf)

* Support the development of technical and regulatory mechanisms for protecting GSO networks in the mobile satellite service operating in 7/8 and 20/30 GHz from emissions of non-GSO satellite systems operating in the same frequency bands and same direction, without limiting the use of existing GSO and non-GSO satellite networks/systems in MSS.
* No specific Method.

7.2. Position of International Organizations (if available)

7.2.1 IARU R3 (as of August 2023)

* None.

7.2.2 ICAO – Document WRC-23-IRW-22/[8](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R19-2WSHWRC23-C-0008)

* None.

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