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| **The 5th Meeting of the APT Conference Preparatory****Group for WRC-23 (APG23-5)** | **APG23-5/OUT-21** |
| 20 – 25 February 2023, Busan, Republic of Korea | 24 February 2023 |

Working Party 3

**PRELIMINARY VIEWs on WRC-23 agenda item 1.13**

**Agenda Item 1.13:**

*to consider a possible upgrade of the allocation of the frequency band 14.8-15.35 GHz to*

*the space research service, in accordance with Resolution****661******(WRC‑19)***

**1. Background**

The frequency band 14.8-15.35 GHz is currently allocated to the SRS on a secondary basis, which is used by some administrations for data relay systems (DRS). Considering that there is an interest among space agencies and administrations to use this frequency band in scientific missions, WRC-19 adopted Resolution **661 (WRC-19)** to develop compatibility and sharing studies on this frequency band during WRC-23, with a view to ensuring protection of the primary services and the technical and regulatory conditions determined in the ITU-R according to the results of the aforementioned studies.

In accordance with the decision made by CPM23-1, as the responsible group, ITU-R Working Party 7B (WP 7B) is conducting the above studies. At its meeting held in September/October 2022, ITU-R WP 7B met in Geneva with remote participants through the Zoom platform. The draft CPM text was finalized in this meeting and provided summaries of all studies to date, with six methods, including regulatory text.

Relevant ITU-R documents:

* [Resolution **661** (WRC-19)](https://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A00000D0013PDFE.pdf) “Examination of a possible upgrade to primary status of the secondary allocation to the space research service in the frequency band 14.8-15.35 GHz”
* [ITU-R Rec. SA.510-3](https://www.itu.int/rec/R-REC-SA.510-3-201707-I/en) “Feasibility of frequency sharing between the space research service and other services in bands near 14 and 15 GHz - Potential interference from data relay satellite systems”
* [ITU-R Rec. SA.1414-2](https://www.itu.int/rec/R-REC-SA.1414-2-201707-I/en) “Characteristics of data relay satellite systems”
* [ITU-R Rec. SA.1626-1](https://www.itu.int/rec/R-REC-SA.1626-1-201312-I/en) “Feasibility of sharing between the space research service (space-to-Earth) and the fixed and mobile services in the band 14.8-15.35 GHz”
* [Chairman's Report 7B/246](https://www.itu.int/md/R19-WP7B-C-0246/en) “Report on the September/October 2022 meeting (27 September - 5 October 2022) of Working Party 7B with a view to its next meeting (2-12 October 2023)”
* [Chairman's Report 7B/246 (Annex 1 - Revision 1)](https://www.itu.int/dms_ties/itu-r/md/19/wp7b/c/R19-WP7B-C-0246%21N01-R1%21MSW-E.docx) “Draft CPM text for WRC-23 agenda item 1.13”
* [Chairman's Report 7B/246 (Annex 2)](https://www.itu.int/dms_ties/itu-r/md/19/wp7b/c/R19-WP7B-C-0246%21N02%21MSW-E.docx) “Preliminary draft new Report ITU-R SA.[15 GHZ SRS SHARING] - Sharing and Compatibility Studies for the SRS in the band 14.8-15.35 GHz”
* [ITU-R Rec. SA.2141](https://www.itu.int/rec/R-REC-SA.2141/en) “Characteristics of space research service systems in the frequency range 14.8-15.35 GHz”

**2. Documents**

* Input Documents APG23-5/[INP-10](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-10_Thailand-WP3-Preliminary_Views_on_WRC-23_Agenda_Items_1.12_1.13_1.14_9.1_TOPIC_A_and_9.1_TOPIC_D.docx) (THA), [INP-16](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-16_Japan-WP3-Preliminary_Views_on_WRC-23_Agenda_Items_1.12_1.13_1.14_9.1A_9.1D_and_RES.655WRC-15.docx) (J), [INP-22](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-10_Thailand-WP3-Preliminary_Views_on_WRC-23_Agenda_Items_1.12_1.13_1.14_9.1_TOPIC_A_and_9.1_TOPIC_D.docx) (J), [INP-28](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-28_India_WP3-Preliminary_Views_on_WRC_23_Agenda_Items_1.12_1.13_and_1.14.docx) (IND), [INP-34](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-34_Bangladesh_WP3-Preliminary_Views_on_WRC_23_Agenda_Items_1.13_and_1.14.docx) (BGD), [INP-38](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-38_Iran-WP3-Preliminary_Views_on_WRC_23_Agenda_Items_1.12_1.13_1.14_and_9.1Topic_a.docx) (IRN), [INP-54](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-54_Viet_Nam-WP3-Preliminary_View_on_WRC-23_Agenda_Item_1.13.docx) (VTN), [INP-58](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-58_Australia-WP3-Preliminary_Views_on_WRC-23_Agenda_Items_1.12_1.13_1.14_9.1Topics_a_and_d.docx) (AUS), [INP-65](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-65_Rep_of_Korea-WP3-Preliminary_Views_on_WRC-23_Agenda_Items_1.12_1.13_1.14_and_9.1Topics_a_and_d.docx) (KOR), [INP-80](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-80_Indonesia-WP3-Preliminary_Views_on_WRC-23_Agenda_Items_1.12_and_1.13.docx) (INS), [INP-90](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-90_China-WP3-Preliminary_Views_on_WRC-23_Agenda_Items_1.12_1.13_1.14_and_9.1Topic_a.docx) (CHN), [INP-97](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-97_Malaysia-WP3-Preliminary_Views_on_WRC-23_Agenda_Items_1.12_1.13_1.14_and_9.1Topic_a.docx) (MLA)
* Information Documents APG23-5/[INF-0](https://www.apt.int/sites/default/files/2023/01/APG23-5-INF-01_WMO_Position_on_WRC-23_Agenda.docx)1(WMO), [INF-32](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-32_Brief_on_AI_1.13.docx) (DG Chair), [INF-39](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-39_Status_of_CEPT_preparation_for_WRC-23_and_RA-23.pdf) (CEPT), [INF-43](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-43_CITEL_preparation_for_WRC-23.pdf) (CITEL), [INF-45](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-45_Status_of_RCC_preparation_to_the_WRC-23.pdf) (RCC)

**3. Summary of discussions**

**3.1 Summary of APT Members’ views**

**3.1.1 Thailand (Kingdom of)** - **Document APG23-5**/[**INP-10**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-10_Thailand-WP3-Preliminary_Views_on_WRC-23_Agenda_Items_1.12_1.13_1.14_9.1_TOPIC_A_and_9.1_TOPIC_D.docx)

Thailand is of the view that the upgrade of the SRS allocation from secondary to primary in the frequency band 14.8-15.35 GHz should provide protection to and not adversely affect the existing services in the frequency band 14.8-15.35 GHz and adjacent bands.

**3.1.2 Japan** - **Document APG23-5/** [**INP-16**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-16_Japan-WP3-Preliminary_Views_on_WRC-23_Agenda_Items_1.12_1.13_1.14_9.1A_9.1D_and_RES.655WRC-15.docx)

Japan is of the following views. The protection and ensuring of continuation of existing operation of incumbent services in the 14.8 – 15.35 and 15.35 – 15.4 GHz band are necessary. Unless they are achieved, it is not appropriate to upgrade the Space research service in the 14.8 – 15.35 GHz band from the secondary status into the primary. Taking into account the results of some sharing and compatibility studies of the ITU-R, Method B which is based on the Recommendation ITU-R SA.1626-1 does not satisfy this agenda item, because the limits given in this Recommendation do not protect the incumbent services. The draft CPM text for this agenda item should be adequately corrected.

**3.1.3 India (Republic of)** - **Document APG23-5/**[**INP-28**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-28_India_WP3-Preliminary_Views_on_WRC_23_Agenda_Items_1.12_1.13_and_1.14.docx)

India supports Method A which proposes “No Change” to Radio Regulations.

**3.1.4 Bangladesh (People's Republic of)** - **Document APG23-5/**[**INP-34**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-34_Bangladesh_WP3-Preliminary_Views_on_WRC_23_Agenda_Items_1.13_and_1.14.docx)

In order to upgradation of the allocation of the frequency band 14.8-15.35 GHz to the space research service, in accordance with Resolution **661** **(WRC‑19)**, Bangladesh administration prefers method D of the draft CPM report to WRC-2023.

**3.1.5 Iran (Islamic Republic of)** - **Document APG23-5/**[**INP-38**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-38_Iran-WP3-Preliminary_Views_on_WRC_23_Agenda_Items_1.12_1.13_1.14_and_9.1Topic_a.docx)

This Administration proposes to modify the preliminary view of APG23-04 with following amendments:

APT Members support ITU-R studies for the consideration of upgrading the SRS allocation from secondary to primary in the frequency band 14.8-15.35 GHz. Any potential possible upgrade of the SRS to primary service shall fully protect and not adversely affect the incumbent services in this frequency band as well as the adjacent bands, including the band 15.35-15.4 GHz to which the RAS is allocated. Therefore, APT Members support the following essential elements:

* Modification of Article 21 to add pfd limits for SRS (space-to-Earth) and (space-to-space).
* The pfd of SRS earth stations shall not exceed −145.6 dB(W/(m2 • MHz)) at the border of the territory of an any other administration.
* SRS stations shall not claim protection from FS, MS, and aircraft stations. No. 5.43A does not apply.
* With respect to applicability or otherwise of either RR 9.17 and RR 9.18, the matter needs to be further pursued and decided by the Conference, if it so wishes and where applicable.
* Harmful interference shall not be caused to stations of the RAS:
* Epfd for the SRS (non-GSO) is required to comply with the protection criteria in ITU-R RA.769-2 and ITU-R RA.1513-2.
* pfd for SRS (GSO) is required to comply with the protection criteria in ITU-R RA.769-2.
* The SRS earth stations shall protect RAS stations.
* The use of SRS satellite is limited at distances from the Earth less than 2 × 106 km. Other uses of the SRS are considered to be of the secondary status.

**3.1.6 Viet Nam (Socialist Republic of) -** **Document APG23-4/**[**INP-54**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-54_Viet_Nam-WP3-Preliminary_View_on_WRC-23_Agenda_Item_1.13.docx)

Viet Nam supports ITU-R studies on sharing and compatibility in accordance with Resolution **661 (WRC-19)** to consider a possible upgrade of the allocation of the frequency band 14.8-15.35 GHz to the space research service, while ensuring protection and not adversely affecting incumbent services in this frequency band as well as the adjacent bands, taking into account the extensively use of fixed service in the frequency band 14.5-15.35 GHz to support the development of telecommunication infrastructure in many countries and crucial in developing countries.

Based on above discussion, method A is supported.

**3.1.7 Australia** - **Document APG23-5/**[**INP-58**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-58_Australia-WP3-Preliminary_Views_on_WRC-23_Agenda_Items_1.12_1.13_1.14_9.1Topics_a_and_d.docx)

Australia supports the upgrade of the SRS allocation from secondary to primary status in the band 14.8–15.35 GHz. Compatibility must be ensured between SRS and the mobile service and fixed service in the band 14.8–15.35 GHz, and between SRS and the radio astronomy service in the adjacent band 15.35–15.4 GHz.

**3.1.8 Korea (Republic of)** - **Document APG23-5/**[**INP-65**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-65_Rep_of_Korea-WP3-Preliminary_Views_on_WRC-23_Agenda_Items_1.12_1.13_1.14_and_9.1Topics_a_and_d.docx)

The Republic of Korea supports:

* Method A (NOC) in the draft CPM Report because the sharing and compatibility study for protection of incumbent services in this frequency band and the adjacent bands, including the band 15.35-15.4 GHz to which the radio astronomy service (RAS) is allocated has been conducted not enough to consider upgrade of the space research service (SRS) from secondary to primary allocation.
* no specific method for RAS from the draft CPM Report.

**3.1.9 Indonesia (Republic of)** - **Document APG23-5/**[**INP-80**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-80_Indonesia-WP3-Preliminary_Views_on_WRC-23_Agenda_Items_1.12_and_1.13.docx)

The 14.8-15.35 GHz band is massively used for microwave link in Indonesia, therefore, Indonesia is of the view that upgrading the Space Research Service (SRS) allocation from secondary to primary should not cause interference to, nor claim protection from the current and future use of fixed and mobile services allocated in the frequency band 14.8-15.35GHz as well as in the adjacent bands.

**3.1.10 China (People's Republic of)** - **Document APG23-5/**[**INP-90**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-90_China-WP3-Preliminary_Views_on_WRC-23_Agenda_Items_1.12_1.13_1.14_and_9.1Topic_a.docx)

China supports the ITU-R studies in accordance with Resolution **661 (WRC-19)** to conduct and complete, in time for WRC-23, and supports the possible upgrading of the SRS allocation if necessary technical, operational and regulatory studies could ensure the protection of the existing co-frequencies primary services as well as radio astronomy service in the adjacent band 15.35 -15.4 GHz.

China also considers no change to the Radio Regulations if the sharing and compatibility studies show that the existing primary services which are allocated in the frequency band 14.8-15.35 GHz and radio astronomy service in the adjacent band 15.35-15.4 GHz could not be protected from the SRS.

**3.1.11 Malaysia** - **Document APG23-5/**[**INP-97**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INP-97_Malaysia-WP3-Preliminary_Views_on_WRC-23_Agenda_Items_1.12_1.13_1.14_and_9.1Topic_a.docx)

Malaysia supports the upgrading of the status of space research service allocation to primary, provided that it does not impose constraints on the current use and future deployment of existing primary services in the same and adjacent frequency bands.

**3.2 Summary of issues raised during the meeting**

At the APG23-5 meeting, one input document (APG23-5/INP-22) regarding proposed modifications to the draft CPM Report were received. APT Members considered this document, and invite the APT Member to submit the proposal to CPM23-2 individually.

**4. APT Preliminary View**

APT Members are of the view that any potential upgrade of the SRS to a primary service shall ensure protection of and shall neither adversely affect nor claim protection from the incumbent services in the 14.8-15.35 GHz band, as well as the adjacent bands, including the band 15.35-15.4 GHz to which the RAS is allocated.

APT Members note that the assumptions used in some of the sharing and compatibility studies carried out by ITU-R WP 7B regarding the agenda item 1.13 may lead to underestimation of the interference from the Space Research Service into the incumbent terrestrial services.

If there are no appropriate regulatory and technical measures to resolve the concerns mentioned above, no change to the Radio Regulations should be considered for this agenda item.

**5. Other View(s) from APT Members**

Some APT Members are of the view that Method B in the draft CPM Report does not satisfy agenda item 1.13.

**6. Issues for Consideration at Next APG Meeting**

APT Members are encouraged to contribute to the next APG meeting on agenda item 1.13, taking into account the outcome of CPM 23-2 and APG 23-5.

**7. Views from Other Organisations** (as provided in the information documents to

APG23-5)

**7.1 Regional Groups**

**7.1.1 ASMG** - **Document APG23-5/****[INF-32](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-32_Brief_on_AI_1.13.docx)**

Follow-up studies under this agenda item, focusing on protecting existing services in the band 14.8-15.35 GHz and radio services in adjacent bands.

**7.1.2 ATU** - **Document APG23-5/****[INF-32](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-32_Brief_on_AI_1.13.docx)**

Consider no change to the radio regulations until the completion of the sharing studies for all the current radio services in the frequency band 14.8-15.35 GHz and the adjacent frequency bands.

Continue to review the results of compatibility and sharing studies to ensure the protection of all existing services in this frequency band and adjacent frequency bands as well. The upgrade of the SRS allocation should not impose constraints on the fixed and mobile systems currently allocated in the frequency band under consideration.

**7.1.3 CEPT** - **Document APG23-5/**[**INF-39**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-39_Status_of_CEPT_preparation_for_WRC-23_and_RA-23.pdf)

CEPT is supporting upgrade of space research service (SRS) allocation to satellite systems operating in the space-to space, space-to-Earth and Earth-to-space directions at distances from the Earth less than 2 × 106 km from secondary to primary while ensuring protection for in-band FS/MS and for radioastronomy service in the adjacent band 15.35-15.4 GHz. Upgrading of the allocation of the frequency band 14.8-15.35 GHz to the SRS shall not claim protection from the aeronautical mobile service (AMS) in the frequency band 14.8-15.35 GHz. Additionally, an upgrading of the SRS should not place constraints on the FS and MS and CEPT will consider whether further regulatory measures are needed.

**7.1.4 CITEL** - **Document APG23-5/**[**INF-43**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-43_CITEL_preparation_for_WRC-23.pdf)

* Some Administrations support studies in accordance with Resolution **661 (Rev. WRC-19)** to consider a possible upgrade to the existing global allocation to the SRS in the frequency range 14.8-15.35 GHz, taking into account the need to provide protection to and not to impose constraints on the incumbent services in this frequency band and its adjacent frequency bands.
* Some Administrations noted that the existing secondary allocation to the SRS (passive) in the band 15.2-15.35 GHz per No. 5.339 is not considered in this view.
* If studies indicate that there would be no undue impact on the primary services in the frequency band, an Administration could support the upgrade to primary status of the secondary allocation to the SRS in the frequency band 14.8-15.35 GHz.

**7.1.5 RCC** - **Document APG23-5/**[**INF-45**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-45_Status_of_RCC_preparation_to_the_WRC-23.pdf)

The RCC Administrations are in favor of upgrading the allocation of the frequency band 14.8-15.35 GHz to the space research service under the following conditions:

• protection of FS and MS in this frequency band, as well as passive services in the adjacent frequency band 15.35-15.4 GHz

• upgrading the SRS allocation should not impose constraints on the incumbent FS and MS systems in the frequency band 14.8-15.35 GHz.

**7.2 International Organizations**

**7.2.1 WMO** - **Document APG23-5/**[**INF-01**](https://www.apt.int/sites/default/files/2023/01/APG23-5-INF-01_WMO_Position_on_WRC-23_Agenda.docx)

WMO is not opposed to the upgrading of the existing space research service (SRS) secondary allocation in 14.8-15.35 GHz to primary status.

**7.2.2 ICAO** - **Document APG23-5/**[**INF-32**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-32_Brief_on_AI_1.13.docx)

To support studies called for by Resolution **661 (WRC-19)** ensuring that they take account of systems operating in the aeronautical mobile service.

To ensure that any radio regulatory action taken as a result of agreed studies does not adversely affect the provision of aeronautical services.

**7.2.3 SFCG** - **Document APG23-5/**[**INF-32**](https://www.apt.int/sites/default/files/2023/02/APG23-5-INF-32_Brief_on_AI_1.13.docx)

(Note: the view below was updated according to the latest version of [objectives of SFCG for WRC-23](https://www.sfcgonline.org/Public%20Documents/SFCG_WRC23_Objectives_SFCG-41_Public.pdf) during 22 Feb. DG 1.13 meeting.)

SFCG supports the upgrade of the SRS allocation from secondary to primary status in the band 14.8-15.35 GHz.

Relevant provisions are needed to ensure the compatibility between SRS and MS/FS in the band 14.8-15.35 GHz, and between SRS and RAS in the adjacent band 15.35-15.4 GHz.

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