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|  | ASIA-PACIFIC TELECOMMUNITY | **Document No:** |
| **The 2nd Meeting of the APT Conference Preparatory**  **Group for WRC-23 (APG23-2)** | **APG23-2/OUT-21** |
| 19 – 23 April 2021, Virtual/Online Meeting | 23 April 2021 |

Working Party 3

**PRELIMINARY VIEWs on WRC-23 agenda item 1.12**

**Agenda Item 1.12:**

*to conduct, and complete in time for WRC 23, studies for a possible new secondary allocation to the Earth exploration-satellite (active) service for spaceborne radar sounders within the range of frequencies around 45 MHz, taking into account the protection of incumbent services, including in adjacent bands, in accordance with Resolution* ***656 (Rev.WRC-19)****;*

**1. Background**

This agenda item originated from the USA (a CITEL member administration).

There is an interest among climate researchers in remote sensing of the Earth’s subsurface with the intent of locating water/ice/deposits and examining sub-ice glacial bed surfaces using active spaceborne sensors. This information can help to understand the global thickness, inner structure, and the thermal stability of the Earth’s ice sheets as an observable parameter of Earth climate evolution. The 40-50 MHz frequency range is preferable to satisfy all requirements for spaceborne radar sounders and a bandwidth of 10 MHz is sufficient for use.

ITU-R Recommendation [RS.2042-1](https://www.itu.int/rec/R-REC-RS.2042/en) titled “Typical technical and operating characteristics for spaceborne radar sounder systems using the 40-50 MHz band” was completed during the WRC-19 study cycle. This recommendation indicates that:

* operations of spaceborne radar sounder with other primary and secondary services would be under RR No. **4.4**, non-interference basis and shall not cause harmful interference to, and shall not claim protection;
* that operational limitations have been identified to allow operation under RR No. **4.4** on a non-interference basis such as operating only in either uninhabited or sparsely populated areas of the ice sheets of Greenland and Antarctica and deserts of northern Africa and the Arabian peninsula and operating the radar at night-time only from 3 a.m. to 6 a.m. locally

Work is currently ongoing in ITU-R Working Party 7C (WP 7C, the responsible group) to develop a revised report ITU-R RS.2455-1. This Report contains the results of compatibility studies, based on the proposed Earth exploration-satellite service (EESS) (active) radar characteristics provided in ITU-R Recommendation [RS.2042-1](https://www.itu.int/rec/R-REC-RS.2042/en) and the characteristics of the incumbent services as provided by the responsible ITU-R Working Parties. ITU-R WP 7C has also commenced drafting a very preliminary draft CPM text document which currently does not contain methods or regulatory text.

Relevant ITU-R documents:

1. ITU-R Recommendation [RS.2042-1](https://www.itu.int/rec/R-REC-RS.2042/en) - “Typical technical and operating characteristics for spaceborne radar sounder systems using the 40-50 MHz band”.
2. ITU-R Report [RS.2455-0](https://www.itu.int/pub/R-REP-RS/publications.aspx?lang=en&parent=R-REP-RS.2455) – “Preliminary results of sharing studies between a 45 MHz radar sounder and incumbent fixed, mobile, broadcasting and space research services operating in the 40-50 MHz frequency range”.
3. ITU-R Document 7C/[not assigned yet] Annex [not assigned yet] – preliminary draft revised Report ITU-R RS.2455-1 (from the WP 7C April 2021 meeting).
4. ITU-R Document 7C/[not assigned yet] Annex [not assigned yet] – draft CPM text for WRC-23 agenda item 1.12 (from the WP 7C April 2021 meeting).

**2. Documents**

* Input Documents: APG23-2/[INP-12(J)](https://www.apt.int/sites/default/files/2021/04/APG23-2-INP-12.docx), APG23-2/[INP-26(AUS)](https://www.apt.int/sites/default/files/2021/04/APG23-2-INP-26_AUS_contribution_for_WP3_Preliminary_Views_on_WRC-23_Agenda_Items_1.12_1.13_1.14_9.1_Topics_a_and_d.docx), APG23-2/[INP-32(KOR)](https://www.apt.int/sites/default/files/2021/04/APG23-2-INP-32_WP3_kor.docx)
* Information Documents: APG23-2/[INF-01(Chair, DG AI 1.12)](https://www.apt.int/sites/default/files/2021/03/APG23-2-INF-01_Briefing_on_AI_1.12.docx), APG23-2/[INF-23(IARU)](https://www.apt.int/sites/default/files/2021/03/APG23-2-INF-23_IARU_Views.docx), APG23-2/[INF-25(ASMG)](https://www.apt.int/sites/default/files/2021/04/APG23-2-INF-25_ASMG_Preparation_for_WRC-23.pdf)

**3. Summary of discussions**

**3.1 Summary of APT Members’ views**

**3.1.1 Japan** - **Document APG23-2/**[**INP-12**](https://www.apt.int/sites/default/files/2021/04/APG23-2-INP-12.docx)

Japan is of the view that it is necessary to conduct appropriate studies at ITU-R for a possible new allocation while ensuring the protection of existing services in light of the fact that mobile services are allocated in the target frequency bands in Japan.

**3.1.2 Australia** - **Document APG23-2/**[**INP-26**](https://www.apt.int/sites/default/files/2021/04/APG23-2-INP-26_AUS_contribution_for_WP3_Preliminary_Views_on_WRC-23_Agenda_Items_1.12_1.13_1.14_9.1_Topics_a_and_d.docx)

Australia supports studies which assess the compatibility between spaceborne radar sounders and incumbent services around 45 MHz. If the study results are in support of a secondary allocation to EESS around 45 MHz, Australia supports enabling a secondary allocation, while ensuring protection of existing services and not imposing any additional restrictions onto these services.

**3.1.3 Republic of Korea** - **Document APG23-2/**[**INP-32**](https://www.apt.int/sites/default/files/2021/04/APG23-2-INP-32_WP3_kor.docx)

The Republic of Korea is of the view that a possible new secondary allocation to the Earth exploration-satellite service (active) for spaceborne radar sounders within the range of frequencies around 45 MHz could be considered if the relevant studies ensure the protection of incumbent services in the frequency range and in adjacent bands.

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

The APT preliminary view below was developed in the drafting group based on the preliminary views from APT members. The reference to adjacent band incumbent services was added by the drafting group after checking that Resolution **656 (Rev.WRC-19)** invites the ITU-R to conduct studies in both the frequency range 40-50 MHz and in adjacent bands.

**4. APT Preliminary View(s)**

APT Members are of the view that a possible new secondary allocation could be considered to the Earth exploration-satellite service (active) for spaceborne radar sounders within the range of frequencies around 45 MHz if ITU-R studies show that the protection of in-band and adjacent band incumbent services could be ensured while not imposing any additional restrictions onto those services.

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

None.

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

APT members are encouraged to monitor the progress of studies at ITU-R WP 7C and to contribute to future APG23 meetings so that the APT Preliminary Views on WRC-23 Agenda Item 1.12 can be further developed.

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

APG23-2)

**7.1 Regional Groups**

**7.1.1 ASMG** - **Document APG23-2/**[**INF-25**](https://www.apt.int/sites/default/files/2021/04/APG23-2-INF-25_ASMG_Preparation_for_WRC-23.pdf)

Follow up the studies under this agenda item and to ensure the protection of existing radio services in the band 40 50 MHz and radio services in adjacent bands.

**7.1.2** **RCC - Document APG23-2/**[**INF-36**](https://www.apt.int/sites/default/files/2021/04/APG23-2-INF-36_RCC_Preparation_to_the_World_Radio_Conference_and_Radio_Assembly_2023.pdf) (from link on last page of document)

(as of Sep. 2020) – The RCC Administrations support studies for a possible new secondary allocation to the Earth exploration-satellite (active) service within the range of frequencies around 45 MHz.

**7.2 International Organisations**

**7.2.1 IARU** - **Document APG23-2/**[**INF-23**](https://www.apt.int/sites/default/files/2021/03/APG23-2-INF-23_IARU_Views.docx)

The IARU believes that the studies for a possible new secondary allocation to the Earth exploration-satellite (active) service for spaceborne radar sounders within the range of frequencies around 45 MHz should include the need to protect the incumbent amateur service in the adjacent 50-54 MHz band. The IARU will contribute to the studies to ensure adequate protection of the sensitive receivers used by stations in the amateur service in the 50-54 MHz band, especially the frequencies 50-50.5 MHz where the majority of amateur communications via the ionosphere is conducted, often with very low signal levels.

**7.2.2 SFCG** - **Document APG23-2/**[**INF-01**](https://www.apt.int/sites/default/files/2021/03/APG23-2-INF-01_Briefing_on_AI_1.12.docx)

(as of Aug. 2020) – supports the development of studies in ITU-R in order to assess the compatibility between spaceborne radar sounders and incumbent services around 45 MHz with a view of creating a secondary allocation to the EESS (active) at WRC-23.

**7.2.3 WMO** - **Document APG23-2/**[**INF-01**](https://www.apt.int/sites/default/files/2021/03/APG23-2-INF-01_Briefing_on_AI_1.12.docx)

(as of Feb. 2021) – supports completion of studies to ensure compatibility of incumbent radio services with a view to creating a secondary allocation to the EESS (active) at WRC-23.

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