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| **The 4th Meeting of the APT Conference Preparatory**  **Group for WRC-23 (APG23-4)** | **APG23-4/OUT-31**  **(Rev.1)** |
| 15 – 20 August 2022, Bangkok, Thailand | 20 August 2022 |

Working Party 4

**PRELIMINARY VIEWs on WRC-23 agenda item 1.18**

**Agenda Item 1.18:**

*to consider studies relating to spectrum needs and potential new allocations to the mobile-satellite service for future development of narrowband mobile-satellite systems, in accordance with Resolution* ***248******(WRC‑19)****;*

**1. Background**

WRC-23 Agenda item 1.18 calls for WRC-23 to implement the “*studies relating to spectrum needs and potential new allocations to the mobile satellite service in the frequency bands 1 695-1 710 MHz, 2 010-2 025 MHz, 3 300-3 315 MHz and 3 385-3 400 MHz for future development of narrowband mobile-satellite systems”*while ensuring the protection of existing primary services in those frequency bands and adjacent frequency bands.

According to the Resolution **248 (WRC-19)**, the candidate frequencies for agenda item 1.18 are as follows:

* 1 695-1 710 MHz in Region 2,
* 2 010-2 025 MHz in Region 1,
* 3 300-3 315 MHz, 3 385-3 400 MHz in Region 2;

After APG23-3 meeting, ITU-R WP 4C which is a responsible group for this agenda item, focused its work on the review of the technical and operational parameters developed by the multiple operators and updated the preliminary draft new Report ITU-R [NB.MSS] on Spectrum Requirements, Technical and Operational Requirements and Sharing and Compatibility Studies (Annex 3 of Doc 4C/333). WP 4C also considered the draft CPM text with two draft methods included, which is at a very preliminary stage (Annex 5 of Doc 4C/333). During the discussion, there is still no consensus whether 27 dBW limit, which is mentioned in *recognizing c)* of Resolution **248 (WRC-19)**, is applied on a per system or a per satellite basis. Both of these documents require more work and will be carried over to the September 2022 WP 4C meeting, as well as the study document.

**2. Documents**

* Input Documents: APG23-4/INP-10 (J), INP-17 (AUS), INP-26 (IRN), INP-37 (KOR), INP-43 (CHN), INP-53 (NZL), INP-64 (IND), INP-77 (VTN)
* Information Documents: APG23-4/INF-02 (ATU), INF-3 (WMO), INF-13 (DG Chair), INF-21 (ASMG), INF-27 (IARU), INF-28 (CITEL), INF-44 (RCC), INF-48 (CEPT)

**3. Summary of discussions**

**3.1 Summary of APT Members’ views**

**3.1.1 Japan** - **Document APG23-4/INP-10**

Japan supports the studies at ITU-R for ensuring the protection of the existing primary services including the protection for IMT systems deployed in the same and adjacent frequency bands for Region 3, noting that this Agenda Item addresses the possible new allocation to MSS in Regions 1 and 2. In addition, these existing primary services should be able to continue operations without additional regulatory or technical constraints imposed on these services, in any potential decisions made at WRC-23 regarding agenda item 1.18.

**3.1.2 Australia** - **Document APG23-4/INP-17**

Noting that this is a Region 1 and 2 issue, Australia supports sharing and compatibility studies with existing primary services to determine the suitability of new allocations to the mobile-satellite service (MSS), with a view to protecting the primary services, in the relevant frequency bands and adjacent frequency bands, without causing undue constraints on their further development.

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**3.1.3 Iran** - **Document APG23-4/INP-26**

This administration`s preliminary views are as follows:

Method A

No Change.

Reasons for NO CHANGE:

Various concerns were raised in ITU-R in regard with this agenda item which are summarized in following paragraphs:

1. The MSS narrow-band (NB) technical and operational characteristics limited to the 1 system in this study have not been fully discussed or agreed to by WP 4C.  It is also understood that there are other MSS NB systems that have not been considered or reflected in any sharing and compatibility studies for those frequency bands under this agenda item.
2. There are no comprehensive sharing studies done because of the lack of agreed to MSS NB technical characteristics.  In light of the difficulties with MSS NB system parameters, sharing and feasibility studies have not been fully performed, considered or agreed to by WP 4C.
   1. There is ambiguity in Resolution 248, recognizing c) and how that should be applied.
   2. Accordingly, the ITU-R has not yet been able to perform a comprehensive sharing analysis with stakeholders in the band and this document.
   3. The analysis is solely based on an uplink analysis as opposed to a network basis (uplink/downlink).
   4. This analysis is for only one system; there are several other systems that have not be fully reviewed or studied.
3. In light the disagreement on the MSS NB system parameters within WP 4C, the results of the studies below are not representative, preliminary in nature and have not demonstrated that all incumbent services will be protected from harmful interference in accordance with Resolution 248 (WRC-19).
   1. These sharing studies have not been liaised with any of the contributing groups under this agenda item and may not reflect the proper application of incumbent system parameters and their protection criteria.
4. Taking into account the above concerns and noting the limited time to complete the work under this agenda item,
5. All ambiguities and shortcomings of the Resolution 248 should be reviewed at WRC-23 together with any necessary actions to be taken, as appropriate.

**3.1.4 Korea (Rep. of)** - **Document APG23-4/INP-37**

The Republic of Korea supports sharing and compatibility studies with existing primary services to determine the suitability of new allocations to the mobile-satellite service (MSS), while ensuring no adverse effect on the allocation of the existing services including IMT and their future development in the same and adjacent frequency bands which allocated for Region 3.

The Republic of Korea is also of the view that if there is no consensus whether 27 dBW e.i.r.p. limit should be applied on a per system or a per satellite basis at ITU-R, the sharing study with the other services allocated on the frequency bands related to this agenda item needs to be completed by ITU-R with two applications, 27 dBW e.i.r.p. limit per system and a per satellite basis.

The Republic of Korea is further of the view that taking into account the ITU-R study results, it is confirmed that the spectrum requirement for NB-MSS system would be less than 5 MHz.

**3.1.5 China** - **Document APG23-4/INP-43**

China supports ITU-R to conduct appropriate sharing and compatibility studies with incumbent services based on agreed MSS parameters to determine the possibilities of new allocations to MSS for future development of narrowband mobile-satellite systems, while ensuring the protection for IMT systems operating in 2 010-2 025 MHz frequency band deployed in Region 3.

**3.1.6 New Zealand** - **Document APG23-4/INP-53**

New Zealand notes that this is a Region 1 and 2 issue, Region 3 is not in scope. However, any allocation to the mobile satellite service on other Regions should not have an adverse impact on existing services in Region 3. It is noted that some countries are included in RR No **5.429** as having and additional allocation to the fixed and mobile service for the 3 300 – 3 400 MHz frequency band.

**3.1.7 India** - **Document APG23-4/INP-64**

India is of the view that potential new allocations to the mobile-satellite service for future development of narrowband mobile-satellite systems in Region 1 and Region 2 should not impose any constraints to the incumbent services operating in the concerned frequency bands and adjacent bands in Region 3.

**3.1.8 Viet Nam** - **Document APG23-4/INP-77**

Viet Nam supports ITU-R studies on spectrum needs, coexistence with existing radiocommunication services and regulatory measures for possible new allocation to the mobile-satellite service for future development of narrowband mobile-satellite systems, in accordance with Resolution **248** **(WRC‑19),** while ensuring no adverse effect on the allocation of the existing services and their future development in the same and adjacent frequency bands which allocated for Region 3, in particular the Mobile service allocated in the same and adjacent frequency band.

With above discussions, Viet Nam is of the view that no regulatory actions are necessary to Volumes 1, 2 and 4 of the Radio Regulations to address WRC-23 agenda item 1.18.

Viet Nam supports method A, NoC, in current draft CPM text.

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

APT Members raised a concern that the NB-MSS system parameters are not determined yet, so there is serious difficulty to conduct sharing studies between NB-MSS systems and incumbent services and to review the results of the sharing studies on time.

It was expressed the position to support No change of the Radio Regulations (Method A in the draft CPM text) with regard to this agenda item, due to disagreement of NB-MSS system parameters and incomplete sharing studies for protection of existing services in relevant frequency bands in ITU-R. Therefore, it was proposed that APT members support the No change of the RR as APT preliminary view at the current stage.

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

APT Members support sharing and compatibility studies with existing primary services to determine the suitability of new allocations to the mobile-satellite service (MSS), to protect primary services.

APT Members are of the view that this agenda item is a Region 1 and 2 issue, Region 3 is not in scope, therefore any allocation to the mobile satellite service in other Regions should not have an adverse impact on existing services to which the frequency bands are allocated in Region 3.

Taking into account the preliminary views mentioned above and Section 3.2, APT Members support No Change of the RR with regard to this agenda item at the current stage.

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

None.

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

To review the draft CPM text developed by ITU-R WP 4C (September 2022).

To review the NB-MSS system parameters and results of the sharing studies for protecting existing services provided by ITU-R WP 4C (September 2022), if possible.

APT Members are kindly encouraged to submit their contributions to the next APG meetings.

**7. Views from Other Organisations**

**7.1 Regional Groups**

**7.1.1 ASMG** - **Document APG23-4/INF-21**

* Follow-up studies, however, the ASMG preliminary position is supporting no change, given the lack of agreement on the technical characteristics and operational parameters to conduct the necessary sharing and compatibility studies to ensure the protection of existing primary services in the frequency bands under study or in the adjacent bands.

**7.1.2 ATU** - **Document APG23-4/INF-02**

* Support the ongoing studies at ITU-R on this agenda item with the view of ensuring the protection of primary services allocated in the frequency bands 1 695-1 710 MHz in R2, 2 010-2 025 MHz in R1, 3 300-3 315 MHz and 3 385-3 400 MHz in R2 especially the protection for IMT systems deployed or that may be deployed in the same and adjacent frequency band 2 010-2 025 MHz in R1 and to not adversely affecting the current use and future development of existing primary services in these frequency bands and adjacent frequency bands.

**7.1.3 CEPT** - **Document APG23-4/INF-48**

* CEPT is of the view that the spectrum needs of low data‐rate satellite applications currently presented in the preparatory work could be satisfied through possible new primary or secondary allocations to MSS within the bands considered in the framework of Resolution **248 (WRC‐19)**.
* CEPT is however of the view that before proceeding with any new allocations to MSS in these bands, in‐band and adjacent band coexistence of low date‐rate satellite applications with systems operated under existing allocations has to be demonstrated through sharing and compatibility studies, also considering to not causing undue constraints on their further development.
* CEPT is of the view that e.i.r.p. limits referred to in recognizing c) of Resolution 248 (WRC‐19) are applicable on a per satellite basis. CEPT is also of the view that applicable power limits to ensure the protection of incumbent services should be concluded from sharing and compatibility studies in accordance with Resolution **248 (WRC‐19)**.
* CEPT is also of the view that given the limited studies carried out to demonstrate sharing and compatibility between low data‐rate MSS and incumbent services in the frequency bands under consideration, a potential new allocation to the mobile‐satellite service for future development of narrowband mobile‐satellite systems may not be achievable in accordance with the Resolution 248 (WRC‐19) at the WRC‐23 in all the frequency bands under study. Therefore, CEPT proposes “No Change” to the Radio Regulations for the frequency bands 1695‐1710 MHz, 3300‐3315 MHz and 3385‐3400 MHz. CEPT is still considering its position regarding the 2010‐2025 MHz frequency band.
* CEPT supports the continuation of the studies related to WRC‐23 agend item 1.18 under a new agenda item for WRC‐27 with a view to determine a global allocation for narrowband MSS in frequency bands up to 5 GHz.

**7.1.4 CITEL** - **Document APG23-4/INF-28**

* Some Administrations support studies to ponder appropriate regulatory measures for the allocation of additional spectrum in the MSS in the frequency bands under consideration, while ensuring the protection of existing primary services in these frequency bands and adjacent frequency bands.
* An Administration supports the view that the applicability of Resolution 248 (WRC-19) is limited to those narrowband MSS systems that have a maximum e.i.r.p. of 27 dBW for each space station and for each deployed MSS frequency band, with a maximum satellite beamwidth of 120 degrees for a single beam or measured across all the beams in a multiple-spot beam configuration, and earth stations that individually communicate no more than once every 15 minutes, for no more than 4 seconds at a time, with a maximum e.i.r.p. of 7 dBW for each earth station.

**7.1.5 RCC** - **Document APG23-4/INF-44**

* The RCC Administrations consider that additional MSS allocation is permissible only if technical and operational characteristics of narrowband mobile satellite systems are justified, аs well as regulatory conditions of their use, and allowing the exclusion of unacceptable interference towards existing and planned systems operated in the same and adjacent frequency bands in accordance with Article 5 RR.

**7.2 International Organisations**

**7.2.1 IARU** - **Document APG23-4/INF-27**

* The IARU supports retention of the amateur secondary allocation of 3 300-3 400 MHz in Regions 2 and 3.

**7.2.1 WMO** - **Document APG23-4/INF-03**

* WMO supports compatibility studies to ensure the protection of current and future MetSat operations in the band 1695-1710 MHz. This is important to ensure the protection of the downlink of the measured data as well as the global dissemination of the data directly to users.
* WMO requests the protection of the EESS/SOS in the adjacent band 2025-2110 MHz.

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