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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/INF-20** |
| 19 – 23 April 2021, Virtual/Online Meeting | xx March 2021 |

Chairman, DG on AI 1.18

**brief on wrc-23 agenda item 1.18**

(Note: *This brief was developed for information purpose only. It does not necessarily express the view of APG-23*)

**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)***

**Relevant Resolutions and Responsible/Contributing ITU-R Groups**

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| Resolution**248 (WRC‑19)**  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 | resolves to invite ITU‑R  1 to conduct studies on spectrum and operational requirements as well as system characteristics of low-data rate systems for the collection of data from, and management of, terrestrial devices in the MSS as described in *considering a)* and limited to the basic characteristics in *recognizing c)*;  2 to conduct sharing and compatibility studies with existing primary services to determine the suitability of new allocations to the MSS, with a view to protecting the primary services, in the following frequency bands and adjacent frequency bands:  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;  3 to consider possible new primary or secondary allocations, with the necessary technical limitations, taking into account the characteristics described in *recognizing c),* to the MSS for non-GSO satellites operating low-data rate systems for the collection of data from, and management of, terrestrial devices based on the result of sharing and compatibility studies, while ensuring the protection of existing primary services in those frequency bands, and adjacent bands, without causing undue constraints on their further development,  resolves to invite WRC‑23  to determine, on the basis of the studies conducted under the *resolves to invite ITU‑R* above, appropriate regulatory actions,  invites administrations  to participate in the studies by submitting contributions to ITU‑R. |

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| Responsible group | Contributing group |
| WP 4C | WP 3M, WP 4A, WP 4B, WP 5A, WP 5B, WP 5C, WP 5D, WP 7B |

**1. Background Information**

* Systems proposing to use rapidly deployed small satellites are being hindered due to frequency crowding and a lack of available spectrum for emerging systems, especially in relation to the flourishing global data collection services (commonly referred to as DCS). These devices are mostly operating at very low power to expand the battery life and due to the very small size. This characteristic underlines the fact that the related systems are by necessity in the NGSO in low earth orbit (mostly below 1000 km).
* Per Resolution 248 (WRC-19), 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
* This Agenda Item is initiated by CITEL and CEPT at WRC-19.
* Following frequency bands are considered.
* 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.

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

* Latest ITU-R WP 4C has been developing following documents for study of this agenda item

1. 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
2. Sharing and Compatibility studies for Narrowband MSS with incumbent services 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 under WRC-23 agenda item 1.18

* Contentious issues in ITU-R meeting (list all issues up in the beginning and then update (removal or addition) later stage)

1. Estimation of NB-MSS spectrum needs

This issue is to estimate the spectrum requirements of an illustrative modelled NGSO LEO satellite network as a function of population density and peak system load. In the absence of developed systems characteristics, the draft methodology proposed in the ITU-R WP 4C takes a similar approach as those in Recommendations ITU-R M.1391-1 “Methodology for the calculation of IMT-2000\* satellite spectrum requirements”, M.1768 and Reports ITU-R M.2077, M.2290.

1. Frequency sharing study

Sharing studies with existing services in the frequency bands and adjacent bands mentioned in the Resolution **248** (**WRC-19**)

* Hyperlink to ITU-R WP4C site[: https://www.itu.int/en/ITU-R/study-groups/rsg4/rwp4c/Pages/default.aspx](file:///C:\Users\user\AppData\Local\Microsoft\Windows\INetCache\Content.Outlook\VO9XAONE\%20https\www.itu.int\en\ITU-R\study-groups\rsg4\rwp4c\Pages\default.aspx)

**3. Position of the Regional Group (if available)**

* ATU
* Follow up studies in the frequency range 2010 to 2015 MHz for narrow band mobile-satellite systems.
* Ensure protection of the existing services.
* CEPT
* Based on the results of spectrum needs and sharing and compatibility studies conducted respectively under the resolves to invite the ITU-R 1) and 2) of Resolution **248 (WRC-19)**, CEPT will consider possible new primary or secondary allocations, with the necessary technical limitations, taking into account the characteristics described in recognizing c), to the MSS for non-GSO satellites operating low-data rate systems for the collection of data from, and management of, terrestrial devices, while ensuring the protection of existing primary services in those frequency bands, and adjacent bands, without causing undue constraints on their further development.
* RCC
* Support the studies relating to spectrum needs and potential new allocations to the mobile-satellite service for future development of narrowband mobile-satellite systems. Consider that such additional allocation is permissible only if technical and operational characteristics of narrowband mobile-satellite systems are determined, as well as regulatory conditions of their use, allowing the exclusion of unacceptable interference towards existing and planned systems in the co-frequencies and adjacent frequency bands

**4. Position of International Organizations (if available)**