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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-29** |
| 19 – 23 April 2021, Virtual/Online Meeting | 23 April 2021 |

Working Party 4

**PRELIMINARY VIEWs on WRC-23 agenda item 1.16**

**Agenda Item 1.16:**

*to study and develop technical, operational and regulatory measures, as appropriate, to facilitate the use of the frequency bands 17.7-18.6 GHz and 18.8-19.3 GHz and 19.7-20.2 GHz (space-to-Earth) and 27.5-29.1 GHz and 29.5-30 GHz (Earth-to-space) by non-GSO FSS earth stations in motion, while ensuring due protection of existing services in those frequency bands, in accordance with Resolution* ***173(WRC‑19)***

**1. Background**

In *resolves* 1.16of Resolution **811 (WRC-19)**, the 2019 World Radiocommunication Conference (WRC-19) resolved “to study and develop technical, operational and regulatory measures, as appropriate, to facilitate the use of the frequency bands 17.7-18.6 GHz, 18.8-19.3 GHz and 19.7‑20.2 GHz (space-to-Earth) and 27.5-29.1 GHz and 29.5-30 GHz (Earth-to-space) by non‑geostationary fixed-satellite service earth stations in motion, while ensuring due protection of existing services in those frequency bands, in accordance with Resolution **173 (WRC-19)**” as part of the agenda for WRC-23.

WP4A is the responsible group, according to the CPM23-1 results (CA/215), to address the ITU-R preparatory work for WRC-23 and established Correspondence Group (CG) and Sub-Working Group(SWG) both chaired by Mr. Mario Neri, who was the chairman of AI 1.5(WRC-19). Besides 3 virtual meetings of CG, WP4A had 3 virtual meetings and created the 5 documents attached to the chairman’s report below.

1. Applicable ToR for CG ([WP4A/246 Annex 32](https://www.itu.int/dms_ties/itu-r/md/19/wp4a/c/R19-WP4A-C-0246!N32!MSW-E.docx))
2. Elements towards a working document on WRC-23 agenda item 1.16 [NON-GSO\_ESIM] which is the result of the compilation of the relevant parts of the input contributions submitted to this meeting ([WP4A/246 Annex 20](https://www.itu.int/dms_ties/itu-r/md/19/wp4a/c/R19-WP4A-C-0246!N20!MSW-E.docx))
3. Draft CPM text to be used for this agenda item ([WP4A/246 Annex 24](https://www.itu.int/dms_ties/itu-r/md/19/wp4a/c/R19-WP4A-C-0246!N24!MSW-E.docx))
4. Draft new Resolution that may be considered to address the issues studied under WRC-23 AI 1.16 ([WP4A/246 Annex 25](https://www.itu.int/dms_ties/itu-r/md/19/wp4a/c/R19-WP4A-C-0246!N25!MSW-E.docx))
5. Work Plan for this agenda item ([WP4A/246 Annex 31](https://www.itu.int/dms_ties/itu-r/md/19/wp4a/c/R19-WP4A-C-0246!N31!MSW-E.docx)).

Because of the time constraint, those documents other than ToR and Work Plan were not fully discussed and agreed to. The membership is invited to provide its comments, suggestions and amendments preferably for discussion at Correspondence Group as an advance information.

The last two WRCs have adopted regulatory frameworks for the operations of GSO ESIM in Ka-band. WRC-15 adopted Resolution **156 (WRC-15)** allowing the use of ESIM communicating with GSO FSS networks in the 19.7-20.2 GHz and 29.5-30.0 GHz bands and WRC-19 adopted Resolution **169 (WRC-19)** allowing the use of ESIM communicating with GSO FSS networks in the frequency bands 17.7-19.7 GHz and 27.5-29.5 GHz. It is necessary to conduct relevant studies on the sharing situations between non-GSO ESIM and the incumbent services in the Ka band. The parameters of non-GSO ESIM and GSO ESIM have some similarities but also differences, which need to be paid attention to and considered in the follow-up studies under WRC‑23 agenda item 1.16.

**2. Documents**

* Input Documents:

APG23-2/INP-13 (J)

APG23-2/INP-23 (NZL)

APG23-2/INP-27 (AUS)

APG23-2/INP-33 (Rev.1) (KOR)

APG23-2/INP-37 (SNG)

APG23-2/INP-42 (INS)

APG23-2/INP-47(Rev.1) (CHN)

* Information Documents:

APG23-2/INF-19 (Rev.1) (Chairman, WP4 DG1.16)

APG23-2/INF-25 (ASMG)

APG23-2/INF-26 (ATU)

APG23-2/INF-34 (CITEL)

APG23-2/INF-35 (CEPT)

APG23-2/INF-36 (RCC)

APG23-1/INF-05 (WMO)

**3. Summary of discussions**

**3.1 Summary of APT Members’ views**

**3.1.1 Japan** - **Document APG23-2/INP-14**

* Japan supports ITU-R study activities to ensure protection of the existing services and not to impose constraints for future use, on FS, MS and other FSS systems.

**3.1.2 New Zealand** - **Document APG23-2/INP-23**

* New Zealand is supporting studies with a view to enable and establish a framework for non-GSO ESIMs similar to that for GSO ESIMs, as appropriate.

**3.1.3 Australia** - **Document APG23-2/INP-27**

* Australia supports the establishment of a globally or regionally harmonised regulatory framework and technical and operational measures that facilitate the use of non-geostationary (non-GSO) earth -stations in motion (ESIM) in the fixed-satellite service in the 17.7-18.6 GHz and 18.8-19.3 GHz and 19.7-20.2 GHz (space-to-Earth) and 27.5-29.1 GHz and 29.5-30 GHz (Earth-to-space) frequency bands. Such use must ensure protection of services allocated in the bands and, as appropriate, in the adjacent bands.

**3.1.4 Korea (Republic of)** - **Document APG23-2/INP-33 Rev.1**

The Republic of Korea has preliminary views as follows:

* it supports the on-going studies on considering the operational and regulatory conditions with an appropriate examination method by the Bureau for ESIMs operating with non-GSO FSS systems to be operated, while ensuring the protection of incumbent services, especially the terrestrial services;
* the ESIMs operating with non-GSO FSS system shall not cause unacceptable interference to and not impose constraints on the terrestrial services in those frequency bands and in adjacent frequency bands.

**3.1.5 Singapore** - **Document APG23-2/INP-37**

* Singapore supports on-going studies to develop technical, operational and regulatory measures, as appropriate, to facilitate the use of the frequency bands 17.7-18.6 GHz and 18.8‑19.3 GHz and 19.7-20.2 GHz (space-to-Earth) and 27.5-29.1 GHz and 29.5-30 GHz (Earth-to-space) by non-GSO FSS ESIM, similar to that of GSO ESIM, while ensuring due protection of existing services in those frequency bands, in accordance with Resolution **173 (WRC-19)**.

**3.1.6 Indonesia (Republic of)** - **Document APG23-2/INP-42**

* Indonesia is of the view that the protection of current and planned stations of primary services allocated in the frequency band 17.7-18.6 GHz, 18.8-19.3 GHz and 19.7-20.2 GHz (space-to-Earth) and 27.5-29.1 GHz and 29.5-30 GHz (Earth-to-space), or parts thereof, and in adjacent frequency bands, including passive services, should be ensured during sharing and compatibility studies of non-GSO FSS ESIMs planned for operation in those frequency bands.

**3.1.7 China (People’s Republic of)** - **Document APG23-2/INP-47 Rev.1**

* China support to conduct sharing and compatibility studies between earth stations in motion (ESIMs) planned for operation in non-GSO FSS in the frequency bands 17.7–18.6 GHz, 18.8–19.3 GHz and 19.7–20.2 GHz (space-to-Earth), and 27.5–29.1 GHz and 29.5–30 GHz (Earth-to-space) and the existing services, and to develop regulatory provisions and technical requirements for non-GSO ESIM while protecting the incumbent services in accordance with Resolution **173 (WRC-19)**

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

* During the discussion it was indicated that :
* The results of on-going sharing and compatibility studies carried out by WP4A between earth stations in motion (ESIM) planned for communications with non-GSO FSS in the frequency bands 17.7–18.6 GHz, 18.8–19.3 GHz and 19.7–20.2 GHz (space-to-Earth), and 27.5–29.1 GHz and 29.5–30 GHz (Earth-to-space) and the existing services including passive services allocated in those frequency bands and the adjacent bands should ensure the protection of these services, in accordance with Resolution 173 (WRC-19).
* appropriate examination methods for any measures to be taken by the Bureau for non-GSO ESIM to comply with resolutions dealing with this Agenda Item should be established in order to ensure the protection of terrestrial services and space services once the result of ITU-R studies are available.

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

None.

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

None.

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

APT members are encouraged to follow the relevant WP4A meetings and submit contributions if necessary for consideration at the next APG meeting.

**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**

* Follow and support the studies to ensure that necessary protection is provided for terrestrial services in those frequency bands and adjacent bands
* Ensure that no additional restrictions are imposed on earth stations of GSO FSS operating in the same band since there is no regularity provisions in the Radio regulations in these bands to protect the GSO from NGSO.
* The necessary regulatory procedures including the technical and operational procedures to ensure the protection the existing services in these band.

**7.1.2 ATU** - **Document APG23-2/INF-26**

TBD at the 2nd meeting of ATU Preparatory Meeting for WRC-23(APM23-2) in September 2021.

**7.1.3 CEPT** - **Document APG23-2/INF-35**

* CEPT support the development of a regulatory framework for the operation of ESIM communicating with non-GSO satellite system in the FSS in the frequency bands 17.7-18.6GHz, 18.8-19.3GHz and 19.7-20.2GHz (space-to-Earth) and 27.5-29.1GHz and 29.5-30GHz (Earth-to-space). The technical and operational requirement for the use of non-GSO ESIM shall ensure the protection of GSO systems and other services operation in the same frequency bands and in adjacent bands.
* CEPT is of the view that non-GSO ESIM operation in the frequency bands 17.7-18.6GHz and 18.8-19.3GHz(space-to-Earth) shall not claim protection from terrestrial services having allocations in the same frequency bands and operating in accordance with the Radio Regulations.
* CEPT is of the view that the protection of GSO networks in the fixed-satellite service operating in the frequency bands 27.5-28.6GHz and 29.5-30GHz from non-GSO ESIM can be achieved by complying with EPFD limits referred to in No.**22.5D**. The protection of GSO networks and non-GSO systems in the FSS operating in the frequency band 28.6-29.1GHz shall be achieved on the basis of coordination agreement between administrations and operators in accordance with No.**9.11A**.

**7.1.4 CITEL** - **Document APG23-2/INF-34**

* Some administrations support studies on the technical and operational characteristics of ESIMs and sharing and compatibility studies to develop technical and regulatory provisions for the operation of ESIM with non-GSO FSS systems in accordance with Resolution 173 (WRC-19) with a view to ensuring the protection of and not impose additional constraints on existing services, including terrestrial services and GSO FSS, in those frequency bands and in adjacent bands, including passive services.
* An administration is of the view that the studies that were conducted in preparation of WRC-15 and WRC-19 to support the deployment of GSO ESIM in the Ka-band and that led to the provisions included in Resolution 156(WRC-15) and Resolution 169(WRC-19), respectively, have many similarities with those that are being carried out under Resolution 173(WRC-19). Therefore, this administration believes that WRC-23 should aim to establish for non-GSO ESIM the same technical, operational and regulatory provisions as those applicable to GSO ESIM operation in the same bands, to the extent possible and pending the results of the studies.

**7.1.5 RCC** - **Document APG23-2/INF-36**

The RCC Administrations are considering the following requirement for non-GSO FSS ESIMs in the bands 17.7-18.6/18.8-19.3/19.7-20.2GHz (s-to-E) and 27.5-29.1/29.5-30 GHz (E-t-s):

* In the bands 17.7-18.6/18.8-19.3/19.7-20.2GHz (s-to-E) non-GSO ESIMs shall not claim protection from terrestrial services operation in accordance with the RR.
* RR provisions for protection of GSO network from non-GSO FSS shall not be affected;
* ESIMs should operate within the envelope of typical ES’s published in the BR IFIC;
* ESIMs should not be used for safety-of –life applications;
* Measures to exclude unauthorized use of ESIMs in the territory of States that have not granted relevant authorizations are needed.

**7.2 International Organisations**

**7.2.1 IARU** - **Document APG23-2/INF-23**

*No information on AI1.16*

**7.2.2 ICAO** - **Document**

*No information on AI1.16*

**7.2.3 WMO** - **Document APG23-1/INF-05**

* WMO supports studies to ensure non-GSO FSS ESIM deployment will ensure the protection of co-frequency band MetSat allocation and that in the frequency bands adjacent to 18.6-18.8 GHz will not result in increased adjacent band interference to EESS (passive) operations.