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| **The 4th Meeting of the APT Conference Preparatory**  **Group for WRC-23 (APG23-4)** | **APG23-4/OUT-30** |
| 15 – 20 August 2022, Bangkok, Thailand | 20 August 2022 |

Working Party 4

**PRELIMINARY VIEWs on WRC-23 agenda item 1.17**

**Agenda Item 1.17:**

*to determine and carry out, on the basis of the ITU-R studies in accordance with Resolution 773 (WRC 19), the appropriate regulatory actions for the provision of inter-satellite links in specific frequency bands, or portions thereof, by adding an inter-satellite service allocation where appropriate*

**1. Background**

Under this agenda item, Resolution **773 (WRC-19)** invites the ITU-R:

* to develop the technical and operational characteristics of different types of space stations that plan satellite-to-satellite transmissions in the frequency bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz;
* to study the technical and operational characteristics, including spectrum requirements, off-axis equivalent isotropically radiated power (e.i.r.p.) values and out-of-band emission limits, for transmissions between space stations in the frequency bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz;
* to study sharing and compatibility between satellite-to-satellite links intending to operate between space stations in the frequency bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz and current and planned stations in the FSS and other existing services allocated in the same frequency bands and adjacent frequency bands, including passive services, with a view to ensuring protection of the primary services referred to above;
* to develop, for different types of space stations, the technical conditions and regulatory provisions for satellite-to-satellite operations in the frequency bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz, or portions thereof, including new ISS allocations, as appropriate, taking into account the results of the studies above,

In accordance with the results of CPM23-1, the above studies are being conducted by ITU-R Working Party 4A (WP 4A) hybrid meeting in-person with remote participation from 11 to 20 May 2022 which the detailed activities are in the Chairman’s Report of ITU-R Working Party 4A (Document 4A/691).

* Working document on WRC-23 agenda item 1.17 ([Document 4A/691/Annex 20](https://www.itu.int/dms_ties/itu-r/md/19/wp4a/c/R19-WP4A-C-0691!N20!MSW-E.docx))
* Annex 1 to Working document on WRC-23 agenda item 1.17[([Document 4A/691/Annex 21](https://www.itu.int/dms_ties/itu-r/md/19/wp4a/c/R19-WP4A-C-0691!N20!MSW-E.docx)](https://www.itu.int/dms_ties/itu-r/md/19/wp4a/c/R19-WP4A-C-0691!N21!MSW-E.docx))
* Annex 2 to Working document on WRC-23 agenda item 1.17[([Document 4A/691/Annex 22](https://www.itu.int/dms_ties/itu-r/md/19/wp4a/c/R19-WP4A-C-0691!N20!MSW-E.docx))](https://www.itu.int/dms_ties/itu-r/md/19/wp4a/c/R19-WP4A-C-0691!N22!MSW-E.docx)
* Annex 3 to Working document on WRC-23 agenda item 1.17[([Document 4A/691/Annex 23](https://www.itu.int/dms_ties/itu-r/md/19/wp4a/c/R19-WP4A-C-0691!N20!MSW-E.docx))](https://www.itu.int/dms_ties/itu-r/md/19/wp4a/c/R19-WP4A-C-0691!N23!MSW-E.docx)
* Preliminary draft CPM text for WRC-23 agenda item 1.17 [([Document 4A/691/Annex 30](https://www.itu.int/dms_ties/itu-r/md/19/wp4a/c/R19-WP4A-C-0691!N20!MSW-E.docx))](https://www.itu.int/dms_ties/itu-r/md/19/wp4a/c/R19-WP4A-C-0691!N30!MSW-E.docx)
* Work plan for WRC-23 agenda item 1.17[([Document 4A/691/Annex 40](https://www.itu.int/dms_ties/itu-r/md/19/wp4a/c/R19-WP4A-C-0691!N40!MSW-E.docx))](https://www.itu.int/dms_ties/itu-r/md/19/wp4a/c/R19-WP4A-C-0691!N30!MSW-E.docx)
* Ongoing discussion in ITU-R WP 4A meetings:
* The studies on the spectrum requirements, concept of operations, compatibility and sharing studies for each of the concept of operations.
* Identification of operational and regulatory measures (coordination procedure, hard limits) for the use of the Ku and Ka-bands for inter-satellite links under a proper new allocation (FSS (space-to-space) or ISS).
* Update the draft CPM text, in particular the sections dealing with the regulatory and procedural matters.
* Liaise statement to relevant Working Parties.

etc.

**2. Documents**

* Input Documents APG23-4/[INP-10](https://www.apt.int/sites/default/files/2022/08/APG23-4-INP-10_J-4_WP4_Preliminary_Views_on_WRC-23_Agenda_Items_1.15_1.16_1.17_1.18_1.19_and_7.docx)(J),[INP-17](https://www.apt.int/sites/default/files/2022/08/APG23-4-INP-17_AUS_WP4_Preliminary_Views_on_WRC-23_Agenda_Items_1.15_1.16_1.17_1.18_1.19_and_7.docx)(AUS), [INP-26](https://www.apt.int/sites/default/files/2022/08/APG23-4-INP-17_AUS_WP4_Preliminary_Views_on_WRC-23_Agenda_Items_1.15_1.16_1.17_1.18_1.19_and_7.docx)(IRN), [INP-37](https://www.apt.int/sites/default/files/2022/08/APG23-4-INP-37_KOR_WP4_Preliminary_Views_on_WRC-23_Agenda_Items_1.15_1.16_1.17_1.18_and_7.docx)(KOR),[INP-43](https://www.apt.int/sites/default/files/2022/08/APG23-4-INP-43_China_WP4_Preliminary_Views_on_WRC-23_Agenda_Items_1.15_1.16_1.17_1.18_1.19_and_7.docx)(CHN), [INP-48](https://www.apt.int/sites/default/files/2022/08/APG23-4-INP-48_Thailand_WP4_Preliminary_Views_on_WRC-23_Agenda_Items_1.15_1.17_and_7.docx)(THA), [INP-57](https://www.apt.int/sites/default/files/2022/08/APG23-4-INP-57_SNG_WP4_Preliminary_Views_on_WRC-23_Agenda_Items_1.15_1.16_1.17_and_7.docx)(SNG), [INP-64](https://www.apt.int/sites/default/files/2022/08/APG23-4-INP-64_India_WP4_Preliminary_Views_on_WRC-23_Agenda_Items_1.16_1.17_1.18_and_1.19.docx_Agenda_Items_1.16_1.17_1.18_and_1.19.docx)(IND), [INP-8](https://www.apt.int/sites/default/files/2022/08/APG23-4-INP-82_Indonesia_WP4_Preliminary_Views_on_WRC-23_Agenda_Items_1.15_1.16_1.17_and_7.docx)2(INS)
* Information Documents APG23-4/[INF-02](https://www.apt.int/sites/default/files/2022/07/APG23-4-INF-02_ATU_preparation.docx)(ATU),[INF-03](https://www.apt.int/sites/default/files/2022/07/APG23-4-INF-03_WMO_Positions.docx)(WMO),[INF-21](https://www.apt.int/sites/default/files/2022/08/APG23-4-INF-21_ASMG_Preparation_for_WRC-23.pdf)(ASMG),[INF-28](https://www.apt.int/sites/default/files/2022/08/APG23-4-INF-28_CITEL_Preparation_for_WRC-23.pdf)(CITEL),[INF-37](https://www.apt.int/sites/default/files/2022/08/APG23-4-INF-37_Brief_on_AI1.17.docx)(Chairman, DG AI1.17),[INF-44](https://www.apt.int/sites/default/files/2022/08/APG23-4-INF-44_Status_of_RCC_preparation_to_the_World_Radio_Conference_and_Radio_Assembly_2023.pdf)(RCC), [INF-48](https://www.apt.int/sites/default/files/2022/08/APG23-4-INF-48_Status_of_CEPT_preparation_for_WRC-23_and_RA-23.pdf)(CEPT)

**3. Summary of discussions**

**3.1 Summary of APT Members’ views**

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

In order to protect the BSS in the band 11.7 - 12.2 GHz in Region 3 and not to impose any additional constraints on future development of the BSS in the band 11.7 - 12.2 GHz in Region 3, Japan supports NOC for the allocation in the band 11.7 - 12.2 GHz in Region 3.

Japan supports ITU-R studies on the sharing and compatibility as well as to develop technical conditions and regulatory provisions for the use of satellite-to-satellite operations in the 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz frequency bands in accordance with Resolution 773 (WRC-19), and such the use shall ensure protection of primary services allocated in the bands and in the adjacent bands.

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

Australia supports ITU-R studies to develop technical conditions and regulatory provisions that establish a harmonised framework which facilitates the use of satellite-to-satellite operations in the 11.7 ‑ 12.7 GHz, 18.1 ‑ 18.6 GHz, 18.8 ‑ 20.2 GHz and 27.5 ‑ 30 GHz frequency bands. Such use shall protect and impose no additional regulatory or technical constraints on services to which the frequency band is currently allocated on a primary basis in accordance with Resolution **773 (WRC-19)**.

Regulatory recognition of satellite-to-satellite operations under this agenda item should be conditional on these operations being contained within the cone of coverage towards earth of the FSS GSO/non-GSO service provider space station and further restricted to ensure that in the FSS (E-s) allocated portions of the band transmissions from a user space station to a service provider space station only occurs when the users apogee is lower than the service providers minimum operational altitude, and that for the FSS (s-E) portions of the band transmissions from a service provider space station to a user space station only occurs when the user space station apogee is lower than the service providers station minimum operational altitude.

Australia supports the work undertaken by WP 4A to date in defining the concepts of “within the cone of coverage” (inside the cone) and “expanded-cone” (a collective of both inside and outside the cone).

Australia can consider but is yet to form a view on possible new inter-satellite service (ISS) allocations in the frequency bands subject to this agenda item.

In relation to the regulatory consideration of proposing changes to the Table of Frequency Allocations to accommodate or recognise a new space-to-space application, Australia’s position is yet to be finalised. Australia is of the view that such changes, if required, should be consistent with the service definitions in Article **1** of the Radio Regulations.

**3.1.3 Iran (Islamic Republic of)** - **Document APG23-4/INP-26**

This Administration supports NOC for new allocation to inter-satellite system in the bands subject to this agenda item, which are shared with FSS which are the core bands for infrastructure of the telecommunication / ICT.

Moreover, this Administration also does not support inter- satellite system in the band 11.7 - 12.2 GHz in order to protect the geostationary-satellite networks in the BSS Plan and List in the band 11.7-12.2 GHz in Region 3 and not to impose any additional constraints on the future development of the geostationary-satellite networks in the BSS.

Moreover, this Administration has no objection to develop necessary regulatory provision for use by extended Zone if the shortcoming of that zone as raised in ITU-R study group is properly addressed and in addition the GSO and NGSO services to which the band is currently allocated are not adversely affected in any way.

Unfortunately there are no Method is yet agreed and the draft Resolution for the agenda item is in a very preliminary stage.

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

The Republic of Korea supports on-going ITU-R studies on the sharing and compatibility in the bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz, or portions thereof in the fixed-satellite service (FSS), while ensuring the protection of, and not adversely affecting other FSS and BSS networks or systems and other services allocated in the same bands and adjacent bands.

The Republic of Korea would consider the technical conditions and regulatory provisions for inter-satellite links in these bands or portions thereof within the FSS allocations with an additional indicator “space-to-space” limited to the links operating in the same direction of transmission as provided in the current FSS allocations for “within the cone of coverage” concept of operation, based on the ITU-R studies above.

**3.1.5 China (People's Republic of) - Document APG23-4/INP-43**

China supports studying sharing and compatibility between satellite-to-satellite links intending to operate in the 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz bands, or parts thereof and the existing primary services allocated in same frequency bands as well as EESS (passive) allocated in the adjacent frequency bands.

China also supports the development of a regulatory framework to enable the operation of satellite-to-satellite links within the fixed-satellite service (FSS) allocation in the 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz bands, or parts thereof, while ensuring protection of existing primary services in the same frequency bands and adjacent bands.

China is of the view that satellite-to-satellite link transmissions should comply with the same directionality indicators as in the existing FSS allocations (Earth-to-space from user space station to service provider space station, space-to-Earth from service provider space station to user space station).

**3.1.6 Thailand (Kingdom of) -** **Document APG23-4/INP-48**

Thailand supports ITU-R studies currently carried out in accordance with Resolution **773 (WRC-19)**. The development of technical conditions and regulatory provisions for the use of satellite-to-satellite operations in the frequency bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz shall ensure the protection of existing primary services as well as their future developments in the same frequency bands and in adjacent frequency bands.

Thailand is of the view that:

* any allocation for satellite-to-satellite transmissions in these frequency bands, or portions thereof, should be within the existing fixed-satellite service (FSS); and
* the epfd produced at the geostationary orbit from all combined operations of space-to-space and typical Earth station transmissions of co-frequency non-GSO FSS systems should comply with the applicable limits contained in the Article **22** of the Radio Regulations.

**3.1.7 Singapore (Republic of)** - **Document APG23-4/INP-57**

Singapore supports recognition of satellite-to-satellite transmissions within current FSS allocations according to the FSS directionality indicators (i.e. Earth-to-space or space-to-Earth) and “within the cone of coverage” concept of operations.

Singapore also supports to ensure the same level of protection to incumbent services, as currently provided in the Radio Regulations in the relevant frequency bands and in the adjacent frequency bands, and not impose new constraints on incumbent services to protect satellite-to-satellite links from interference.

**3.1.8 India (Republic of)** - **Document APG23-4/INP-64**

India supports the development of appropriate regulatory framework to enable the operation of satellite-to-satellite links within the FSS in the frequency bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz, while ensuring protection of existing services, their current and future applications and expansions in the same and adjacent frequency bands.

**3.1.9 Indonesia (Republic of)** - **Document APG23-4/INP-82**

Indonesia is of the view that the protection of current and planned stations of primary services allocated in the frequency band 11.7-12.7 GHz, 18.1-18.6 GHz, and 18.8-20.2 GHz and 27.5-30 GHz, or parts thereof, and current and planned stations of the FSS and other existing services allocated in same frequency bands as well as in adjacent frequency bands, including passive services, should be fully ensured during sharing and compatibility studies under Agenda Item 1.17.

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

APT Members express the concerns on the using the satellite-to-satellite link transmissions and potential intended impact on primary services allocated in the bands and in the adjacent bands, taking into account the part of these frequency band has been used for the FSS in many countries.

APT Members are still considering the methods to address those issues of ISS/FSS allocation to the use of satellite-to-satellite links, in accordance with Resolution **773 (WRC-19)**.

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

APT Members support ITU-R studies on the sharing and compatibility as well as to develop technical conditions and regulatory provisions for the use of satellite-to-satellite operations in the 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz frequency bands or portions thereof, in accordance with Resolution **773 (WRC-19)**, as such the use shall ensure protection of the FSS and other services to which the frequency bands are allocated as well as those services in the adjacent bands to the above services , including passive services.

APT Members are of the view that the use of these bands for satellite-to-satellite links needs to protect the FSS in these bands, taking into account that the parts of these frequency bands studied under the agenda item are the core FSS bands which are used for telecommunication infrastructure in many countries.

APT Members are of the view that currently there is no coordination procedure to protect other services, in particular FSS, due to the fact that the inter satellite link composed of GSO and NGSO link for which according to the RRB Rules of Procedure, the protection of other services is not possible. See [([Document 4A/691/Annex 30](https://www.itu.int/dms_ties/itu-r/md/19/wp4a/c/R19-WP4A-C-0691!N20!MSW-E.docx))](https://www.itu.int/dms_ties/itu-r/md/19/wp4a/c/R19-WP4A-C-0691!N30!MSW-E.docx).

APT Members are of the view that the technical conditions and regulatory provisions developed under WRC-23 agenda item 1.17 shall ensure not causing unacceptable interference to the terrestrial services operating in the frequency band 27.5-29.5 GHz.

APT Members are also of the view that consideration should be given to the operation of the secondary terrestrial services as currently contained in the Radio Regulations in order that these terrestrial services should not be adversely affected by satellite-to-satellite links in the frequency band being studied under WRC-23 agenda item 1.17.

APT Members support the protection of the BSS in the band 11.7-12.2 GHz in Region 3 and not to impose any additional constraints on future development of the BSS in the band 11.7 - 12.2 GHz in Region 3.

APT Members support satellite-to-satellite transmissions according to the FSS directionality indicators (i.e. Earth-to-space or space-to-Earth) and “within the cone of coverage” concept of operations.

APT Members are considering to support NOC for the allocation in the band 11.7-12.2 GHz in Region 3 at this stage.

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

None.

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

Taking into account that the use of satellite-to-satellite operations in the 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz frequency bands or portions thereof shall ensure protection of FSS and other services allocated in the bands and in the adjacent bands, APT members are invited to follow the progress of the ITU-R studies (including the concepts of operations, sharing and compatibility studies, CPM report and so on), and are encouraged to submit their contributions for further considerations at the next meeting, including the conclusions of ITU-R studies, methods to satisfy the AI1.17 together with associate regulatory procedure including draft Resolution AI1.17 in the CPM report.

**7. Views from Other Organisations**

**7.1 Regional Groups**

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

* Decide that a regulatory framework should be developed to ensure the protection of the in-band and adjacent bands services to which the frequency bands referred to in this agenda item, in particular, existing and future FSS services be guaranteed.
* Support ongoing sharing and compatibility studies at the ITU-R on technical and operational characteristics, including spectrum requirements, off-axis e.i.r.p. values and out-of-band emission limits aimed towards the development of technical and regulatory actions for inter-satellite links in the frequency bands under consideration in this agenda item aimed at enabling the operation of satellite-to-satellite links within the fixed-satellite service (FSS) allocation in the 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz bands, or parts thereof.
* Support allocation of satellite-to-satellite transmissions within current FSS allocation, with same directional designators as in FSS, i.e. Earth-to-space and space-to-Earth.
* Avoid, if possible, a new ISS allocation in these core FSS bands (Note: avoiding a new allocation when/if possible is a standard ITU practice and it has always been encouraged)
* Support the “within the cone of coverage” concept of operation, which allows satellite-to-satellite transmissions to be granted regulatory recognition under the current FSS allocation, without the need for a new inter-satellite service allocation
* Encourage execution of sharing studies on the “expanded cone” concept of operation.

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

* Support the development of a regulatory framework and impose no additional regulatory or technical constraints on, services to which the frequency band is currently allocated on a primary basis as well as in for those in the adjacent bands, in particular current and future FSS services and uplink assignments in Appendix 30A.
* Follow-up compatibility studies for the use of satellite-to-satellite transmissions in the frequencies 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz, and 27.5-30 GHz, or parts thereof, in accordance with Resolution 773 (WRC-19), to determine:
* An appropriate assignment mechanism whether it is within the FSS allocations or a new allocation of inter-satellite service (ISS).
* The frequency bands in which the satellite-to-satellite links service is operated due to the importance of the services operating in those frequency bands.
* The sharing mechanism with the non-GSO FSS either through coordination according to Provision 9.12 or the establishment of hard limits.
* The sharing mechanism with the GSO FSS either by considering those operations shall be within the envelope of a typical earth station communicating with the satellite network or by establishing hard limits.
* Define the concept of operation for “within the cone” or “expanded cone” with appropriate constraints.
* Support the inter-satellite service within the current FSS allocations, in the same directions as in the FSS, i.e. Earth-to-space and space-to-Earth.

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

* Some administrations support studies under Resolution 773 (WRC-19) to consider technical and regulatory provisions to allow satellite-to-satellite links in the frequency bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz, and 27.5-30 GHz. Satellite-to-satellite links should be allowed, provided that no additional regulatory or technical constraints are imposed on incumbent services, both in-band and adjacent band.
* A third administration supports carrying out studies to consider appropriate regulatory measures for the provision of satellite-to-satellite links in the FSS in the frequency bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz, and 27.5-30 GHz.
* Satellite-to-satellite links in the FSS must protect existing services allocated on a primary basis in these frequency bands and in adjacent frequency bands, and likewise must not impose undue constraints on said services, including other FSS applications.
* This administration is also of the opinion that studies relative to satellite-to-satellite links in the framework of the present agenda item must be confined to links that operate in the same transmission direction provided for in the current allocations for the FSS in the frequency bands under consideration. It must be pointed out that the operations of these satellite-to-satellite links would only be permitted between satellites located on different orbits.
* A fourth administration supports studies called for under Resolution 773 (WRC-19), including assessing the spectrum requirements, development of technical and operational characteristics, conducting sharing and compatibility with a view to ensuring the protection of, and without imposing additional regulatory or technical constraints on primary allocated services in these bands and adjacent frequency bands, including passive services. This administration is also of the view that the studies of satellite-to-satellite operations for consideration under this agenda item should be limited to links operating in the same direction of transmission as provided in the current allocations for the fixed-satellite service in the frequency bands under consideration. Based on the results of these studies, this administration supports the consideration of appropriate technical and regulatory provisions at WRC-23 to address Resolution 773 (WRC-19) in the frequency bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz, and 27.5-30 GHz, or portions thereof.

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

* The use of inter-satellite links in the frequency bands 11.7-12.7 GHz, 18.1- 18.6 GHz, 18.8-20.2 GHz, and 27.5-30 GHz in current concepts it does not meet the definition of the FSS and imposes additional constraints on the use of the existing and future systems/networks of FSS, inter alia, over the national territories.
* Spectrum requirements should be justified, conditions for the use of inter-satellite links in the above-mentioned frequency bands should ensure the protection of existing primary services that have allocations in the same or neighboring frequency bands and no additional constraints should be impose on the use of existing and future stations of these services.
* Supports the development of technical and operational conditions, as well as regulatory provisions, including new allocations to inter-satellite service, for the operation of inter-satellite links in the frequency bands 11.7−12.7 GHz, 18.1−18.6 GHz, 18.8−20.2 GHz and 27.5−30 GHz or parts thereof.

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

* CEPT supports the development of a regulatory framework to enable the operation of satellite‐to‐satellite links within the fixed‐satellite service (FSS) allocation in the 11.7‐12.7 GHz, 18.1‐18.6 GHz, 18.8‐20.2 GHz and 27.5‐30 GHz bands, or parts thereof, while ensuring protection of existing services in the same frequency bands and adjacent bands.
* CEPT supports that the introduction of satellite‐to‐satellite transmissions must ensure the same level of protection for GSOs and non‐GSOs as currently provided in the RR and must not impose new constraints on GSOs and non‐GSOs to protect satellite‐to‐satellite links from interference.
* CEPT supports that the introduction of satellite‐to‐satellite transmissions must ensure the same level of protection for terrestrial services as currently provided in the RR and must not impose new constraints on terrestrial services to protect satellite‐to‐satellite links from interference.
* CEPT proposes that space stations that plan satellite‐to‐satellite transmissions should be governed by the following preliminary guiding principles:
* Satellite‐to‐satellite link transmissions will comply with the same directionality indicators as in the existing FSS allocations (Earth‐to‐space = from user space station to service provider space station, space‐to‐Earth = from service provider space station to user space station);
* Non‐GSO user space stations will operate in a manner that should resemble typical Earth stations of the FSS service provider system;
* The equivalent power flux‐density, epfd ↑, produced at any point in the geostationary‐satellite orbit by emissions from all combined operations of space‐to‐space and typical Earth station transmissions shall not exceed the limits given in Table 22‐2;
* The equivalent power flux‐density, epfd ↓, at any point on the Earth’s surface visible from the transmitting satellite system, produced by emissions from all the space stations of the non‐geostationary‐satellite system shall not exceed the limits given in Tables 22‐1A to 22‐1E, where applicable
* The higher altitude to lower altitude link transmissions in 11.7‐12.7 GHz, 18.1‐18.6 GHz and 18.8 20.2 GHz from the GSO or non‐GSO FSS service provider space station to the non‐GSO user space station would be identical in technical characteristic to the transmissions from GSO or non‐GSO service providers to any ground‐based user in the service provider’s network;
* Enabling the operation of satellite‐to‐satellite links should not result in an increase of the interference to EESS (passive) sensors operating in the 18.6‐18.8 GHz band. CEPT supports the development of measures to ensure EESS (passive) protection in the 18.6‐18.8 GHz frequency band. Any provision on non‐GSO service provider space stations providing satellite‐to‐satellite links that may be needed to limit the interference to EESS (passive) sensors operating in the 18.6‐18.8 GHz shall be applicable only to those non‐GSO service provider systems notified/brought into use after the last day of WRC‐23.

**7.2 International Organisations**

**7.2.1 ICAO - Document APG23-3/INF-15**

* To ensure that, given the overlap in frequency bands, any radio regulatory action taken as a result of this agenda item does not adversely affect the provision of UAS CNPC under Resolution **155** (**Rev. WRC-19**).

**7.2.2 IMO**

None.

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

* WMO supports studies, as necessary, to ensure satellite-to-satellite links will protect the co-frequency band MetSat allocation and that the operation of satellite-to-satellite links in the frequency bands adjacent to 18.6-18.8 GHz will not result in increased adjacent band interference to EESS (passive) operations.

**7.2.4 IARU**

None.

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