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| **The 4th Meeting of the APT Conference Preparatory**  **Group for WRC-23 (APG23-4)** | **APG23-4/OUT-28** |
| 15 – 20 August 2022, Bangkok, Thailand | 20 August 2022 |

Working Party 4

**PRELIMINARY VIEWs on WRC-23 agenda item 1.15**

**Agenda Item 1.15:**

*to harmonize the use of the frequency band 12.75-13.25 GHz (Earth-to-space) by earth stations on aircraft and vessels communicating with geostationary space stations in the fixed-satellite service globally, in accordance with Resolution* ***172 (WRC-​19);***

RESOLUTION **172 (WRC-​19*)*** – *Operation of earth stations on aircraft and vessels communicating with geostationary space stations in the fixed-satellite service in the frequency band 12.75-13.25 GHz (Earth-to-space).*

**1. Background**

World Radiocommunication Conference 2019 (WRC-19) adopted agenda item 1.15 that calls for studies on the possible operation of earth stations on aircraft and vessels communicating with geostationary space stations in the fixed-satellite service in the frequency band 12.75-13.25 GHz (Earth-to-space), in accordance with Resolution **172 (WRC-19)**.

The ITU has addressed aeronautical and maritime earth stations operating with GSO FSS satellites in Study Group 4 and at several WRCs that adopted technical and regulatory regimes to allow such operations. In the Radio Regulations Resolution **902 (WRC-03)** and Resolution **169 (WRC-19)** define technical and regulatory rules to allow GSO FSS networks to communicate with earth stations on aircraft or vessels to provide broadband communications.

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-169)** 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.

Resolution **172 (WRC-19)** calls for studies to ensure that AP30B allotments and assignments as well as other allocated services are protected.

Working Party (WP) 4A has been designated by CPM23-1 as the responsible group for the Agenda Item 1.15.

Sharing studies are needed in ITU-R to ensure protection of the other primary services in the band such as Fixed-Satellite Service, Fixed Service, and Mobile Service, as well as the protection of Earth exploration-satellite service EESS (active) and aeronautical radionavigation service operating in the adjacent band 13.25-13.4 GHz.

Working Party 4A, in preparation of WRC-19 Agenda item 1.15, has studied to consider the issues mentioned above and has developed working document on WRC-23 agenda item 1.15 and preliminary draft CPM text.

**2. Documents**

* Input Documents: APG23-4-INP-10(J), INP-17(AUS), INP-22(BGD), INP-26(IRN), INP-37(KOR), INP-43(CHN), INP-48(THA), INP-57(SNG), INP-77(VTN), INP-82(IND), INP-84(PNG).
* Information Documents: APG23-4/INF-02(ATU), INF-03(WMO), INF-21(ASMG), INF-28(CITEL), INF-44(RCC), INF-48(CEPT).

**3. Summary of discussions**

**3.1 Summary of APT Members’ views**

* + 1. **Japan** - **Document APG23-4/ INP-10**
* Japan supports studies being carried out by ITU-R WP 4A for the use of the frequency band 12.75 – 13.25 GHz (Earth-to-space) by earth stations on aircraft and vessels communicating with GSO space stations in the FSS while ensuring protection of existing services in this frequency band and in adjacent bands, in accordance with Resolution **172 (WRC-19).**
* Japan also supports ITU-R studies to develop technical conditions and regulatory provisions for operation of the abovementioned earth stations on aircraft and vessels.

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

* Australia supports Method B which refers to the establishment of a new regulatory framework (including technical and operational requirements) that improves the efficiency of use of the 12.75‑13.25 GHz band by facilitating Aeronautical Earth Stations in Motion (A-ESIM) and Maritime Earth Stations in Motion (M-ESIM) to use the frequency bands. The framework for this type of ESIM use must ensure protection of services allocated in the 12.75‑13.25 GHz band and should not impact the usability of the allotments in the Plan, and assignments in the List under Appendix **30B** of the Radio Regulations. Australia supports the development of a methodology regarding examination by the Bureau of compliance with PFD limits by A-ESIM, or of adequate transitional measures should WRC‐23 not finalise the methodology.

**3.1.3 Bangladesh** - **Document APG23-4 / INP-22**

* Bangladesh supports ITU-R studies currently carried out in accordance with Resolution **172 (WRC-19)**. The operation of earth stations on aircraft and vessels communicating with geostationary space stations in the fixed-satellite service in the frequency band 12.75-13.25GHz (Earth-to-space) shall take into account the protection of existing services as well as their future developments in accordance with Resolution **172 (WRC-19)**. In addition of that, earth stations on aircraft and vessels in the frequency band 12.75-13.25 GHz shall be operated in consistency with the Appendix **30B** procedures while protecting the Appendix **30B** allotments in the Plan and assignments in the List.

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

The preliminary views of the Islamic Republic of Iran is as follows:

* In order to make it possible to use the aeronautical and maritime earth stations operating with GSO FSS networks in the 12.75-13.25 GHz band (Earth-to-space),it is required to continue studies to develop technical/ regulatory solution(s) for all difficulties/concerns that are currently raised. Completion of studies shall ensure the protection of the existing and planned radiocommunication services in the 12.75-13.25 GHz band and adjacent bands, in particular, Appendix **30B** as a worldwide Plan.
* This is important that ESIMs shall not cause unacceptable interference to/ and ESIMs shall not claim protection from existing and planned radiocommunication services (including terrestrial services) in the 12.75-13.25 GHz band and adjacent bands. With respect to other space services, it shall operate within the envelope of technical characteristic and envelope of coordination agreement.
* The use of the frequency band 12.75-13.25 GHz (Earth-to-space) by A-ESIM and M-ESIM shall not limit the access of other administrations to their national resources in Appendix **30B**.Moreover, AP**30B** criteria including service area provisions shall be complied.
* A review by the BR of the service area of the AP**30B** assignments recorded in the MIFR showed that generally the service areas of AP**30B** networks applied Article 6 and recoded in the List or MIFR are non-contiguous and the number of countries in these service areas ranges from one to fifty countries at the maximum. Additionally § 6.16 of RR AP**30B** provides that an administration may at any time exclude its territory from the service area of an AP**30B** assignment. Therefore, A-ESIM and M-ESIMs in the 12.75‑13.25 GHz band subject to this agenda item need to have the capability to restrict operations in territories of those administrations the agreement of which under §6.6 has been obtained and authorization for A-ESIM and M-ESIM operations has been granted. Also, a distinctive aspect of RR AP**30B** is the existence of Reference situation for all Plan allotments and assignments in the List.
* Use of A-ESIMs and M-ESIMs shall not cause unacceptable interference to allotments, converted allotments to assignments within the limits of initial characteristics as contained in the allotment Plan, and those stemming from application of Article 7 transferred to Article 6 of AP**30B** and those submitted under Resolution 170 (WRC-19) as well as all existing and planned services in that frequency band and adjacent bands operating in accordance with the Radio Regulations. A-ESIMs and M-ESIMs shall not claim protection from the allotment Plan, assignments in the List of AP**30B** for national coverage, and other services including terrestrial services to which the frequency band is allocated and operating in accordance with the provisions of Radio Regulations.
* For the operation of A-ESIM and M-ESIM, the technical, operational and regulatory provisions including responsibilities of administrations and entities responsible for the operation, authorization and the interference management system of these earth stations need to be clearly defined.
* The only administration that could notify ESIM is the same administration as the one notifying the GSO network to which the ESIM communicate. Thus, notification of any frequency assignment for ESIMs shall only be made by one single administration, which will be responsible for resolving potential interferences, operational issues and monitoring of ESIM to comply with Radio Regulations.
* Regarding the use of PFD mask in ESIM operation, one possible acceptable way is to provide a PFD mask as guidance to administration intending to authorize the operation of the ESIMs to determine whether or not the interference which may be caused to its terrestrial stations/assignments. However, reference made in the ITU-R studies that compliance with the PFD mask does not release the notifying administration of the A-ESIM with respect to discharging its responsibility that such earth station shall not cause unacceptable interference to nor claim protection from terrestrial stations/ assignments. Reference is also made that an administration authorizing the operation of A-ESIM and M-ESIM in their territories (air space and territorial waters) shall be within the service area of the subject satellite network and authorize the operation of the associated gateway earth station as needed.
* The relevant examination shall be done by the Bureau and if the latter is unable to examine, that A-ESIM with respect to conformity with the PFD limits on the Earth’s surface specified in the Draft CPM text to comply with the limit, then the notifying administration of the ESIM shall send to BR a commitment that the A-ESIM will comply with those limits; for this purpose it is mentioned in the draft CPM text that the BR shall formulate a qualified favourable finding with respect to the limits, otherwise it shall formulate an unfavourable finding.
* The notifying administration of the satellite network shall ensure that ESIMs operate only in the territory under the jurisdiction of any administration/country from which an explicit authorization has been obtained. Moreover, it has been emphasized that for the implementation of the Resolution, the notifying administration of the satellite network/ system with which ESIMs communicate shall ensure that ESIMs are designed and operate so as to cease transmission over the territory of any administration/country from which authorization has not been obtained. It has also been indicated that for the implementation of the Resolution the notifying administration responsible for the operation of aeronautical and maritime ESIMs shall also be responsible to observe and comply with all relevant regulatory and administrative provisions applicable to the operation of the above-mentioned ESIMs as included in this Resolution and those contained in the Radio Regulations.
* Generally, there are still several issues on the operation of ESIMs to be clarified and specified in the Draft New Resolution, such as interference management mechanism and operation mechanism of ESIMs that shall be clearly defined by completing relevant studies. The next meeting of WP 4A would be extremely busy to address all the pending issues.
  + 1. **Korea (Rep. of)** - **Document APG23-4/INP-37**

The Republic of Korea has preliminary views as follows;

* Use of the frequency band 12.75-13.25 GHz (Earth-to-space) by earth stations on aircraft and vessels shall not limit the access of other administrations to their national resources in Appendix **30B** as well as implementation of Resolution **170 (WRC‑19)**,
* The use of the frequency band 12.75-13.25 GHz (Earth-to-space) by earth stations on aircraft and vessels shall not adversely affect the operation of existing services and their future development,
* With respect to the sharing and compatibility studies between earth stations on aircraft and vessels and terrestrial services, the protection of terrestrial services shall be ensured at any case in the various sharing scenario without exceptional case.
* that frequency assignments in the 12.75 GHz to 13.25 GHz frequency band to ESIMs shall be notified by the notifying administration of the satellite network with which ESIM communicate and the notifying administration shall be responsible to comply with all relevant regulatory and administrative provisions.

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

* For sharing and compatibility of M-ESIM with the fixed service: both long-term and short-term interference scenarios should be considered, in which 133 km should be treated as the minimum distance for M-ESIM sharing and compatibility with Fixed Service from the low-water mark as officially recognized by the coastal State.
* For sharing and compatibility of M-ESIM and A-ESIM with non-GSO FSS satellite systems: No need to set up additional RR provisions.

**3.1.7 Thailand** - **Document APG23-4/INP-48**

* Thailand supports ITU-R studies currently carried out in accordance with Resolution **172 (WRC-19)**, including the development of a regulatory framework, appropriate technical requirements, and the responsibilities of the notifying administration of the satellite network pertaining to the operation of earth stations on aircraft and vessels communicating with geostationary space stations in the fixed-satellite service in the frequency band 12.75-13.25 GHz (Earth-to-space). Such operation shall take into account the protection of existing services as well as their future developments in the same frequency band and adjacent frequency bands.

**3.1.8 Singapore** - **Document APG23-4/INP-57**

* Based on the recent development of ITU-R studies under Agenda Item 1.15, Singapore would like to share its preliminary views under this agenda item as follows:
* Supports method B to satisfy Agenda Item 1.15 which refer to the establishment of a new regulatory framework and technical requirements for operation of earth stations on aircraft and vessels in the frequency band 12.75 – 13.25 GHz (Earth-to-space) taking into account the results of ITU-R studies to ensure protection of services allocated in the bands in accordance with Resolution **172 (WRC-19)**.
* The use of the frequency band 12.75 – 13.25 GHz by earth stations on aircraft and vessels need to respect the Appendix **30B** procedures, and such operations shall protect the Appendix **30B** allotments in the Plan and assignments in the List submitted under Articles 6 and 7 as well as under Resolution **170 (WRC-19)**.
* Supports the development of a methodology regarding examination by the BR of compliance with PFD limits for A-ESIM or of adequate transitional measures in case WRC-23 could not finalize the methodology.
* Supports that the notifying administration of the GSO satellite networks with which the GSO ESIM communicates is responsible for the operation of the ESIM including resolving cases of potential interference.
  + 1. **Viet Nam** - **Document APG23-4/INP-77**
* Viet Nam supports on-going studies being carried out by ITU-R Working party 4A for the use of the frequency band 12.75 – 13.25 GHz (Earth-to-space) by earth stations on aircraft and vessels communicating with GSO space stations in the FSS while ensuring protection of existing services in those frequency bands and in adjacent bands, in accordance with Resolution **172 (WRC-19).**
* Viet Nam is of the view that the operation of such earth stations on aircraft and vessels should not impact the usability of the allotments in the Plan and assignments in the List under Appendix 30B of the Radio Regulations.

**3.1.10 Indonesia** - **Document APG23-4 / INP-82**

* Indonesia is of the view to support sharing and compatibility study between earth stations on aircraft and vessels communicating with GSO space stations in the FSS and current and planned stations of existing services in the same and adjacent frequency bands, to ensure protection of, and not impose undue constraints on, those services and their future development, taking into account allotments in the Plan, assignments in Appendix 30B List and those submitted under Articles 6 and 7 of Appendix 30B as well as under Resolution 170 (WRC-19).

**3.1.11 Papua New Guinea** - **Document APG23-4/INP-84**

Based on the latest development within ITU-R WP 4A studies under Agenda Item 1.15, Papua New Guinea have the following preliminary views under this agenda item:

* Supports method B to satisfy agenda item 1.15 which refer to the development of a new WRC Resolution with technical, operational, and regulatory conditions for the operation of A-ESIM and M-ESIM communicating with GSO space stations in the fixed-satellite service in the frequency band 12.75 – 13.25 GHz (Earth-to space) while ensuring protection of allocated services and consequential suppression of Resolution **172 (WRC-19)**
* That any transmissions from M-ESIM within the minimum distance, as specified in the Resolution for this agenda item, in order to protect terrestrial services shall be subject to prior agreement of the concerned administration.

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

Discussion carried out during the meeting are reflected that in section 4.

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

APT Members support on-going studies being carried out by ITU-R Working party 4A for the use of the frequency band 12.75 – 13.25 GHz (Earth-to-space) by earth stations on aircraft and vessels communicating with GSO space stations in the FSS while ensuring protection of existing services in those frequency bands and in adjacent bands, in accordance with Resolution **172 (WRC-19).**

APT Members are considering to support Method B provided that the remaining elements and part of that method as referred to draft CPM text of agenda item 1.15 are duly completed and finalized and agreed. This includes the following:

* Interference management mechanism to deal with interference occurring from operation of ESIM to other administrations;
* Switching facility allowing transmission over these territories of countries which agreed to be included in the service area and/or authorized operation of the service on the territory under jurisdiction and no transmission over these countries if they are not in the service areas or they have not given their authorization for operation of that ESIM;
* Methodology to enable the Radiocommunication Bureau to examine the conformity with PFD limit as contained in Annexes of draft resolution;
* Finalisation of calculation of PFD of A-ESIM in different altitudes and elevation angles;
* Other elements yet to be discussed at the next meeting.

APT Members also have preliminary views as follows:

* The use of the frequency band 12.75-13.25 GHz (Earth-to-space) by earth stations on aircraft and vessels shall not limit the access of other administrations to their national resources in Appendix **30B** as well as implementation of Resolution **170 (WRC‑19)**.
* The use of the frequency band 12.75-13.25 GHz (Earth-to-space) by earth stations on aircraft and vessels shall not cause unacceptable interference to nor claim protection from the operation of terrestrial services and their future development. With respect to the sharing and compatibility studies between earth stations on aircraft and vessels and terrestrial services, the protection of terrestrial services shall be ensured under all circumstances and conditions in the various sharing scenario.
* Supports the development of a methodology regarding examination by the Bureau of compliance with PFD limits by A-ESIM, or of adequate transitional measures should WRC‐23 not finalise the methodology.
* The use of earth stations on board aircraft and vessels shall not cause unacceptable interference (more than what is stipulated in relevant annexes to **AP30B** of the Radio Regulations) to allotments, assignments converted from allotments within the limits of initial characteristics as contained in Plan or modified characteristics, for providing services to national territory as well as those from application of Article 6 and 7 of **AP30B** and those submitted under Resolution **170 (WRC-19)** as well as all existing and planned services in that frequency band and adjacent bands operating in accordance with the Radio Regulations.
* Earth stations on board aircraft and vessels shall not claim protection from the allotment plan, assignments in the List of **AP30B** for national coverage, and other services including terrestrial services to which the frequency band is allocated and operating in accordance with the provisions of Radio Regulations.
* With respect to the sharing and compatibility studies between earth stations on board aircraft and vessels communicating with geostationary space stations in the fixed-satellite service and the fixed service in the frequency band 12.75-13.25 GHz, both long-term and short-term interference scenarios under relevant ITU-R Recommendations should be considered and carried out in these studies.
* For the operation of A-ESIM and M-ESIM, the technical, operational and regulatory provisions including responsibilities of administrations and entities responsible for the operation, authorization and the interference management system of these earth stations need to be clearly defined.
* The only administration that could notify ESIM is the same administration as the one notifying the GSO network to which the ESIM communicate. Thus, notification of any frequency assignment for ESIMs shall only be made by one single administration, which will be responsible for resolving potential interferences, operational issues and monitoring of ESIM to comply with Radio Regulations.
* The notifying administration of the satellite network shall ensure that ESIMs operate only in the territory under the jurisdiction of any administration/country from which an explicit authorization has been obtained. Moreover, it has been emphasized that for the implementation of the Resolution, the notifying administration of the satellite network/ system with which ESIMs communicate shall ensure that ESIMs are designed and operate so as to cease transmission over the territory of any administration/country from which authorization has not been obtained.
* Regarding the use of PFD mask in A-ESIM operation, one possible acceptable way is to provide a PFD mask as guidance to administration intending to authorize the operation of the A-ESIMs to determine whether or not the interference which may be caused to its terrestrial stations/assignments.
* The compliance with the PFD mask does not release the notifying administration of the A-ESIM with respect to discharging its responsibility that such earth station shall not cause unacceptable interference to nor claim protection from terrestrial stations/ assignments.
* An administration authorizing the operation of A-ESIM and M-ESIM in their territories (air space and territorial waters) shall be within the service area of the subject satellite network and authorize the operation of the associated gateway earth station as needed.
* The relevant examination shall be done by the Bureau and if the latter is unable to examine, that A-ESIM with respect to conformity with the PFD limits on the Earth’s surface specified in the Draft CPM text to comply with the limit, then the notifying administration of the A-ESIM shall send to BR a commitment that the A-ESIM will comply with those limits; for this purpose it is mentioned in the draft CPM text that the BR shall formulate a qualified favourable finding with respect to the limits, otherwise it shall formulate an unfavourable finding.
* Any transmissions from M-ESIM within the minimum distance, as specified in the Resolution for this agenda item, in order to protect terrestrial services shall be subject to prior agreement of the concerned administration.
* For sharing and compatibility of M-ESIM with the fixed service, both long-term and short-term interference scenarios should be considered, in which [X\*] km should be treated as the minimum distance for M-ESIM sharing and compatibility with FS from the low-water mark as officially recognized by the coastal State.
* There are still several issues on the operation of ESIMs to be clarified and specified in the Draft New Resolution.

\* X: The minimum distance ranges from 86 – 190 km as the current result of ITU-R WP4A studies

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

Some APT Members are of the view that for sharing and compatibility of ESIM with non-GSO FSS satellite systems, there is no need to set up specific additional RR provisions.

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

APT Members are invited to follow the progress of ITU-R studies, in particular attending correspondence group CG-1 of Working party 4A, and are encouraged to submit their contributions for further considerations at the next meeting.

**7. Views from Other Organisations**

**7.1 Regional Groups**

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

* Follow-up studies related to the regulatory and technical aspects of earth stations in motion on aircraft and vessels which communicate with GSO space stations in the fixed-satellite service operating in the frequency band 12.75-13.25 GHz (Earth-to-space) with a view to establish clear and simple procedures so that administrations can ensure the protection of their existing services, while ensuring no limitation would be applied on the allotments and assignments in the Plan (Appendix 30B). Thus, that it does not limit administrations' access to their national resources in Appendix 30B in accordance with Resolution 170 (WRC-19).
* Develop a methodology to assist the Radiocommunication Bureau in examination the conformity of earth stations on aircraft and vessels in case an appropriate flux-density value is agreed to protect terrestrial services from earth stations in motion. The methodology should be developed and agreed prior to the conference.
* Define the role of the Network Control and Monitoring Center (NCMC), while emphasizing that the notifying administration of the satellite network holds the responsibility for operating the mobile earth stations on board aircraft and vessel to resolve any interference incident. In that regard, the administrations issue operating licenses for these stations to provide services in their territories should not be responsible for resolving interference incidents.
* The administrations responsible for the use of the Appendix 30B assignment in the List to operate earth stations on aircraft and vessels in the frequency band 12.75-13.25 GHz shall obtain the explicit agreement from all administrations affected as a result of such use.
* Strict minimum separation distance and EIRP values for earth stations on vessels shall be chosen. As well as strict pfd masks for earth stations on board aircraft to ensure protection of existing terrestrial services.
* Emphasis that the downlink of mobile earth stations in the frequency bands 10.7-10.95 GHz and 11.2 - 11.45 GHz shall not claim protection from terrestrial services that have allocations in those frequency bands and operate in accordance with the Radio Regulations. Moreover, the allotments and assignments in Plan (Appendix 30B) shall not adversely affected.
* The frequency assignments of mobile earth stations shall be notified by the administration responsible of the satellite network to the Radiocommunication Bureau.

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

*Part 1: Common position:*

* **Support** the studies on the regulatory and technical aspects for ESIMs on aircraft and vessels communicating with GSO space stations in the FSS operating in the frequency band 12.75-13.25 GHz (Earth-to-space), while ensuring protection to the existing services and those in the adjacent bands within the frequency band 13.25−13.75 GHz, taking into account the need to protect Appendix 30B.
* **Decide** that studies under this agenda item need to equally consider the effect of aggregated interference from ESIMs to ensure long term protection of Fixed and Mobile Service.
* **Decide** that the operation of such earth stations on aircraft and vessels should not impact the usability of the allotments in the Plan and assignments in the List under Appendix 30B of the Radio Regulations and not limit the access of other administrations to their national resources in Appendix 30B as well as implementation of Resolution 170 (WRC 19).
* **Develop** a methodology for the BR to examine the conformity of earth stations on aircraft and vessels in case of usage of an appropriate pfd to protect terrestrial services from ESIM with such methodology needs to be established and agreed upon.
* **Decide** that Aeronautical or maritime earth stations in the 12.75 - 13.25 GHz band need to have the capability to restrict operations in territories of those administrations where agreement under No. 6.6 has been obtained and authorization for such operations has been granted.
* **Decide** that, there is need to establish regulatory, technical and recording procedures for the usage of these type of Earth Stations in Motion (ESIMs) that may differ than the current FSS Appendix 30B Plan and list recording procedures. Any cost arising from potential implementation of Resolution 172 as well as its updates at WRC-23 need to be carefully examined and decided upon.
* **Seek** to ensure that the use of ESIMs with satellite networks that have a global coverage in Appendix 30B do not create an obstacle for deployment of national or sub-regional satellite networks of other countries in RR Appendix 30B in accordance with Topic F under AI 7 which are initiated from Multi-African administration proposal.
* **Support** that any AI under consideration of WRC-23 shall ensure that the protection of RR Appendix**30B** is guaranteed.
* **Support** that the administrations responsible for notice to use an Appendix 30B assignment in the List in support of the operation of earth stations on aircraft and vessels in the frequency band 12.75-13.25 GHz, to seek the explicit agreement of all the affected administrations from such use.

*Part 2: Way forward*

***Request ATU administrations to:***

* **Follow-up** the studies between earth stations on aircraft and vessels communicating with GSO space stations in the FSS and current and planned stations of existing as well as services in adjacent frequency bands, to ensure protection of, and in no way adversely affect these services and their future development, considering the provisions of Appendix 30B in accordance with Resolution 172 (WRC-19).
* **Follow-up** the regulatory and technical aspects of operations of earth stations on aircraft and vessels communicating with GSO space stations in service area under the jurisdiction of any country Member State of the ITU.
* **Assess** the spectrum utilization in the frequency band 12.75 – 13.25 GHz within their country.
* **Contribute** to and actively participate in work of ITU-R WP4A, in order to have ATU views addressed in the Agenda item.

**7.1.3 CEPT (29 April 2022)**

* CEPT supports establishing a regulatory framework and technical requirements for operation of earth stations on aircraft in the frequency band 12.75‐13.25 GHz (Earth‐to‐space) with conditions that protect the services currently allocated in this frequency band and bands adjacent to it, taking into account ECC Decision (19)04.
* CEPT supports establishing a regulatory framework and technical requirements for operation of earth stations on vessels in the frequency band 12.75‐13.25 GHz (Earth‐to‐space) pending on the results of the studies conducted on protection services currently allocated in this frequency band and bands adjacent to it.
* CEPT considers that earth stations on aircraft and vessels in the frequency band 12.75‐13.25 GHz shall operate consistent with the Appendix 30B procedures, protect the Appendix 30B allotments in the Plan, assignments in the List and in the new proposed Appendix 30B ESIM List (if adopted at WRC‐23) and respect Resolution 170 (WRC‐19).
* CEPT supports the operation of these earth stations in the territories (air space and territorial waters) of administrations which have given agreement under No. 6.6 of Article 6 of Appendix 30B and have authorised such operation within their territories. The characteristics of these earth stations should remain in the envelope of notified earth station characteristics.
* CEPT also supports to study regulatory and technical aspects of operations of earth stations on aircraft and vessels in international waters and airspace.
* CEPT is of the view that the receiving part of these earth stations in the associated frequency bands shall not claim protection from terrestrial services having allocations in the same frequency bands and operating in accordance with the Radio Regulations.

**7.1.4 CITEL** - **Document APG23-2/INF-28**

* Some administrations support studies on the operation of earth stations in motion (ESIM) on aircraft and vessels communicating with GSO FSS space stations in the 12.75-13.25 GHz (Earth-to-space) frequency band with the objective of developing appropriate technical and regulatory provisions to protect primary allocated services, including allotments/assignments in the Appendix 30B Plan and NGSO FSS systems, as well as primary services in adjacent bands, as called for in Resolution 172 (WRC-19).
* One administration considers that studies in ITU-R working groups on the operation of ESIMs on aircraft and vessels communicating with GSO FSS space stations in the 12.75-13.25 GHz (Earth-to-space) frequency band, and aim to develop appropriate technical and regulatory provisions to protect the allotments/assignments in the Appendix 30B Plan and other allocated primary services, as well as primary services in adjacent bands, as indicated in Resolution 172 (WRC-19), continue making progress.
* However, there are still studies to be completed, as is the case of studies related to the protection of non-GSO systems, in accordance with Resolution 172 (WRC-19). Subject to the final results of the studies and the evaluation of the measures that could be necessary to protect non-GSO systems, this administration would be in a position to consider the incorporation of regulatory modifications for the use of earth stations in aircraft and vessels. that communicate with GSO FSS space stations in the 12.75-13.25 GHz (Earth-to-space) frequency band.
* One administration is of the view that studies submitted to ITU-R Working Party 4A have tentatively concluded that the off-axis e.i.r.p. limits in Radio Regulations No. 22.26 would not sufficiently protect non-GSO FSS systems from ESIM on aircraft and vessels that are communicating with GSO space stations in the FSS (GSO ESIM). Therefore, additional measures may be required to ensure the protection of non-GSO FSS systems from GSO ESIM. Such measures could be similar to those that were included in provision 1a) of Annex 1 to Resolution 169 (WRC-19) and should include onaxis and off-axis e.i.r.p. density limits for ESIM, to protect non-geostationary fixed-satellite service systems from short-term and long-term interference, respectively. Further studies are needed to determine appropriate values for such on-axis and off-axis e.i.r.p. density limits.

**7.1.5 RCC (3 June 2022)**

* The RCC Telecommunication Administrations are in favour of developing technical requirements to ESIMs on aircraft and vessels and regulatory provisions, based on carried out studies, for harmonized operation of these earth stations, communicating with GSO space stations in the FSS in the frequency band 12.75-13.25 GHz (Earth-to-space), while ensuring protection of existing services and the services operated in adjacent frequency bands (particularly, EESS (active) in the frequency band 13.25−13.75 GHz), taking into account the provisions of Appendix 30B.
* The RCC Telecommunication Administrations are in favour of the need to ensure protection of allotments in the Plan and assignments in the List of Appendix **30B** RR, in accordance with criteria provided in Annex 4 to Appendix **30B**, when considering the possibility to use the earth stations in motion on aircraft and vessels, communicating with GSO space stations in the FSS in the frequency band 12.75-13.25 GHz. Such use of the frequency band 12.75-13.25 GHz (Earth-to-space) by the earth stations on aircraft and vessels shall not result in any restrictions or changes to the existing allotments/assignments in the Plan/List and shall not adversely affect the criteria in Annex 4, including the cumulative effect of multiple earth stations on aircraft and vessels.
* The RCC Telecommunication Administrations are of the view that ESIMs on aircraft and vessels shall operate in the frequency band 12.75-13.25 GHz (Earth-to-space) within the characteristics of earth stations, filed within the satellite network, and also within the agreements reached by administrations under §§ 6.5, 6.6 and 6.16 of Article 6 Appendix **30B** RR.
* The RCC Telecommunication Administrations are of the view that the use of ESIMs on aircraft and vessels in the frequency band 12.75-13.25 GHz (Earth-to-space) is allowed within frequency assignments of the satellite networks, filed and registered in accordance with the provisions of Articles 6 and 8 Appendix **30B** RR.
* The Telecommunication Administrations which are planning to use ESIMs on aircraft and vessels in the frequency band 12.75-13.25 GHz (Earth-to-space) in international airspace or waters, shall submit to the BR the information on notification of these ESIMs. Such notifications shall be considered as new notifications of frequency assignments to satellite networks with a new date of receiving by the BR, and they are subject to examination by the BR with a view to protecting frequency allotments/assignments of the Plan and List of Appendix **30B** RR against interference, taking into account the worst-location of test points outside the land and space above it.

**7.2 International Organisations**

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

* WMO supports studies to ensure that earth stations on aircraft and vessels communicating with geostationary space stations in the FSS in the frequency band 12.75-13.25 GHz (Earth-to-space) will protect the EESS (active) instruments operating in the adjacent band 13.25-13.75 GHz.

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

* To ensure that any radio regulatory action, taken as a result of this agenda item, neither adversely affects the provision of aeronautical safety-of-life services nor sets an unwanted precedent.

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