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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-40** |
| 19 – 23 April 2021, Virtual/Online Meeting | 19 April 2021 |

Chairman, DG on AI 1.6

**brief on wrc-23 agenda item 1.6**

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

**Agenda Item 1.6:**

*To consider, in accordance with Resolution* ***772 (WRC 19)****, regulatory provisions to facilitate radiocommunications for sub-orbital vehicles*

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

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| Resolution **772 (WRC-19)**Consideration of regulatory provisions to facilitate the introduction of suborbital vehicles | resolves to invite ITU-R1 to study spectrum needs for communications between stations on board sub-orbital vehicles and terrestrial/space stations providing functions such as, inter alia, voice/data communications, navigation, surveillance and TT&C;2 to study appropriate modification, if any, to the Radio Regulations, excluding any new allocations or changes to the existing allocations in Article 5, to accommodate stations on board suborbital vehicles, whilst avoiding any impact on conventional space launch systems, with the following objectives:– to determine the status of stations on sub-orbital vehicles, and study corresponding regulatory provisions to determine which existing radiocommunication services can be used by stations on sub-orbital vehicles, if necessary;– to determine the technical and regulatory conditions to allow some stations on board sub-orbital vehicles to operate under the aeronautical regulation and to be considered as earth stations or terrestrial stations even if a part of the flight occurs in space; – to facilitate radiocommunications that support aviation to safely integrate sub-orbital vehicles into airspace and ensure interoperability with international civil aviation; – to define the relevant technical characteristics and protection criteria f low; – to conduct sharing and compatibility studies with incumbent services that are allocated on a primary basis in the same and adjacent frequency bands in order to avoid harmful interference to other radiocommunication services and to existing applications of the same service in which stations on board sub-orbital vehicles operate, having regard to the sub-orbital flight application scenarios;3 to identify, as a result of the studies above, whether there is a need for access to additional spectrum that should be addressed after WRC-23 by a future competent conference,invite the International Civil Aviation Organizationto participate actively in the studies and provide the technical and operational characteristics of the systems involved by submitting contributions to ITU‑R,invites the 2023 World Radiocommunication Conferenceto consider the results of the studies above and take the appropriate action,instructs the Director of the Radiocommunication Bureau to bring this Resolution to the attention of the relevant ITU‑R study groups,invites administrationsto participate actively in the studies by submitting contributions to ITU‑R,instructs the Secretary-Generalto bring this Resolution to the attention of the United Nations Committee on the Peaceful Uses of Outer Space and ICAO and other international and regional organizations concerned. |

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

**1. Background Information**

Resolution 772 (WRC-19), in preparation for WRC-23 agenda item 1.6, invites the ITU-R to study the spectrum needs for stations on board sub-orbital vehicles, any appropriate modification to the Radio Regulations, excluding any new allocations or changes to the existing allocations in RR Article 5, and to identify whether there is a need for access to additional spectrum that should be addressed after WRC-23 by a future competent conference.

Relevant ITU-R documents:

* [Resolution **772** (WRC-19)](https://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A00000D0013PDFE.pdf) “Consideration of regulatory provisions to facilitate the introduction of sub-orbital vehicles”
* ITU-R [M.2477-0](https://www.itu.int/pub/R-REP-M.2477-2019) “Radiocommunications for suborbital vehicles”

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

ITU-R Working Party (WP) 5B as the responsible group developed a Report ITU-R M.2477 to provide information on the current understanding of radiocommunications for suborbital vehicle (SoV) use including a description of the flight trajectory, categories of suborbital vehicles, technical studies related to possible avionics systems used by suborbital vehicles, and service allocations of those systems during WRC-19 study cycle.

WP 5B has generated a Working Document towards a Preliminary Draft New Report ITU-R M.[SUBORBITAL STUDIES] to initiate study in preparation for this agenda item, which include a chapter on spectrum needs for communications between stations on-board sub‑orbital vehicles and terrestrial/space stations. A skeleton for the draft CPM text and a work plan have been generated as well. WP 5B has also exchanged information with the contributing groups, WP 3M, WP 4A, WP 4C, and WP 7B through liaison statements.

Relevant ITU-R WP 5B documents (TIES required):

* ITU-R WP 5B Contribution 225 [Annex 01](https://www.itu.int/dms_ties/itu-r/md/19/wp5b/c/R19-WP5B-C-0225%21N01%21MSW-E.docx) “Working document towards draft CPM Text for WRC-23 agenda item 1.6”
* ITU-R WP 5B Contribution 225 [Annex 02](https://www.itu.int/dms_ties/itu-r/md/19/wp5b/c/R19-WP5B-C-0225%21N02%21MSW-E.docx) “Work plan for WRC-23 agenda item 1.6”
* ITU-R WP 5B Contribution 225 [Annex 20](https://www.itu.int/dms_ties/itu-r/md/19/wp5b/c/R19-WP5B-C-0225%21N20%21MSW-E.docx) “[Elements of a working document relating to WRC-23 agenda item 1.6 addressing operational and technical studies for suborbital vehicles] - Working document towards a preliminary draft new Report ITU-R M.[SUBORBITAL STUDIES] - [Regulatory, o]Operational, and technical studies of radiocommunications for suborbital vehicles”

**3. Position of the Regional Group**

* ASMG (April 2021)

There is no objection in developing regulatory provisions to facilitate the operation of sub-orbital vehicles, while ensuring that the current civil aviation and space launch systems are not affected. No change in Article 5 of the Radio Regulations. Follow related ITU-R studies.

* ATU

TBD

* CEPT (April 2021)

CEPT is of the view that the definition of sub‐orbital flight in Report ITU‐R M.2477 “to be an intentional flight of a vehicle expected to reach the upper atmosphere with a portion of its flight path that may occur in space without completing a full orbit around the Earth before returning back to the surface of the Earth” is sufficient. CEPT supports the categorization of radiocommunication station for suborbital vehicle by the purpose of the mission:

* + Aeronautical flights of suborbital vehicles may use the same terrestrial stations or/and Earth stations as the ones for conventional aircraft independently of the maximum altitude reached;
	+ Suborbital vehicles launching satellites or space vehicles for deep space may use space stations.

The suborbital vehicles shall ensure the protection and not impose any constraint on other services or applications operated in the same service in particular conventional satellite launchers.

* CITEL (April 2021)

An Administration considers to pursue studies called for by Resolution 772 (WRC-19) as a basis for possible new regulatory provisions to support the growing radiocommunications needs of sub-orbital vehicles.

* RCC

TBD

**4. Position of International Organizations**

* ICAO (October 2020)

To support ITU-R studies and the definition of relevant technical characteristics as called for by Resolution 772 (WRC-19) to ensure aviation needs are satisfied.

To support, if identified as required by the studies called for in Resolution 772 (WRC-19), modifications to the Radio Regulations that help enable the integration of sub-orbital vehicles into the airspace structure.

To support, if studies show the need for access to additional spectrum, the establishment of a WRC agenda item at a future competent conference.

* WMO (May 2020)

WMO supports studies on the development of regulatory provisions to meet the requirements of sub-orbital vehicle operations but would be opposed to provisions that have a negative impact to current and future MetSat and EESS operations.

* SFCG (August 2020)

SFCG supports studies in the ITU-R on the development of regulatory provisions for radiocommunications for sub-orbital vehicles in order to facilitate the safe integration of sub-orbital vehicles into the existing air traffic management system.

Any negative impact on EESS, SOS, SRS and MetSat operations must be avoided. It is also important that any regulatory changes associated with this agenda item will not adversely impact the operation of launch vehicles or sounding rockets.