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|  | ASIA-PACIFIC TELECOMMUNITY | **Document No:** |
| **The 4th Meeting of the APT Conference Preparatory****Group for WRC-19 (APG19-4)** | **APG19-4/OUT-11** |
| 7 – 12 January 2019, Busan, Republic of Korea | 12 January 2019 |

Working Party 5

**PRELIMINARY VIEWs on WRC-19 agenda item 9.1 (ISSUE 9.1.4)**

**Agenda Item 9.1:**

*to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention on the activities of the Radiocommunication Sector since WRC-15;*

**Issue 9.1.4**: *Resolution* ***763 (WRC-15)*** *- Stations on board sub-orbital vehicles*

**1. Background**

A sub-orbital vehicle could travel to an altitude beyond 100 km, which is generally taken as the boundary between the Earth’s atmosphere and outer space, but not remain operational in outer space for an extended period of time. Radiocommunication stations on board sub-orbital vehicles cannot necessarily be regarded as terrestrial stations. However, since the sub-orbital vehicles are not envisaged to establish an orbital trajectory or remain operational in outer space, those stations on board cannot necessarily be considered as space stations.

Studies are therefore required to establish a common understanding as to how stations on board sub orbital vehicles should be regarded in radio regulatory terms and whether a new category of service or station needs to be established. Furthermore, studies are needed to determine what spectrum will be required to ensure their safe operation and to identify any required technical and operational measures in avoiding harmful interference between radiocommunication services.

Following that, ITU-R in 2015 formulated Question ITU-R No. 259/5, "Operational and radio regulatory aspects for planes operating in the upper level of the atmosphere". In particular, *decides 3* of that Question asks, "what radio links will be required to support space planes operations and under what radiocommunication service definition will they fall?"

WRC-15 adopted Resolution **763 (WRC 15),** and associated work for WRC-19 under agenda item 9.1 issue 9.1.4. In accordance with *resolves to invite the ITU Radiocommunication Sector 1,* it is necessary "to conduct studies to identify any required technical and operational measures, in relation to stations on-board suborbital vehicles, that could assist in avoiding harmful interference between radiocommunication services." In accordance with *resolves to invite the ITU Radiocommunication Sector 2*, it is necessary "to conduct studies to determine spectrum requirements and, based on the outcome of those studies, to consider a possible future agenda item for WRC-23."

In May 2018, ITU-R WP5B has finalized Draft CPM Report on this agenda item, as contained in [Document CPM 19-2/1-E](https://www.itu.int/md/R15-CPM19.02-C-0001/en). It concludes that No Change to the Radio Regulations is proposed for WRC-19 and no action has been taken with respect to retention, revision or suppression of Resolution **763 (WRC-15)**. In November 2018, ITU-R WP5B has developed preliminary draft new Report (PDNR) M. [SUBORBITAL VEHICLES]. The document provides discussions of the definition of suborbital vehicles, the types of suborbital vehicles and the flight phases with radio frequencies.

**2. Documents**

* Input Documents: APG 19-4/INP-19 (AUS), INP-26 (NZL), INP-63 (JPN), INP-80 (KOR), INP-99 (CHN), INP-113 (IND), INP-122 (INS),
* Information Documents: INP-09(Rev.1) (ASMG and ATU), INF-02 (WMO), INF-03 (IARU), INF-04 (ICAO), INF-22 (CITEL), INF-23 (CEPT), INF-24 (RCC)

**3. Summary of discussions**

**3.1 Summary of APT Members’ views**

**3.1.1 Australia** - **Document APG19-4/INP-19**

Australia supports the conclusions provided in the Draft CPM Report of no change to the Radio Regulations for WRC-19 but that further studies may be undertaken.

**3.1.2 New Zealand** - **Document APG19-4/INP-26**

Although no change to the Radio Regulations has been identified by the ITU-R studies thus far, New Zealand supports further work to be continued on the definition of stations on board sub-orbital vehicles and the applicable service(s) that would be considered for this use.

**3.1.3 Japan** - **Document APG19-4/INP-63**

Japan supports ITU-R studies for stations on board suborbital vehicles (SOVs), and such studies to be an agenda item for WRC-23 in accordance with Resolution **763(WRC-15)**. Japan considers that protection of existing services is important and would like to closely observe the discussions on additional frequencies for stations on board SOVs.

**3.1.4 Rep. of Korea** - **Document APG19-4/INP-80**

The Republic of Korea proposes to update the APT preliminary views developed at the APG19-3.

* APT Members support the ITU-R studies in accordance with Resolution **763 (WRC-15)**, which includes but not limited to the concept, definition, operation and functions of stations on board sub-orbital vehicles, including which radiocommunication service it operates on, as well as the spectrum requirement for sub-orbital vehicles operations.
* APT Members are of the view that no changes to the Radio Regulations (RR) are required at WRC-19.

**3.1.5 P.R. of China** - **Document APG19-4/INP-99**

This administration is of the following views:

* To support ITU-R existing CPM research conclusion and views.
* To support further studies on this issue as a formal WRC-23 Agenda Item.
* It is suggested that further studies should be carried out on operational, technical and regulatory issues, in particular of the status of the station aboard suborbital vehicles and the related applicable radio services, and so on, in order to meet the needs of radio communications for suborbital vehicles.
* To study suborbital flight application scenarios and conduct compatibility studies to avoid harmful interference between radio communication services

**3.1.6 India** - **Document APG19-4/INP-113**

In line with the draft CPM report, no change to the Radio Regulations is proposed for WRC-19 while continuing Resolution **763 (WRC-15)** to support further studies and a possible agenda for WRC-23

**3.1.7 Indonesia** - **Document APG19-4/INP-122**

Indonesia supports the ITU-R studies in accordance with Resolution **763 (WRC-15)**.

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

* APT Members recognize Draft CPM Report which concludes No Change to the Radio Regulations is proposed for WRC-19 and No action has been taken with respect to retention, revision or suppression of Resolution **763 (WRC-15)**. Draft CPM Report also concludes that further operational, technical and regulatory issues may need to be addressed, which require continuing studies, in particular of the status of the station aboard sub-orbital vehicles and type of applications, through the appropriate mechanism.
* APT Members support the continuation of ITU-R studies in accordance with Resolution **763 (WRC-15)**.

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

* APT Members are of the view that no changes to the Radio Regulations (RR) are required at WRC-19
* APT Members support the on going ITU-R studies in accordance with Resolution **763 (WRC-15)**

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

None

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

* APT members are encouraged to contribute their views, taking into account outcome of the CPM 19-2 and draft APT preliminary views and submit contributions to the next APG 19-5 to develop draft PACP (Preliminary APT Common Proposal) on WRC-19 Agenda Item 9.1.4.
* APT members are encouraged to further consider the matter as a possible agenda item for WRC-23

**7. Views from Other Organisations**

**7.1 Regional Groups**

**7.1.1 ASMG Document APG19-4/INP-09(Rev.1)**

 Support following-up on-going studies in ITU-R

**7.1.2 ATU - Document APG19-4/INP-09(Rev.1)**

 No Change to the Radio Regulations at WRC-19 and consider this matter as a possible agenda item for WRC-23. Support, as a matter of principle, the ongoing studies and encourage active participation in order to positively influence the outcomes of the studies

**7.1.3 CITEL** - **Document APG19-4/INF-22**

Proposals for NOC to Volumes 1 and 2 of the Radio Regulations and suppression of Resolution 763 are under consideration.

**7.1.4 CEPT** - **Document APG19-4/INF-23**

CEPT is of the view that:

* no change to the Radio Regulations is required for WRC-19;
* suborbital vehicles need to be differentiated from current satellite/space launch vehicles;
* suborbital vehicles need to be split in two different categories:
* first category with trajectory and/or speed allowing continuous direct communication with ground during all the suborbital flight phase, then the stations fitted on board are considered as terrestrial stations or earth stations;
* second category with trajectory and/or speed implying a re-entry in the atmosphere avoiding direct communication to the ground (communication black out), then stations fitted on board are considered as space stations during the suborbital flight phase.

**7.1.5 RCC -** **Document APG 19-4/INF-24**

* The RCC Administrations consider that stations ensuring suborbital flights shall be operated within the frameworks of existing radio services and these stations shall be subject to regulatory, technical and procedural provisions currently in force for these radio services.
* The RCC Administrations consider that any modifications to the Radio Regulations provisions related to regulation of using stations on board sub-orbital vehicles at this stage are not necessary.
* The RCC Administrations also consider it necessary to develop additional technical and operational measures which would help to avoid harmful interference to radiocommunication services from stations ensuring sub-orbital flights when existing measures will be insufficient. The developed technical and operational measures shall be specified in the new ITU-R Recommendation and shall not impose additional constraints on the operation of stations used during spacecraft launch and delivery in orbit.

**7.2 International Organisations**

**7.2.1 WMO** - **Document APG19-4/INF-02**

WMO will monitor this Agenda Item to ensure that these measures will not adversely impact any service used for meteorological operations.

**7.2.2 IARU** - **Document APG19-4/INF-03**

The IARU supports the conclusions on this agenda item mentioned in Chapter 5 of Draft CPM Report for WRC-19.

**7.2.3 ICAO** - **Document APG 19-4/INF-04**

Based on the issues raised by the studies called for by Resolution 763 (WRC-15) support proposals for an agenda item for a future conference to resolve the regulatory and technical questions and concerns; including as necessary any new allocations.

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