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| APTlogogreen3 | ASIA-PACIFIC TELECOMMUNITY | **Document No:** |
| **The 3rd Meeting of the APT Conference Preparatory Group for WRC-19 (APG19-3)** | **APG19-3/OUT-25** |
| 12 – 16 March 2018, Perth, Australia | **16 March 2018** |

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 November 2017, ITU-R WP5B has developed a working document towards Draft CPM Text on WRC-19 Agenda Item 9.1 issue 9.1.4, as contained in Document [5B/411 Annex 08](http://www.itu.int/dms_ties/itu-r/md/15/wp5b/c/R15-WP5B-C-0411!N25!MSW-E.docx). In December 2017, ITU-R WP5B has developed a working document towards a preliminary draft new report ITU-R M. [SUBORBITAL VEHICLES] “*Radiocommunications for suborbital vehicles*”, as contained in Document [5B/411 Annex 25](http://www.itu.int/dms_ties/itu-r/md/15/wp5b/c/R15-WP5B-C-0411!N25!MSW-E.docx). The document provides a preliminary analysis of the potentially necessary avionics for Suborbital Vehicles, which should ensure their safe operation throughout the trajectory of suborbital flight, and also provides the approximate frequency ranges of the radio electronic equipment.

**2. Documents**

* Input Documents APG 19-3/INP-25 (KOR) – Rep. of Korea
* Input Documents APG 19-3/INP-32 (IRN) – I.R. of Iran
* Input Documents APG 19-3/INP-38 (NZL) – New Zealand
* Input Documents APG 19-3/INP-53 (JPN) – Japan
* Input Documents APG 19-3/INP-80 (INS) – Indonesia
* Input Documents APG 19-3/INP-85 (VTN) – S.R. of Viet Nam
* Input Documents APG 19-3/INP-90 (CHN) – P.R of China
* Information Documents APG 19-3/INF-06 (CEPT)
* Information Documents APG 19-3/INF-08Rev.1 (CITEL)
* Information Documents APG 19-3/INF-09 (IARU)

**3. Summary of discussions**

**3.1 Summary of APT Members’ views**

**3.1.1 Republic of Korea** - **Document APG19-3/INP-25**

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

**3.1.2 Islamic Republic of Iran** - **Document APG19-3/INP-32**

* I.R. of Iran supports the ITU-R studies in accordance with Resolution **763 (WRC-15)**.
* I.R. of Iran is also of the view that:
* Stations on board suborbital vehicles shall not cause unacceptable interference to nor claim protection from the services to which the frequency band(s) is/are allocated.
* Suborbital vehicles need to be differentiated from current satellite launch vehicles.
* The Working Document towards Preliminary draft CPM text on WRC-19 agenda item 9.1, issue 4 is far from being finalized at the last meeting of WP5B and ready to be submitted to CPM19-2 management team.
* In the view of this Administration, this issue which is under developments and as such there are several shortcomings on the required information to decide on the matter needs not to be further pursued.

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**3.1.3 New Zealand** - **Document APG19-3/INP-38**

* New Zealand supports the ITU-R studies undertaken in accordance with Resolution 763 (WRC-15) in clarifying the definition of stations on board sub-orbital vehicles and the applicable service(s) that would be considered for this use.

**3.1.4 Japan** - **Document APG19-3/INP-53**

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

**3.1.5 Indonesia** - **Document APG19-3/INP-80**

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

**3.1.6 S.R. of Viet Nam** - **Document APG19-3/INP-85**

* Viet Nam Administration supports studies being undertaken by ITU-R on this issue and is of the view that:
  + Concept, definition, operation and functions of stations on board sub-orbital vehicles should be clearly defined, including which radiocommunication service it operating on, as well as the spectrum need for sub-orbital vehicles operations;
  + Further action would be specified in accordance with above results.

**3.1.7 P.R. of China** - **Document APG19-3/INP-90**

* P.R. of China is of the following views:
  + Support ITU-R to carry out studies on issues of the stations on board suborbital vehicles in accordance with Resolution 763;
  + With the development of space technology in the future, it can be predicted that suborbital flight will have a broad market prospect in the commercial and scientific research fields;
  + Further studies are needed on the precise definition and classification of suborbital flight, the description of flight stage and so on.
  + Further studies are needed on the type of the radio station on suborbital vehicle, the type of permitted services, the spectrum needs and the technical and operational measures to ensure the safety of the flight, in order to standardize the management and avoid causing harmful interference to other radio communication services.

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

* APT Members support studies undertaken by ITU-R on issues of the stations on board suborbital vehicles in accordance with Resolution 763.
* It was noted that the progress of the DG meeting was fast due to a common understanding by APT members that the relevant ITU studies are still being developed

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

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.

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

None

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

It was agreed that APT members are invited to submit further contribution at the next APG meeting

**7. Views from Other Organisations**

**7.1 Regional Groups**

**7.1.1 ASMG Document APG19-2/INF-01** (Views submitted to previous APG19-2 meeting)

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

**7.1.2 ATU - Document APG19-2/INF-07** (Views submitted to previous APG19-2 meeting)

No preliminary position on this agenda item yet.

**7.1.3 CEPT** - **Document APG19-3/INF-06**

* CEPT is of the view that:
  + the ITU-R studies called for by Resolution 763 should be supported;
  + based on the results of those studies, what action is to be taken should be determined;
  + stations on board suborbital vehicles shall not cause harmful interference nor impose additional constraints on systems operating under the incumbent services.
  + suborbital vehicles need to be differentiated from current satellite launch vehicles

**7.1.4 CITEL** - **Document APG19-3/INF-08Rev.1**

* Preliminary views from a few countries support studies. One country is of the view that existing station and service definitions in Article 1 of the Radio Regulations can be applied to sub‐orbital vehicles (space planes)

**7.1.5 RCC -** **Document APG 19-2/INF-05** (Views submitted to previous APG19-2 meeting)

* The RCC Administrations are in favor of identification of services where stations ensuring sub-orbital flights shall be operated, as well as consideration of applicability of current regulatory provisions and procedures for terrestrial and space services for international recognition of relevant frequency assignments to stations on board sub-orbital vehicles.
* The RCC Administrations consider it necessary to develop technical and operational measures which would help to avoid harmful interference to radiocommunication services from stations on board sub-orbital vehicles. These technical and operational measures shall be specified in the new ITU-R Recommendation and Report. At the same time, the developed technical and operational measures shall not impose additional constraints on the operation of launch vehicles during spacecraft launching period.

**7.2 International Organisations**

**7.2.1 IARU** - **Document APG19-3/INF-09**

* This issue is of concern to the IARU only if spectrum requirements for space planes are identified that are in addition to the existing allocations for aeronautical and space operation services and if, therefore, a possible future agenda item for WRC-23 is developed.

**7.2.2 ICAO** - **Document APG 19-2/INF-02**

* To support the studies called for by Resolution 763 (WRC 15) noting that those studies need to be completed during this study cycle.
* If the results of studies indicate that additional spectrum and/or other regulatory measures are required, seek an agenda item for WRC-23.

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