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| **World Radiocommunication Conference (WRC-19)Sharm el-Sheikh, Egypt, 28 October – 22 November 2019** |  |
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| PLENARY MEETING | **Addendum 7 toDocument 24(Add.24)-E** |
|  | **20 September 2019** |
|  | **Original: English** |
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| Asia-Pacific Telecommunity Common Proposals |
| Proposals for the work of the conference |
|  |
| Agenda item 10 |

10 to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, in accordance with Article 7 of the Convention.

Introduction

APT Members support the inclusion of the following item in the agenda of WRC-23:

– to consider that further operational, technical and regulatory issues may need to be addressed, which require continuing studies, on the status of the station aboard suborbital vehicles and type of applications, and on the potential interference to be considered with regards to radiocommunication systems operating on suborbital vehicles.

Proposals

ADD ACP/24A24A7/1

Draft New Resolution [ACP-A10-WRC23] (WRC-19)

Agenda for the 2023 World Radiocommunication Conference

The World Radiocommunication Conference (Sharm el-Sheikh, 2019),

…

1.x to consider that further operational, technical and regulatory issues may need to be addressed, which require continuing studies, on the status of the station aboard suborbital vehicles and type of applications, and on the potential interference to be considered with regards to radiocommunication systems operating on suborbital vehicles in accordance with Resolution **[ACP‑G10-SUBORBITAL VEHICLES]** **(WRC-19)**;

…

**Reasons:** Proposal for a new WRC-23 agenda item to continue the studies on suborbital vehicles previously being considered under WRC-19 agenda item 9.1, issue 9.1.4.

ADD ACP/24A24A7/2

Draft New Resolution [ACP-G10-SUBORBITAL VEHICLES] (WRC-19)

Consideration of regulatory provisions and possible frequency bands for the stations on board suborbital vehicles

The World Radiocommunication Conference (Sharm el-Sheikh, 2019),

considering

*a)* that 100 kilometres from the Earth’s surface could be considered as the boundary between the Earth’s atmosphere and space;

*b)* that some vehicles, including aircraft, can fly at altitudes over 100 km and operate into suborbital trajectories;

*c)* that other vehicles may also operate at altitudes over 100 km and use non-orbital trajectories;

*d)* that suborbital flight can be defined as the 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;

*e)* that suborbital vehicles may perform various missions (e.g. deploying a space vehicle, conducting scientific research, or providing transportation) and then return to the Earth’s surface without completing a full orbit around the Earth;

*f)* that suborbital vehicles should safely share airspace with conventional aircraft during their transition to and from high altitude, including those from space;

*g)* that stations on board suborbital vehicles may use frequencies allocated to space and terrestrial services for the purpose of telemetry, tracking and command (TT&C), voice communications, navigation, surveillance, and safety of life and property,

recognizing

*a)* that there is no internationally agreed legal demarcation between the Earth’s atmosphere and the space domain;

*b)* that the current regulatory provisions for terrestrial and space services may not be adequate for international recognition of the use of relevant frequency assignments by stations on board suborbital vehicles,

noting

*a)* Report ITU-R M.[SUBORBITAL VEHICLES][[1]](#footnote-1)\* provides information on the current understanding of Radiocommunications for suborbital vehicles 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;

*b)* that provisions of No. **4.10** may apply for certain aspects of these operations,

resolves to invite the 2023 World Radiocommunication Conference

to take appropriate actions, based on the results of ITU-R studies, for the implementation of station on board suborbital vehicles,

resolves to invite the ITU Radiocommunication Sector

1 to study spectrum needs for communications between stations on board suborbital vehicles and terrestrial and space station providing functions, intel alia, voice/data communications, navigation, surveillance, telemetry, tracking and command (TT&C) and safety of life and property;

2 to study appropriate modification to the existing provisions to accommodate stations on board suborbital vehicles;

3 to conduct sharing and compatibility studies with incumbent services to which is allocated on a primary basis in the same and adjacent frequency bands to avoid harmful interference, regarding to the suborbital flight application scenarios,

invites administrations

to participate actively in the studies by submitting contributions to ITU-R,

instructs the Secretary-General

to bring this Resolution to the attention of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) and International Civil Aviation Organization (ICAO) and other international and regional organizations concerned.

**Reasons:** Please refer to the following table.

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| ***Subject:*** Proposal for a new WRC-23 agenda item to further consider operational, technical and regulatory issues for stations on board suborbital vehicles. |
| ***Origin:***  Asia-Pacific Telecommunity (APT) |
| ***Proposal:***To identify the status of the station on board suborbital vehicles;To conduct studies to determine spectrum needs for communications between stations on aboard suborbital vehicles and terrestrial and space stations providing voice/data communications, navigation, surveillance, telemetry, tracking and command (TT&C), safety of life and property, and so on;To conduct studies to classify appropriate radiocommunication services and identify frequency bands to stations on board suborbital vehicles; To conduct sharing and compatibility studies to avoid harmful interference between radiocommunication services regarding to the suborbital flight application scenarios. |
| ***Background/reason:***With the increasing maturity of launch technology and significantly improving of success rate of recoverable commercial flight experiment, the application prospect of suborbital flight is getting wider and wider. However, it needs to be studied in many fields, such as definition, the demarcation between atmosphere and space, flight mode, tracking and control, safety assurance and so on. Radio communication plays a crucial role in every major phases of suborbital flight.ITU-R calls for studies to meet the needs of radio applications for the stations on board suborbital vehicles in accordance with Resolution **763** (**WRC-15**), which was identified as the issue 9.1.4. The ITU-R studies suggests that, further operational, technical and regulatory issues may need to be addressed, which require continuing studies, on the status of the station aboard suborbital vehicles and type of applications, through the appropriate mechanism and on the potential interference to be considered with regards to radiocommunication systems operating on suborbital vehicles. |
| ***Radiocommunication Services concerned:*** Space operation service, space research service, mobile-satellite service, inter-satellite service, aeronautical mobile service, aeronautical mobile-satellite service, radionavigation-satellite service |
| ***Indication of possible difficulties:*** Identification for the status of the station on board suborbital vehicles.Sharing and compatibility studies with incumbent services with regard to the suborbital flight application scenarios. |
| ***Previous/ongoing studies on the issue:***ITU-R WP 5B, as the responsible group for issue 9.1.4, has carried out studies on issues of suborbital space flight, suborbital vehicle and stations on board of suborbital vehicle, etc., and developed a draft new Report ITU-R M.[Suborbital Vehicles], “Radiocommunications for suborbital vehicles”, submitted to SG 5 meeting in September, 2019. The Report provided various definitions relative to suborbital vehicles and description of suborbital flight, and identified planned development that may require radio stations on board suborbital vehicles to use frequencies allocated to space radiocommunications and terrestrial radiocommunications for the purpose of voice/data communications, navigation, surveillance, telemetry, tracking and command (TT&C), and safety of life and property. This Report also provided a Doppler shift and link budget analysis for current aeronautical systems that may be used on suborbital vehicles, suborbital flight phases and selection of radiocommunication spectrum and so on. |
| ***Studies to be carried out by:***ITU-R Working Party 5B | ***with participation of:***the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) and International Civil Aviation Organization (ICAO) and other international and regional organizations concerned |
| ***ITU-R Study Groups concerned:***SG4, SG5, SG7 |
| ***ITU resource implications, including financial implications (refer to CV 126):*** |
| ***Common regional proposal:***[Yes] | ***Multicountry Proposal:*** [No]***Number of countries:*** |
| ***Remarks*** |

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1. \* Note by the Secretariat: This ITU-R Report was approved and should be published as Report ITU‑R M.2477-0. [↑](#footnote-ref-1)