**United States**

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 10

**Agenda Item 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.

**Background**

WRC-15 adopted Resolution **763** (**WRC 15**) to deal with stations on board suborbital vehicles. It was resolved to conduct studies during the WRC-19 study cycle:

* 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.
* to determine spectrum requirements and, based on the outcome of those studies, to consider a possible future agenda item for WRC-23.

It is also noted that the ITU-R in 2015 formulated Question ITU-R 259/5, "Operational and radio regulatory aspects for planes operating in the upper level of the atmosphere", and that studies in the framework of that Question are related to Resolution **763 (WRC-15)**. 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?"

There are planned developments for sub-orbital flight based on various types of technologies. The approaches vary between those using a single vehicle and those that use a launch vehicle that carries the spacecraft up to an intermediate height before releasing the spacecraft to accelerate away and into a suborbital spaceflight.

The ITU-R performed a technical and operational analysis of stations on-board suborbital vehicles including an evaluation of the regulatory provisions that may require some additions or modifications and identification of the potential need for spectrum to support communications and surveillance in space, without changing the existing use of the space operations service. Link budgets and Doppler shift were studied for suborbital vehicles using existing ICAO standardized radiocommunication systems and technologies. The conclusion of the studies was that, while no new spectrum allocations are necessary, a WRC-23 agenda item is necessary to modify definitions to facilitate the increasing introduction of sub-orbital vehicles.

**Proposals**

ADD TBD/XXX/1

Draft New Resolution [xxx] (WRC-19)

**Agenda for the 2023 World Radiocommunication Conference**

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

...

**X.X1**  to consider, in accordance with Resolution [YYY] (WRC-19), regulatory provisions to facilitate the increased operation of sub-orbital vehicles.

Reasons: To allow for necessary provisions in the Radio Regulations, including, if necessary, additional spectrum allocations, definitions or revisions existing definitions to facilitate the safe integration of sub-orbital vehicles into the existing air traffic management system.

ADD TBD/XXX/2

Draft New Resolution [yyy] (WRC-19)

**Radiocommunications for Sub-Orbital Vehicles**

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

*considering*

1. that new applications are being developed using equipment that is interoperable with existing civil aviation systems to ensure the interoperability of sub-orbital vehicle avionics with aircraft avionics and air traffic management systems, which is necessary for the safe operation of all users of the airspace throughout the world;
2. that there is no internationally agreed boundary between the Earth’s atmosphere and the space domain, however it is commonly considered that the space domain begins at 100 kilometres above the Earth’s surface;
3. that radiocommunications for sub-orbital vehicles that are interoperable with the ATM and aircraft avionics are required throughout the entire flight trajectory to prevent collisions with aircraft,
4. that other vehicles may also operate at altitudes over 100 km and use non-orbital trajectories,

*recognizing*

1. that Annex 10 to the Convention on International Civil Aviation contains SARPs for aeronautical radionavigation and radiocommunication systems used by international civil aviation;
2. that when operating radio equipment that conforms to ICAO standards while within the majority of Earth’s atmosphere, radiocommunications on-board sub-orbital vehicles is similar to radiocommunications on aircraft,

*noting*

1. that the development of compatibility criteria between ICAO-standardized aeronautical systems is the responsibility of ICAO,

*resolves to invite the 2023 World Radiocommunication Conference*

to take appropriate actions, taking into account the results of ITU-R studies,

*invites ITU-R*

to conduct studies on and identify, in time for WRC-23, any necessary revisions to the Radio Regulations to facilitate increased operation of sub-orbital vehicles. Those studies should be accomplished in close coordination with the International Civil Aviation Organization and include defining a sub-orbital vehicle and determining appropriate radiocommunication services for flight safety applications related to interoperability with international civil aviation;

*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 ICAO.

**Reasons:** A resolution will support the ITU-R studies needed under the relevant WRC-23 agenda item.