
PLENARY MEETING

**Addendum 7 to
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Member States of the Inter-American Telecommunication Commission (CITEL)

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 10

{Temporary information note to be deleted before the submission via CPI of this document to the WRC-19 Secretariat: In accordance with Resolution 804 (Rev. WRC-12), Administrations are invited to use the template provided in Annex 2 to that Resolution (TIES-protected) when proposing agenda items for WRCs. This template may be filled out for each of the proposed WRC agenda item and annexed to this document.}

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.

Further, in 2015 the ITU-R formulated Question ITU-R 259/5, "Operational and radio regulatory aspects for planes operating in the upper level of the atmosphere." Studies in the framework of that Question are related to Resolution **763 (WRC-15)**. In particular, decides 3 of the 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 and vehicles. 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 technical and operational analyses of stations on-board suborbital vehicles including:

- an evaluation of the regulatory provisions that may require 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.

In addition, the analyses examined link budgets and Doppler shift for suborbital vehicles using existing ICAO standardized radiocommunication systems and technologies. The studies concluded that, while no new spectrum allocations are necessary, a WRC-23 agenda item is necessary to modify definitions to ease introducing sub-orbital vehicle radiocommunications.

ADD IAP/6411A24A7/1

DRAFT NEW RESOLUTION [IAP/10(G)-2023] (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 [IAP/10(G)/SUB-ORB-VEHICLES] (WRC-19), regulatory provisions to facilitate radiocommunications for sub-orbital vehicles.

Reasons: To allow revisions to the Radio Regulations, to provide regulations for radiocommunications for sub-orbital vehicles and to facilitate the safe integration of sub-orbital vehicles into the existing air traffic management system.

ADD IAP/6411A24A7/2

DRAFT NEW RESOLUTION [IAP/10(G)/SUB-ORB-VEHICLES] (WRC-19)

Radiocommunications for Sub-Orbital Vehicles

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

considering

- a) that there are vehicles being developed to operate from the ground to an altitude considered to be outer space and return to earth without making an orbit ;
- b) that there is a need to ensure equipment installed on such vehicles can communicate safely with air traffic management systems without causing harmful interference to radiocommunication used for safety purposes on other vehicles;
- c) that the ITU has been referring to these vehicles as “sub-orbital vehicles,” but this vehicle type is not defined in the radio regulations; that there is no internationally agreed boundary between the Earth’s atmosphere and the space domain.;
- d) that radiocommunications between sub-orbital vehicles and air traffic management are required throughout the entire flight trajectory;
- e) that vehicles operating at the boundary of space and the atmosphere or re-entering the atmosphere may generate a plasma sheath that may envelop all or most of the vehicle;
- f) that the plasma sheath attenuation does not allow for radiocommunications directly to the ground to pass through;

recognizing

- a) that Annex 10 to the Convention on International Civil Aviation contains SARPs for aeronautical radionavigation and radiocommunication systems used by international civil aviation;
- b) that suborbital vehicles will use both space and terrestrial stations;

c) that, from a technical standpoint, suborbital vehicles can communicate with space and terrestrial stations under existing space and terrestrial service allocations;

noting

a) 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 consider the results of studies in accordance with this Resolution and take appropriate regulatory actions excluding any changes to ITU Radio Regulations Article 5 or imposing undue constraints on other services, taking into account the results of ITU-R studies,

invites ITU-R

to conduct studies on and identify, in time for WRC-23, any revisions to the Radio Regulations to facilitate radiocommunications for the safe operation of sub-orbital vehicles. Those studies should be conducted in close coordination with the International Civil Aviation Organization and may include defining a sub-orbital vehicle, or sub-orbital vehicle station class, while considering 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.

ATTACHMENT

PROPOSAL FOR FUTURE AGENDA ITEM FOR WRC-23

Subject: Proposed Future WRC Agenda Item for WRC-2023 to consider the results of studies to facilitate communications for the safe operation of sub-orbital vehicles.

Origin: the CITEL Member States

Proposal: to identify any revisions to the Radio Regulations, but excluding any new frequency allocations, that would allow the use of radiocommunications for the safe operation of sub-orbital vehicles under Resolution [IAP/10(G)/SUB-ORB-VEHICLES] (WRC-19);

Background/reason:

To provide a means for recognizing in the Radio Regulations radiocommunications to and from sub-orbital vehicles within existing frequency allocations.

Radiocommunication services concerned:

Aeronautical Radionavigation Service, Aeronautical Mobile Service, Fixed Satellite Service, Mobile Satellite Service.

Indication of possible difficulties: None foreseen

Previous/ongoing studies on the issue: Studies have been ongoing in Working Party 5B under WRC-19 agenda item 9.1 Issue 4 in the 2016-2019 Study Cycle, and since 2015 under Question ITU-R 259/5.

<i>Studies to be carried out by:</i> ITU-R Study Group 5

<i>with the participation of:</i> SGs 4, 5
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ITU-R Study Groups concerned: SG 4, 5

ITU resource implications, including financial implications (refer to CV126): Minimal

Common regional proposal: Yes/No

Multicountry proposal: Yes/No

Number of countries:

Remarks