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| A close up of a sign  Description automatically generated | **World Radiocommunication Conference (WRC-23) Dubai, 20 November - 15 December 2023** | |  |
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| PLENARY MEETING | | **Addendum 6 to Document 65-E** | |
|  | | **29 September 2023** | |
|  | | **Original: English** | |
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| European Common Proposals | | | |
| Proposals for the work of the conference | | | |
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| Agenda item 1.6 | | | |

1.6 to consider, in accordance with Resolution**772 (WRC‑19)**, regulatory provisions to facilitate radiocommunications for sub-orbital vehicles;

Introduction

To address this agenda item, the ITU‑R undertook studies pursuant to Resolution **772 (WRC-19)**. In particular, the ITU‑R was invited to study the spectrum needs for stations on board sub-orbital vehicles, any appropriate modification to the Radio Regulations (RR), excluding any new allocations or changes to the existing allocations in RR Article **5**, and to identify whether there is a need for access to additional spectrum.

Proposals

NOC EUR/65A6/1#1585

ARTICLES

ADD EUR/65A6/2#1588

Draft New Resolution [EUR-A16-SUB-Orbital-operations] (WRC‑23)

Regulatory provisions for the operation of radiocommunications   
on sub-orbital vehicles

The World Radiocommunication Conference (Dubai, 2023),

considering

*a)* that sub-orbital vehicles operate at altitudes above those used by conventional aircraft and sounding balloons;

*b)* that sub-orbital vehicles will transit through the lower levels of the atmosphere, where some may operate in the same airspace as conventional aircraft;

*c)* that sub-orbital vehicles may perform various missions such as conducting scientific research or providing transportation;

*d)* that stations on board sub-orbital vehicles are expected to support all or some of the following applications; voice/data communications, navigation, surveillance, and telemetry, tracking and command (TT&C);

*e)* that sub-orbital vehicles when transiting through lower levels of the atmosphere must be safely integrated into airspace used by conventional aircraft;

*f)* that some stations on board sub-orbital vehicles may need to communicate with air traffic management systems and/or relevant ground control facilities;

*g)* that some satellite launch rocket systems or components may be considered as a sub-orbital vehicle;

*h)* that the stations on board a satellite launch rocket or deep space launch rocket systems may be operated under space operation service without having to apply the provisions contained in this Resolution;

*i)* that sub-orbital vehicles moving at very high velocity might generate a plasma sheath that may envelop all or most of the vehicle which could impact communications,

noting

*a)* that the ITU‑R has produced Report ITU‑R M.2477 on radiocommunications of sub-orbital vehicles;

*b)* that the provisions of No. **4.10** may apply to certain operations of sub-orbital vehicles;

*c)* that the development of conditions of coexistence between International Civil Aviation Organization (ICAO) standardized aeronautical systems is the responsibility of ICAO;

*d)* that ICAO develops, when required, standards and recommended practices (SARPs) to address the coexistence between ICAO aeronautical applications;

*e)* that the Convention on International Liability for Damage Caused by Space Objects (1972) may apply to sub-orbital vehicles,

recognizing

*a)* that there is no internationally agreed legal demarcation between the Earth’s atmosphere and the space domain, nor between the sovereign airspace and outer space;

*b)* that Annex 10 to the Convention on International Civil Aviation contains SARPs for some aeronautical radionavigation and radiocommunication systems used by international civil aviation;

*c)* that, due to the increase in Doppler shift, emissions from stations on board sub-orbital vehicles may impact services operating in the same and adjacent or nearby frequency bands;

*d)* that, due to the higher altitude of sub-orbital vehicles compared to conventional aircraft, emissions from stations on board sub-orbital vehicles may have a radiocommunication impact on larger areas involving additional territories and/or on space stations,

resolves

1 that for the purpose of this Resolution, a sub-orbital vehicle shall not have the capability to become a satellite (see No. **1.179**);

2 that a terrestrial station or an earth station used on board a sub-orbital vehicle when this station is operated at altitudes above those used by conventional aircraft and by sounding balloons, is considered to operate in the same service under which this station is classified when it is used on conventional aircraft only if one of the following conditions is met:

2.1 the terrestrial station is required on board a sub-orbital vehicle to support its safe accommodation or integration into airspace where air traffic services are provided, as decided by the competent aviation authority of the Member State(s)[[1]](#footnote-1)1;

2.2 the mobile earth station used on a sub-orbital vehicle is associated with either a non-GSO system or a GSO network operating in the mobile satellite service having an appropriate coordination agreement with concerned administrations and is operated in a manner to remain within the envelope of that coordination agreement when taking into account *recognizing c)* and *d);*

2.3 the earth station is a receiving earth station operating under the radionavigation-satellite or aeronautical radionavigation-satellite services;

3 that the stations identified in *resolves*2 shall:

3.1 operate in conformance with ICAO SARPs or other internationally recognized aeronautical standards where they exist and are appropriate;

3.2 not affect the existing and future applications of the same service and/or on other radiocommunication services in the same and adjacent frequency bands more adversely than they would if the same station were fitted and operated on board a conventional aircraft;

4 that terrestrial and earth stations on board a sub-orbital vehicle other that those identified in *resolves*2.1, 2.2 and 2.3 when operated at altitudes above those used by conventional aircraft and by sounding balloons, shall not claim protection from nor cause harmful interference to any station operated in the same or adjacent frequency bands,

instructs the Secretary-General

to bring this Resolution to the attention of ICAO,

invites the International Civil Aviation Organization

to take into account this Resolution in the course of developing standards and recommended practices (SARPs) for ICAO systems that may be used by sub-orbital vehicles,

instructs the Director of the Radiocommunication Bureau

to report to future world radiocommunication conferences any difficulties or inconsistencies encountered in the implementation of this Resolution.

SUP EUR/65A6/3#1589

RESOLUTION 772 (WRC‑19)

Consideration of regulatory provisions to facilitate   
the introduction of sub-orbital vehicles

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1. 1 Defined accordingly with the Convention on International Civil Aviation and its annexes. [↑](#footnote-ref-1)