# UNITED STATES OF AMERICA

**DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE**

**Agenda Item 1.7***:**to study the spectrum needs for telemetry, tracking and command (TT&C) in the space operation service for non-geostationary (NGSO) satellites with short duration missions, to assess the suitability of existing allocations to the space operation service and, if necessary, to consider new allocations, in accordance with Resolution* ***659 (WRC-15)***

**BACKGROUND**:

The demand for suitable spectrum for NGSO satellites with short duration missions is growing due to the increasing number of these types of satellite missions. The term “short duration mission” used in Resolution **659 (WRC-15)** refers to a mission having a limited period of validity of typically not more than 3 years, where the operator does not launch replenishment or replacement spacecraft. The mass and dimensions of these satellites contribute to their success and their use will likely grow. These types of missions provide an affordable means for scientific and commercial space purposes and are increasingly used by new entrants in space. Nevertheless, it is important to ensure that these missions do not cause harmful interference to existing systems and incumbent services. WRC-19 Agenda Item 1.7 invites studies to accommodate spectrum requirements for TT&C in the space operation service, below 1 GHz, for NGSO satellites with short duration missions in existing bands not subject to No. **9.21**, If those studies conclude the SOS applications are not able co-exist with current usage, then possible new spectrum allocation(s) or an upgrade of an existing allocations within the frequency ranges 150.05-174 MHz and 400.15-420 MHz (e.g., so that RR No. **9.21** does not apply) can be considered. Studies show that in the Earth-to-space direction all frequency allocations to the SOS below 1 GHz are subject to RR No. **9.21**.

Compatibility studies have shown that current technical and operational characteristics of SD-NGSO may not protect global maritime distress and safety service (GMDSS) frequencies for space, coast, ship and aircraft station frequencies between 156-163 MHz, nor frequencies used for the safety of life COSPAS/SARSAT system in the band 406-406.1 MHz. Some administrations have suggested using existing SOS allocations in the 137-138 MHz band for SD-NGSO, however no studies have assessed the compatibility of that with the adjacent aeronautical mobile (R) service; heavily used for all aspects of air traffic control in all airspace.

Considering the impact to safety services, no regulatory method has been considered for possible solutions to remove RR No. **9.21** for existing space operation service Earth-to-space ground stations to ensure incumbent protection from harmful interference. In addition, technical studies for both methods proposing a new SOS (Earth-to-space) allocation between 403-405 MHz has shown varying conclusions regarding the feasibility of sharing. Finally, if 137-138 MHz is identified to satisfy SOS s-E requirements, regulatory power flux density (PFD) limits should be implemented to ensure protection of the adjacent band AM(R)S.

**Proposal**

**MOD** USA/AI 1.7/1

ARTICLE 5

**Frequency allocations**

**Section IV – Table of Frequency Allocations** (See No. **2.1**)

137-138 MHz

|  |  |  |
| --- | --- | --- |
| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 137-137.025 SPACE OPERATION (space-to-Earth) ADD 5.SOS  METEOROLOGICAL-SATELLITE (space-to-Earth)  MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209  SPACE RESEARCH (space-to-Earth)  Fixed  Mobile except aeronautical mobile (R)  5.204 5.205 5.206 5.207 5.2085 | | |
| 137.025-137.175 SPACE OPERATION (space-to-Earth) ADD 5.SOS  METEOROLOGICAL-SATELLITE (space-to-Earth)  SPACE RESEARCH (space-to-Earth)  Fixed  Mobile except aeronautical mobile (R)  Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209  5.204 5.205 5.206 5.207 5.208 | | |
| 137.175-137.825 SPACE OPERATION (space-to-Earth) ADD 5.SOS  METEOROLOGICAL-SATELLITE (space-to-Earth)  MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209  SPACE RESEARCH (space-to-Earth)  Fixed  Mobile except aeronautical mobile (R)  5.204 5.205 5.206 5.207 5.208 | | |
| 137.825-138 SPACE OPERATION (space-to-Earth) ADD 5.SOS  METEOROLOGICAL-SATELLITE (space-to-Earth)  SPACE RESEARCH (space-to-Earth)  Fixed  Mobile except aeronautical mobile (R)  Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209  5.204 5.205 5.206 5.207 5.208 | | |

5.SOS The frequency band 137-138 MHz is identified for use by administrations wishing to implement telemetry, tracking and command links for non-GSO satellites with short duration missions. In order to protect the aeronautical mobile service, the aggregate power flux density at the surface of the earth shall not exceed -XXX dB (W/m2/Hz) in any portion of the frequency band 108-137 MHz. Stations in the space operation service shall not cause harmful interference to, or claim protection from the aeronautical mobile service  (WRC‑19)

# Reasons: Protects existing AM(R)S service in the adjacent band.

**NOC** USA/AI 1.7/2

148-161.9375 MHz

|  |  |  |
| --- | --- | --- |
| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 148-149.9  FIXED  MOBILE except aeronautical mobile (R)  MOBILE-SATELLITE (Earth-to-space) 5.209 | 148-149.9  FIXED  MOBILE  MOBILE-SATELLITE (Earth-to-space) 5.209 | |
| 5.218 5.219 5.221 | 5.218 5.219 5.221 | |

# Reasons: Removal of RR No. 9.21 will not ensure protection of incumbent services. No regulatory method has been proposed to replace coordination under RR No. 9.21. Additionally, consideration of removal of RR 9.21 is outside the scope of this Agenda Item under *resolves* 3.

SUP USA/AI 1.7/3

RESOLUTION 659 (WRC-15)

Studies to accommodate requirements in the space operation service for non-geostationary satellites with short duration missions

# Reasons: The work is complete; therefore, the resolution is no longer needed.

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