GSOA

Agenda Item 1.12

# WRC-27 Agenda Item 1.12

## Possible allocations to MSS and regulatory actions required for the future development of low-data-rate non-geostationary MSS systems.

### Overview

This Agenda Item invites Administrations to consider studies on possible new allocations to, and regulatory actions for, the mobile-satellite service (MSS) in the frequency bands 1 427-1 432 MHz (space-to-Earth), 1 645.5-1 646.5 MHz (space-to-Earth) (Earth-to-space), 1 880-1 920 MHz (space-to-Earth) (Earth-to-space) and 2 010-2 025 MHz (space-to-Earth) (Earth-to-space) required for the future development of low-data-rate non-geostationary (NGSO) mobile-satellite systems, in accordance with Resolution 252 (WRC-23).

### Background

Agenda Item 1.18 (WRC-23) tried to address potential new allocation of MSS spectrum to narrow band systems. However, due to ambiguity of Resolution 248 (WRC-19) and the lack of agreed technical & operational characteristics of narrowband MSS led to incomplete sharing and compatibility studies thereby resulting in no-change. With the new resolution Res. 252 (WRC-23), there is an opportunity to conduct studies on potential new allocation to the MSS for the development of non-GSO low data rate systems.

Low data rate systems typically refer to services and technologies that require minimal bandwidth for their operations and include applications such as Internet of Things (IoT) devices, sensor networks, telemetry systems, and certain types of machine-to-machine (M2M) communications. The systems considered under AI 1.12 (WRC-27) are systems not delivering telephony that transmit data in bursts and can therefore operate with periodic or intermittent data transmission and maintain a service while experiencing packet data loss.

The existing MSS spectrum is not sufficient to accommodate new systems. Frequencies between 1-2 GHz are particularly well-suited for MSS low data rate applications due to their superior propagation characteristics. These bands provide better coverage and penetration, which is ideal for IoT and M2M communications.

Allocating sufficient spectrum for low data rate applications plays a critical role in expanding IoT ecosystem, supporting a wide range of use cases across various industries. Understanding the specific needs of these applications and the regulatory landscape helps ensure that suitable spectrum is allocated and efficiently utilized, driving innovation and improving connectivity for low data rate communications.

### Key Points

- New MSS allocations are needed to accommodate low-data-rate systems that have specific requirements.
- Among the bands proposed in Resolution 252 (WRC-23) it should be noted that the 1 645.5-1 646.5 MHz frequency band is reserved for distress, safety, and urgency communications within GMDSS by various provisions of the ITU Radio Regulations, and the International Maritime Organization is considering future use of the band in this context.

- Note how the allocations are often adjacent to existing MSS allocations and how some bands are considering both space-to-Earth and Earth-to-space operation that would allow time-division duplex (TDD) operation. It is still to be defined whether the bands under study with possible bidirectional MSS allocation will be treated as two separate candidate bands or whether the new MSS will implement TDD.
- Low data rate systems transmit small packages of data at irregular intervals, allowing multiple low data rate systems to coexist within the same frequency band.
- Allocating specific spectrum to such systems will help decongest other existing MSS bands which are used by MSS systems that require bigger portions of contiguous spectrum to provide service. Separating the conventional MSS and low data rate MSS systems should allow for more efficient traffic management and mitigate interference between these MSS systems.

## Work status

- **During the last October 2024 WP4C meeting, progress was made on the working document relating to WRC-27 agenda item 1.12, the draft work plan was updated and a liaison statement was sent to WP4B.**
- **During the discussions, there were ongoing challenges in defining and describing LDR systems as well as their operational conditions. This is still a general open point.**

## GSOA Position

GSOA supports studies aiming at defining the spectrum requirements, technical and operational characteristics and conditions for non-GSO low-data-rate MSS systems.

GSOA also supports studies on sharing and compatibility between the non-GSO low-data-rate MSS systems and existing primary services in-band and in the relevant adjacent frequency bands.

The 1 645.5-1 646.5 MHz frequency band is reserved for distress, safety, and urgency communications within the GMDSS and requires further input from the International Maritime Organization before being considered under this agenda item.

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