

WRC-19 Agenda Item 1.13: IMT & Satellite in the 26 GHz Band (24.25-27.5 GHz)

Overview: WRC-19 Agenda item 1.13 considers the possibility of identifying a staggering 33 GHz of spectrum for IMT between 24.25 GHz and 86 GHz. This document addresses portions of these bands – 24.65-24.75 GHz (Regions 1 and Regions 3, subject to 5.532B), 24.75-25.25 GHz (Global) and 27-27.5 GHz (Regions 2 and 3) (“the 26 GHz band”) – that are allocated to satellite services in the uplink direction (Earth-to-space). Satellite operations for important gateway links already exist in these bands, and future satellite system gateway operations are planned to enhance connectivity. As this spectrum is generally planned for use by gateway FSS earth stations, it is feasible to share with terrestrial services. With reasonable protections to ensure ongoing viable gateway earth station access in these bands, IMT can be accommodated in the 26 GHz band.

Background and ITU-R Studies: ITU-R studies have been carried out to assess the feasibility of accommodating IMT in various frequency bands and how to ensure compatibility with existing services. The 24.65/24.75-25.25 GHz band is used by individually licensed earth stations for feeder links and other FSS uses. Notably, footnote 5.532B limits the use of the band 24.65-25.25 GHz in Region 1 and the band 24.65-24.75 GHz in Region 3 to earth stations using a minimum antenna diameter of 4.5 m. The 27-27.5 GHz band is generally used for gateway earth stations to support broadband connectivity and other FSS uses in ITU Regions 2 and 3. Due to the inherent nature of gateway facilities, the number of earth stations deployed in this band is expected to be limited.

As this spectrum is generally planned for use by gateway FSS earth stations, it is feasible to share with terrestrial services, but only if measures are adopted to allow for the continued and future deployment of the FSS services. As a result, if WRC-19 makes an IMT identification, it is important to include provisions to facilitate compatibility with existing and future satellite services. Two scenarios must be addressed: (1) protection of reception at the satellite from aggregate interference from numerous IMT transmitters deployed on the territories of countries within the satellite coverage area; and (2) continued access for FSS gateway earth stations that could be coordinated with IMT operations. Interference into satellite receivers generated by IMT networks deployed in different countries within the satellite coverage area cannot be managed through national regulation.

The GSC recommends that if an IMT identification in the 26 GHz band is made, specific provisions in the Radio Regulations must be adopted to protect FSS uplink satellite receivers and to enable viable, sustained access by existing and future FSS gateway earth stations, as detailed below. Such an approach will enable both IMT and FSS gateways.

Specifically, we recommend that any method to identify IMT in these frequency bands include:

- Power and pointing limitations on IMT base stations to protect FSS satellite receivers, that do not put undue constraints on IMT.
- Assistance to administrations in defining measures for future FSS earth station deployment.

These measures are contained in the draft CPM Report as:

- [Condition A2e Option 2](#) with a level of 37 dBm/200 MHz (protecting FSS receiving satellites). Note that this power level is significantly higher (12 dB) than that put forward by IMT proponents in the ITU studies, and thus not constraining on IMT deployments; and
- [Condition A2d Option 1](#) (allowing future FSS earth station deployment) in [Method A2](#).