

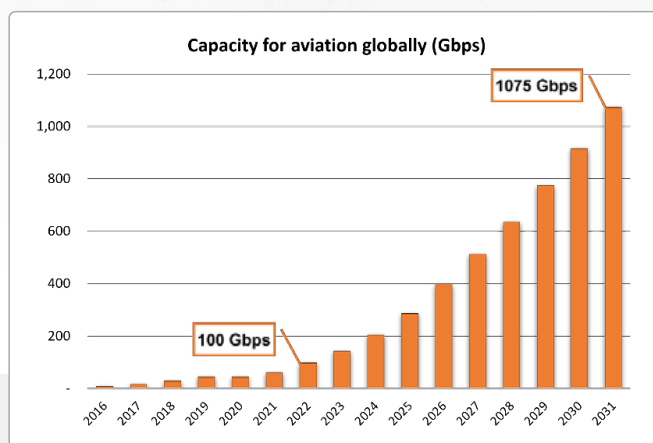
Agenda Item 10: Q/V bands

Overview

Resolution 176 (WRC-19) calls for studies on the use of the frequency bands 37.5-39.5 GHz (space-to-Earth), 40.5-42.5 GHz (space-to-Earth), 47.2-50.2 GHz (Earth-to-space) and 50.4-51.4 GHz (Earth-to-space) by aeronautical and maritime earth stations in motion communicating with geostationary space stations in the fixed-satellite service. This is one of the preliminary agenda items for WRC-27 in Resolution **812 (WRC-19)**.

Background

People are accustomed to being connected, even on the move, and their appetite for data is increasing. As an example, capacity demand for aviation is predicted to grow tenfold in the next eight years, reaching 1075 Gbps globally by 2031 representing 58% IFC penetration.



Source: Prospects for In-Flight Entertainment and Connectivity, Euroconsult 2022

The ITU-R has addressed ESIM in Ku- and Ka-bands at several previous WRCs, which have adopted technical and regulatory regimes to allow such operations. Meanwhile advances in satellite manufacturing and earth station technology have made ESIM more

widespread and more practical. Consequently, the utilization of Ku- and Ka-band frequency spectrum for providing ESIM connectivity is growing exponentially to meet user demands, which may lead to scarcity in spectral resources in these bands. On the other hand, the rapidly increasing use of non-geostationary satellite orbits (non-GSO), such as medium Earth orbits (MEO) and low Earth orbits (LEO), represents an important innovation in satellite technology enabled by enhanced satellite design, manufacturing and launch service capabilities.

The passengers' ever-increasing hunger for bandwidth, combined with immense potential to obtain utmost operational proficiency with IFC use will lead to steep increase in the required capacity.

Key Points

- › While Resolution 176 (WRC-19) was developed for GSO only, enhancements in antenna and terminal technology have enabled the usage of these frequency bands by both GSO FSS networks and non-GSO FSS systems. Non-GSO satellite constellations in these frequency bands enable the provision of broadband connectivity for a variety of enhanced applications. More of such non-GSO systems are planned to be deployed to meet the increasing consumer demand for access to broadband connectivity, regardless of location.
- › Studies done in ITU-R in this study cycle, under WRC-23 Agenda Item 1.16, indicate that GSO FSS networks and non-GSO systems are able to share a frequency band to provide connectivity for ESIM. Technical and operational issues and regulatory provisions for the operation of non-GSO FSS satellite systems in Q and V frequency bands have been addressed in WRC-19 with the new Resolutions 769 (WRC-19) and 770 (WRC-19) and provisions 22.5L and 22.5M of Article 22 of the Radio Regulations.

GSOA Position

1. Support inclusion of this preliminary agenda item in the WRC-27 agenda in order to respond to steep increase in the required capacity for in-flight and maritime connectivity.
2. Support studies under Resolution 176 (WRC-19) with an extended scope covering both GSO FSS networks and non-GSO FSS systems (LEO, MEO).