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|  | **DRAFT PRELIMINARY VIEW FOR**  **WRC-27 AGENDA ITEM 1.2** | |  |
|  | **(Item on the Agenda: 3.1)** | |  |
|  | **(Document submitted by the Delegation of the United States)** | |  |

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**Coordinator:**

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**UNITED STATES OF AMERICA**

**DRAFT PRELIMINARY VIEWS ON WRC-27**

**AGENDA ITEM 1.2**: to consider possible revisions of sharing conditions in the frequency band 13.75-14.0 GHz to allow the use of uplink fixed-satellite service earth stations with smaller antenna sizes, in accordance with Resolution **129 (WRC-23)**.

**BACKGROUND**: Resolution **129 (WRC-23)** calls for studies on technical and operational limitations regarding the minimum antenna size and associated power limitations of GSO and non-GSO FSS earth stations in the frequency band 13.75-14 GHz (Earth-to-space), while ensuring the protection of the services stipulated in Nos. **5.502** and **5.503**.

The frequency band 13.75-14.0 GHz has been subject to regulatory changes over the years. since FSS (Earth-to-space) was allocated at WARC-92. WRC-03 modified the requirements for minimum size of satellite earth station antennas operating in the 13.75-14 GHz band (1.2 m for geostationary satellite orbit (GSO) networks ; maintained the 4.5 m for non-geostationary satellite orbit (non-GSO) systems); and introduced the maximum power flux density that an earth station can transmit towards the sea . Accordingly, changes to Nos. **5.502** and **5.503** were made to use earth station antennas of 1.2 meters for the GSO FSS networks, but no changes were made in Nos. **5.502** and **5.503** regarding earth station antennas for NGSO systems.

The purpose of these limitations is to protect the radiolocation and space research services. Additionally, there is a significant mismatch in bandwidth between available non-planned uplink and downlink FSS spectrum in the 10-15 GHz range for smaller satellite user terminals, e.g., VSATs, satellite news gathering, in all three ITU Regions. In Region 2, the spectrum available for uplink without limitation is only 500 MHz whereas for downlink, it is 1000 MHz, twice the uplink spectrum. Same for Region 1 and 3. This mismatch between uplink and downlink bandwidth highlights the need to identify more uplink capacity that can be efficiently used by smaller antennas that can communicate with GSO and non-GSO satellites.

Innovation both in GSO high throughput satellites (HTS), software defined satellites (SDS) and non-GSO satellites along with innovation in earth station terminals capable of providing large throughputs and broadband connections, has highlighted the critical need for additional Ku-band uplink spectrum to meet the increasing demand for connectivity to customers, particularly for the use of small user terminals, such as VSATs. There has been a rapid increase in number of operational satellite networks and use of orbit and spectrum resources over the last decades corresponding to increased development of a variety of applications and satellite user equipment. Given these advancements FSS customers are requiring higher data transmission rates, smaller user terminals, and increasingly flexible products. From an operational point of view, the frequency band 13.75-14.0 GHz, being adjacent to the 14.0-14.5 GHz (Earth-to-space) band currently used for uplink, would allow FSS operators to meet the demands of customers in a straightforward and inexpensive manner.

WRC-23 again identified the need for further studies to address the operational and technical limitations regarding the minimum antenna size and associated power limitations for GSO and NGSO FSS earth stations in the 13.75-14.0 GHz band. Resolution **129** (WRC-23) acknowledges the increasing demand for uplink spectrum by smaller antennas for earth stations and the necessity to review sharing conditions with the RLS and SRS to support the evolving needs of FSS applications efficiently and rationally.

**U.S. VIEW**:

The United States supports studies regarding possible revisions of sharing conditions in the frequency band 13.75-14.0 GHz to allow the use of uplink FSS earth stations with smaller antenna sizes and revised power limitations. Any possible revisions of sharing conditions in the 13.75-14.0 GHz band to accommodate smaller antenna sizes for uplink FSS earth stations must ensure protection of the RLS and SRS services that operate in the band, and shall not impose any additional constraints on these services. The sharing studies should determine any potential impact from smaller FSS antennas into the RLS and SRS stations and develop provisions to protect these incumbent services from unacceptable interference or performance degradation.