

## UNITED STATES OF AMERICA

### DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

**Agenda Item 1.9.1:** *to consider, in accordance with Resolution 758 (WRC-12), possible new allocations to the fixed-satellite service in the frequency bands 7 150-7 250 MHz (space-to-Earth) and 8 400-8 500 MHz (Earth-to-space), subject to appropriate sharing conditions;*

#### **Background Information:**

##### 7-GHz band

ITU-R has studied the interference from a potential constellation of 90 fixed satellite service (FSS) geostationary (GSO) satellites into space research service (SRS) missions in the 7150-7250 MHz band.

In the 7 150-7 190 MHz deep space SRS band, during the near Earth operations of the SRS mission, there is a region around the GSO orbit that the interference received by SRS spacecraft from the FSS satellites would exceed the ITU protection criterion of the SRS spacecraft. The extent of this region depends on the gain of the SRS spacecraft antenna, the transmitter power density of the FSS satellites, and the location of the FSS GSO satellites. The interference region below the GSO orbit is determined by the low gain antenna and medium gain antenna of the SRS spacecraft, whereas above the GSO orbit it is determined by the high gain antenna of the SRS spacecraft. The studies concluded that sharing the 7 150-7 190 MHz band between SRS and FSS is not feasible without specific regulatory provisions, mitigation techniques, or operational coordination during near-Earth operations of deep-space SRS missions. Operational coordination would be very difficult and an undue burden for SRS operators, noting that such operational coordination agreement would have to be reached with all FSS operators and the responsible administrations around the world and that the SRS operators may need to execute the terms of the operational coordination agreement with multiple FSS satellites from the relevant administrations during the near-Earth critical events of SRS missions. The operational coordination is further complicated by the fact that the launch of deep-space SRS missions is frequently delayed due to weather or technical reasons.

In the 7 190-7 235 MHz near-Earth SRS band, based on the studies, sharing between FSS (space-to-Earth) and SRS (Earth-to-space) could result in excessive interference into the SRS receiver when the SRS satellite orbit is close to the GSO orbit. Since it would not be possible to coordinate the transmissions of a global FSS network to avoid interference into an SRS mission with an orbit of this type, it is concluded that FSS operations would not be compatible with SRS (near-Earth) missions in the 7 190 – 7 235 MHz band.

##### 8 GHz band

For the 8 400-8 500 MHz band, a future allocation to the FSS (Earth-to-space) in this band may create a potential for harmful interference to the SRS earth stations operating near FSS earth stations transmitting to FSS satellites. The level of interference depends on the distance between the FSS and SRS earth stations. Thus, to avoid interference, separation distances ranging from 84 km to 675 km between FSS and SRS earth stations are required. These required separation distances are based on the presence of a single FSS terminal operating on a single channel around the deep-space SRS earth station. In case of multiple FSS terminals operating on multiple channels, the required distances may grow accordingly depending on the channel width. The

required separation distance may extend into the territory of another administration and, therefore, would require that international coordination be carried out.

### Conclusion

In the 7150-7235 MHz band, the studies have concluded that sharing between FSS (space-to-Earth) and SRS (Earth-to-space) would not be feasible without very difficult operational coordination. This would impose undue burden on SRS and would require that the FSS satellites terminate their operation in the affected frequency channels.

In the 8400-8500 MHz band, the results show that SRS earth stations can be protected from FSS earth station transmissions by coordination, but large separation distances are required around SRS earth stations.

In view of the foregoing, the United States proposes/supports no changes to the Article 5 Table of Allocations for the 7150-7250 MHz and 8400-8500 MHz bands.

### **Proposal:**

**NOC**      USA/1.9.1/1

## ARTICLE 5

### **Frequency allocations**

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

**Reasons:** No change to the Table of Allocations would avoid any impact to existing services and would ensure the continued operation of these services within their existing environment. It would also avoid the required operational coordination between SRS and potentially many FSS operators from different administrations that would need to disrupt the FSS satellite transmissions during the near-Earth operations of deep-space SRS missions. For the band 7 150-7 190 MHz band, no other practical solution exists.

**SUP**      USA/1.9.1/2

#### **RESOLUTION 758 (WRC-12):**

#### **Allocation to the fixed-satellite service and the maritime-mobile satellite service in the 7/8 GHz range**

**Reasons:** Suppression of Resolution 758 (WRC-12) is consequential to the completion of work under WRC-15 agenda item 1.9.1.