

Counter Comments on “Assignment of Spectrum in E&V Bands, and Spectrum for Microwave Access (MWA) & Microwave Backbone (MWB)”

USISPF welcomes the opportunity to submit feedback on the TRAI Consultation Paper on the “Assignment of Spectrum in E&V Bands, and Spectrum for Microwave Access (MWA) & Microwave Backbone (MWB).” Please see our counter comments below.

Space-based communication services will play a critical role in enhancing connectivity and bridging the digital divide. NGSO fixed-satellite service (FSS) systems will provide satellite-based broadband connectivity to customers in unserved areas and essential backhaul for the rollout of terrestrial mobile services. These space-based communication services can offer rapid deployment of connectivity across remote areas where terrestrial broadband or backhaul solutions are impractical. To do this effectively, satellite systems require access to globally harmonized spectrum in the relevant bands.

There is an overlap of spectrum usage by space-based communication services and MWA and MWB services in the 17.7-19.7 GHz band. Some satellite systems plan to use these frequencies for space-to-earth (downlink) transmissions to gateways and customer terminals, including those used for broadband and backhaul services. Internationally, these frequencies are allocated to the FSS and terrestrial services and have successfully coexisted for decades. Accordingly, we request TRAI to adopt a balanced approach and specify technical conditions that will support compatible operations between the FSS, MWA and MWB services. Such an approach will provide connectivity and diversity that will benefit Indian businesses and citizens.

Another important consideration for spectrum assignment in the 17.7-19.7 GHz frequencies is the operation of uncoordinated earth stations with space-based communication services. It is important that any new procedures for MWA services will facilitate coexistence with uncoordinated earth stations operating with space-based communication services by adopting a non-interference, non-protected mechanism to enable ubiquitous deployment of satellite customer terminals in the 17.7-19.7 GHz band where both the fixed service (FS) and FSS have co-primary allocation status.

Q2. Whether spectrum for MWA and MWB should be assigned for the entire LSA on an exclusive basis, or on Point-to-Point (P2P) link basis? Response may be provided separately for (i) TSPs with Access Service License/ Authorization, (ii) TSPs having authorizations other than Access Service License/ authorization, and (iii) Other entities (non-TSP, for non-commercial/ captive/ isolated use) in the table given below with detailed justification:

As highlighted above, some satellite systems will rely on the 17.7-19.7 GHz frequencies for space-to-earth communications to gateways and customer terminals. Assignment and licensing procedures for MWA should permit the continued coexistence with space-based communication services. We recommend that well-established international provisions and recommendations, which enable smooth operations of both terrestrial and space services that have shared the 17.7-19.7 GHz band for decades should be adopted. Appendix 7 of the ITU Radio Regulations describes methods for determining the coordination area around earth station which can be used as a baseline. The channel modelling of the terrestrial path between an earth station and fixed station can be further refined using Recommendation ITU-R P.452.

Uncoordinated satellite customer terminals should be permitted on a non-interference, non-protected basis with respect to the Access Service Provider. These operators should be held accountable for mitigating interference from the MWA service.

Exclusive spectrum assignment should only be done for terrestrial services and not space-based communications services.

Q3. Keeping in view the provisions of ITU’s Radio Regulations on coexistence of terrestrial services and space-based communication services for sharing of the same frequency range, do you foresee any challenges in ensuring interference-free operation of terrestrial networks (i.e., MWA/MWB point to point links in 6 GHz, 7 GHz, 13 GHz, and 18 GHz bands) and space-based communication networks using the same frequency range in the same geographical area? If so, what could be the measures to mitigate such challenges? Suggestions may kindly be made with justification.

The coexistence between terrestrial networks such as the MWA service and space-based communication services cannot be generalized. However, it can be managed both with appropriate assignment mechanisms and technical conditions.

Specifically, we recommend adoption of technical conditions applicable to the MWA service that follow ITU-R Recommendations for the fixed service applications in the 18 GHz frequency band.

For example, Recommendation ITU-R F.699 contains antenna patterns for stations in the fixed service. Such antenna patterns facilitate compatibility with space-based communication services by managing off-axis emissions. Recommendation ITU-R F.595 contains channel arrangements which enhance operational transparency. Applying these Recommendations and coordination provisions like those in the ITU Radio Regulations are sufficient for space-based communication services to anticipate the magnitude and behaviour of interference. With predictable and transparent spectrum assignment procedures for MWA services and technical conditions following international standards, the interference magnitude and likelihood from the MWA service becomes deterministic, which is mission critical for space-based communication services—particularly for earth stations like gateways. Finally, the MWA service is protected from space-based communication services using the power flux-density limits contained in Article 21 of the ITU Radio Regulations.

We request that the practice of blanket licensing for satellite customer terminals be extended to the 17.7-19.7 GHz frequency band to permit ubiquitous deployments of uncoordinated earth stations. The European Conference of Postal and Telecommunications Administrations (CEPT) Electronic Communications Committee (ECC) has studied the compatibility between the fixed service and FSS in ECC Report 232. This report concludes that compatibility can be ensured in the long term in less populated areas. In urban areas, FSS earth stations could use more than 65% of the 17.7-19.7 GHz band. The study showed that if interference occurred, there were alternative frequencies available to which the FSS earth station could move its traffic. We suggest that the uncoordinated earth stations operating with space-based communication services should follow a national-level administrative assignment methodology and operate on a non-protected basis with respect to the MWA service. This will ensure that future operations of MWA are not encumbered with regulatory uncertainty by a potentially large deployment of earth stations (e.g., customer terminals) receiving in the 17.7-19.7 GHz frequency band. TRAI can refer to the CEPT ECC Decision (00)07 adopted in October 2000 (amended March 2016) for more information regarding possible procedural considerations for uncoordinated earth stations.