

# FSS, BSS and MSS Issues

## Agenda Items

**1.1:** A-ESIMs/ M-ESIMs

**1.2:** Uplink Earth Stations

**1.3:** Gateway Earth Stations

**1.5:** Unauthorised emissions  
of NGSO Earth Stations

**1.13:** IMT-space stations  
connectivity



# WRC-27: Agenda Item 1.1

## **Aeronautical/maritime earth stations in motion** (Resolution 176 (Rev. WRC-23))

Technical and operational conditions and development of regulatory measures, as appropriate, for the use of the bands **47.2-50.2 GHz (E-s)** and **50.4-51.4 GHz (E-s)**, or parts thereof, by A-ESIM and M-ESIM communicating with GSO and NGSO FSS

# WRC-27: Agenda Item 1.2

## **Revisions of sharing condition for transmit Earth stations** (Resolution 129 (WRC-23))

Possible revisions of sharing conditions in the band **13.75-14 GHz** to allow the use of uplink FSS earth stations with smaller antenna sizes

# WRC-27: Agenda Item 1.3

**Gateway Earth stations of non-GSO systems (E-s)** (Resolution 130 (WRC-23))

Use of the band **51.4-52.4 GHz** to enable use by gateway earth stations transmitting to NGSO systems in the FSS (E-s)

# WRC-27: Agenda Item 1.5

## **Unauthorized operations of non-geostationary-satellite orbit earth stations**

(Resolution 14 (WRC-23))

Regulatory measures, and implementability thereof, to limit the unauthorized operations of NGSO FSS and MSS earth stations and associated issues related to the service area of NGSO FSS and MSS systems

# WRC-27: Agenda Item 1.13

## **MSS allocations for direct IMT - space stations connectivity** (Resolution 253 (WRC-23))

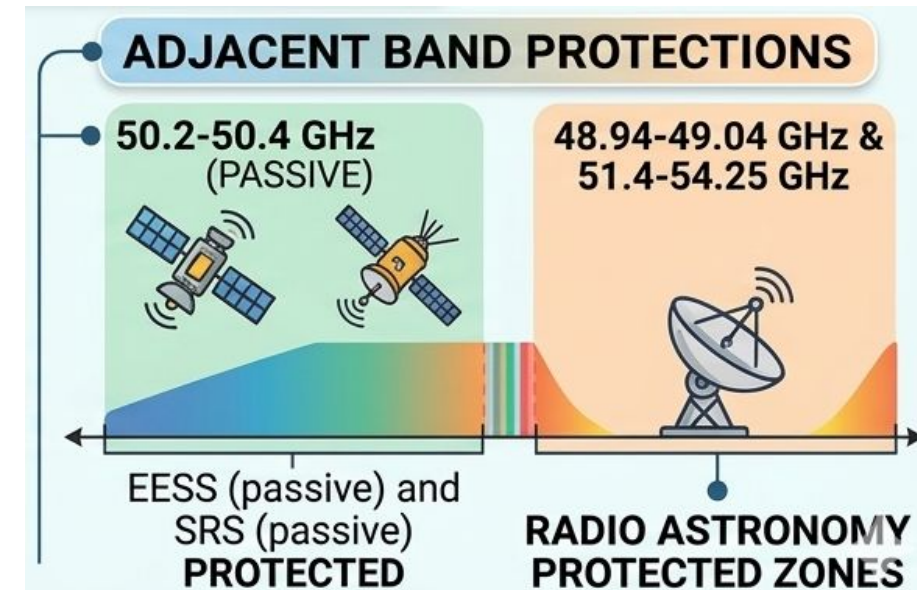
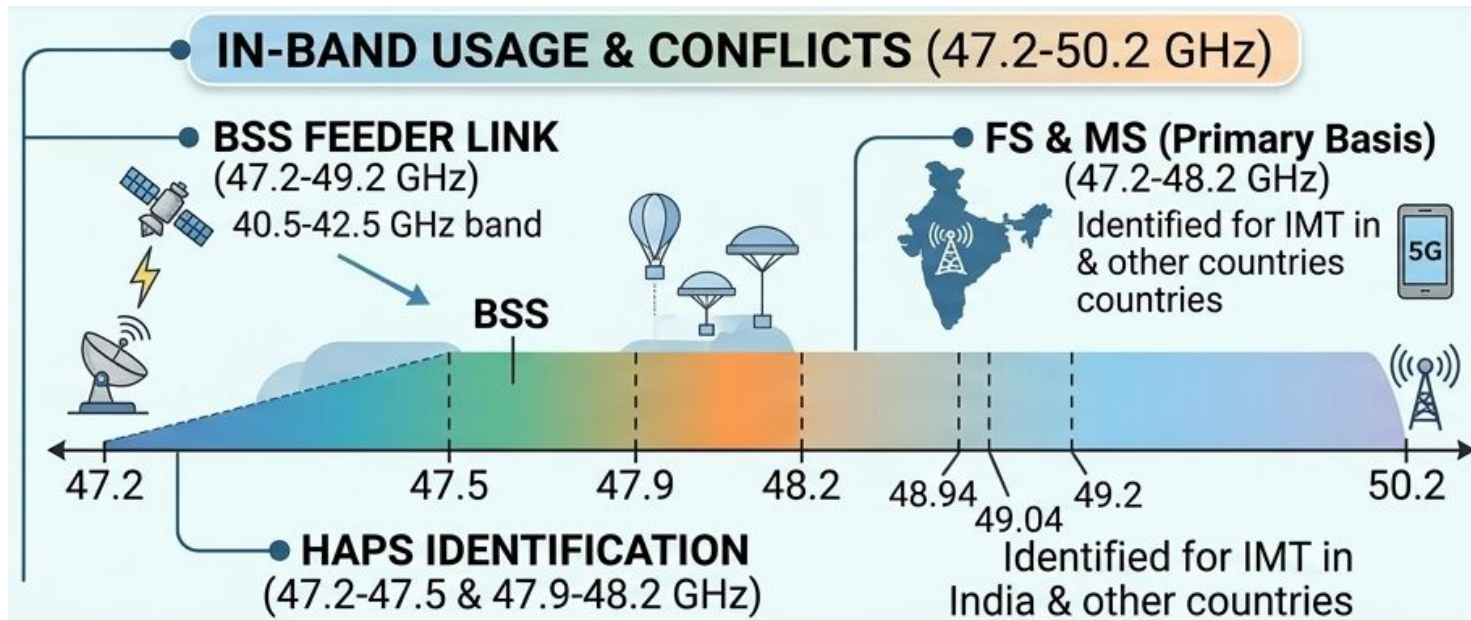
Possible new allocations to the MSS for direct connectivity between space stations and IMT user equipment to complement terrestrial IMT network coverage (in the frequency range between **694/698 MHz and 2.7 GHz**, taking into account the IMT frequency arrangements addressed in the most recent version of Rec. ITU-R M.1036)

**Thank You**





# Current status of FSS in 47.2 - 50.2 GHz and 50.4 - 51.4 GHz



# WRC-27: Agenda Item 1.1 (Res. 176)

India's Position: **No views so far**

**Status of Current studies in WP4A:** ITU WP4A is currently developing a Working Document towards a draft CPM text

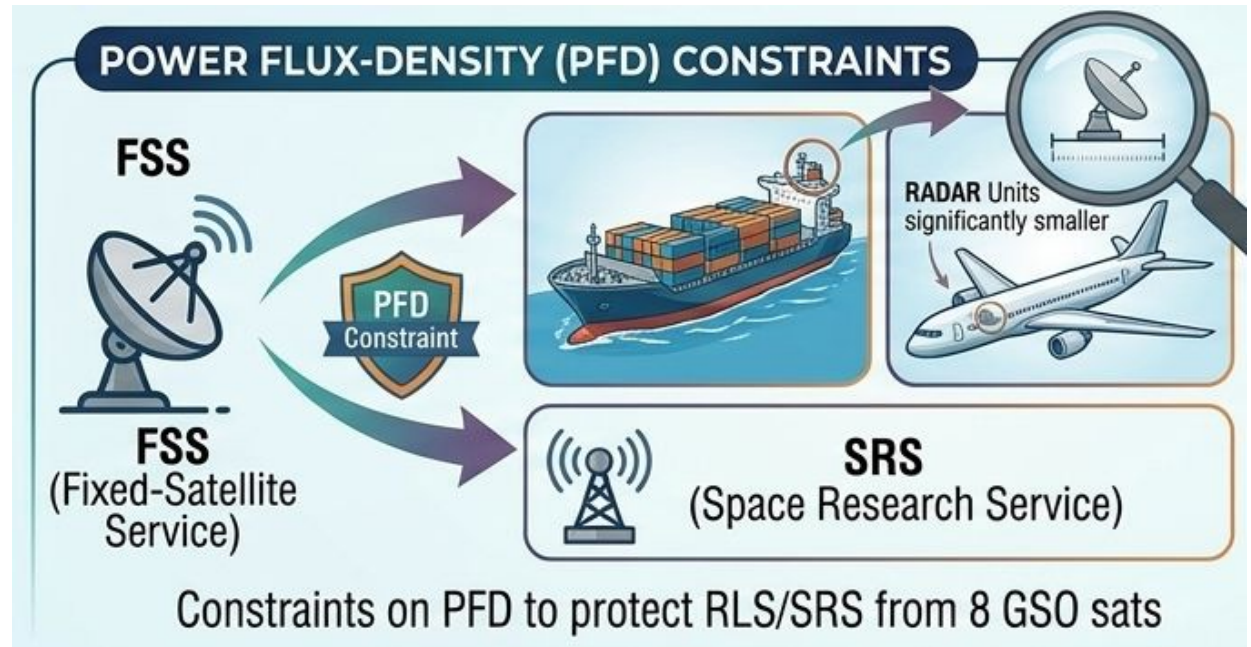
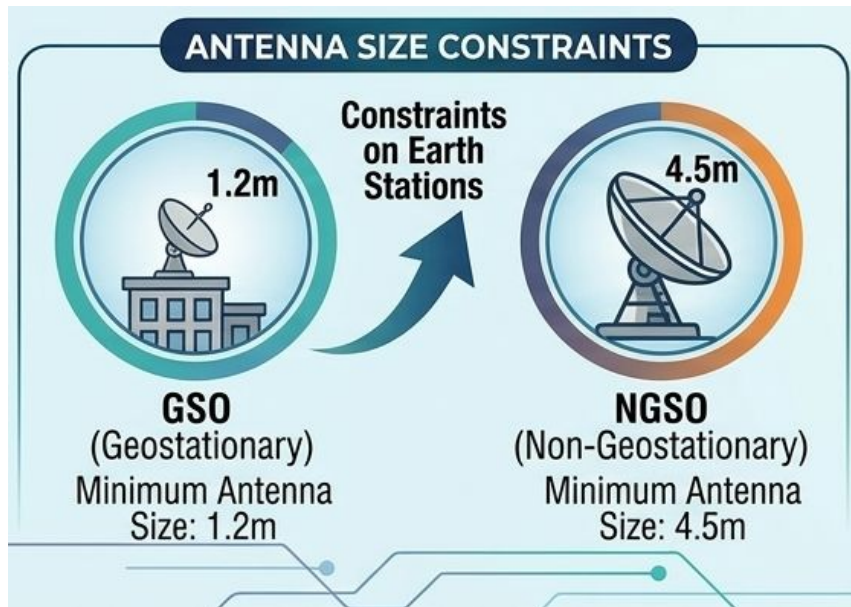
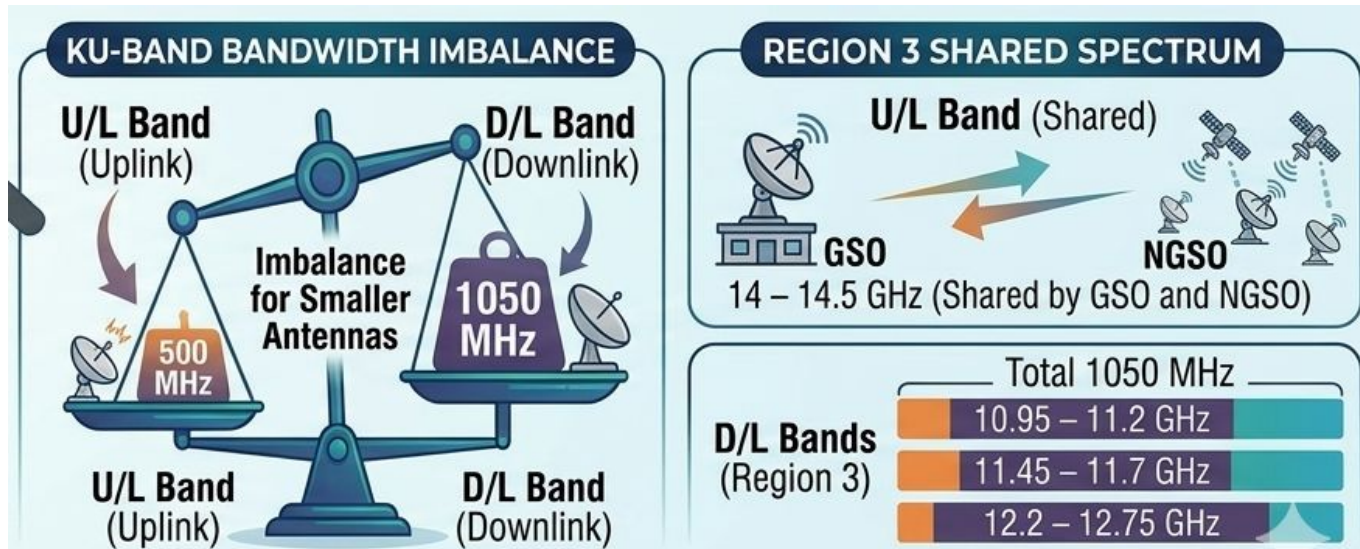
## **Discussion regarding Draft CPM Text**

### **Only one Method identified (Method A):**

- add a new footnote No. **5.A11** in RR Article **5**
- reference to two new WRC Resolutions (conditions for the operation of A-ESIM and M-ESIM) and protection of the services to which the frequency bands are allocated, and suppression of Resolution **176 (WRC-23)**.

WRC-27: Agenda Item 1.2 (Res. 129)

# Current status of 13.75 - 14 GHz



# WRC-27: Agenda Item 1.2 (Res. 129)

## Status of Current studies in WP4A:

ITU WP4A is currently developing a Working document on AI 1.2, which due to many contributions, got divided into 7 parts:

- (i) Main body,
- (ii) Single entry FSS into RLS (**Annex 1**),
- (iii) Aggregate GSO/ NGSO FSS (**Annex 2**),
- (iv) Aggregate combined (**Annex 3**),
- (v) single entry FSS into SRS (**Annex 4**),
- (vi) Summary of deployment methodology (**Annex 5**),
- (vii) Excel sheet comparison of assumptions and questions received ( **Annex 6**).

# WRC-27: Agenda Item 1.2 (Res. 129)

## Discussion regarding Draft CPM Text

### Method A: No Change

**Method B:** Modification to footnotes RR Nos. **5.502**, **5.503** introducing the **new technical limits** for the FSS ES in the frequency band 13.75-14 GHz.

**B1:** FSS ES operation with

D<1.2m for GSO,

D<4.5m for non-GSO

as long as they are deployed further than X km from border of a neighbouring Admin to ensure the protection of RLS. Proposes removal of 5.503.

**B2:** Modification to footnotes RR Nos. **5.502** and **5.503** to introduce new conditions for the use of GSO FSS ES in the band 13.75-14 GHz

**Method C:** Modification and suppression of footnotes RR Nos. **5.502**, **5.503** removing technical limits for the FSS ES in the frequency band 13.75-14 GHz.

i.e. suppress conditions on FSS ES operations to allow smaller FSS ES of any size to operate in countries where they are authorised.

# WRC-27: Agenda Item 1.2 (Res. 129)

## Indian Contributions so far: Multi-country proposal

**4A/289:** Single entry FSS compatibility with RLS as well as SRS study for GSO and NGSO cases. Incorporated in main body of WD of AI 1.2 and in Attachment as study 2 in RLS and as study 1 in SRS.

**4A/483:** Single entry, Aggregate FSS compatibility with RLS as well as SRS study for GSO cases. Incorporated as:

i. Study 4 in Annex 1, ii. Study 4 in Annex 2, iii. Study 3 in Annex 4

**4A/745:** Aggregate FSS compatibility with RLS for GSO cases.

i. Study 4 in Annex 2

# WRC-27: Agenda Item 1.3 (Res. 130)

# Current status of 51.4 - 52.4 GHz



**50.2-50.4 GHz**  
**GLOBAL PRIMARY:**  
EESS (Passive) & SPACE RESEARCH

Icons: A satellite and a space probe.

**50.4-51.4 GHz**  
**GLOBAL PRIMARY:**  
FS, MS, FSS (E-to-S)

Icons: A smartphone, a radio tower, and a satellite dish.

**52.4-52.6 GHz**  
**GLOBAL PRIMARY:**  
FS & MS

Icons: A smartphone and a radio tower.

**52.6-54.25 GHz**  
**GLOBAL PRIMARY:**  
EESS (Passive) & SPACE RESEARCH

Icons: A satellite and a space probe.

# WRC-27: Agenda Item 1.3 (Res. 130)

## Indian Contributions so far:

- 4A/535: Amendments to draft CPM text on WRC-27 agenda item 1.3
- 4A/657: Amendments to working document relating to WRC-27 agenda item 1.3
- On the WD draft CPM text, the method to use EPFD to protect GSO FSS was discussed and the conclusion reached was that it requires technical studies in order to be considered as a viable solution. This method was placed within bracket in the last meeting. Based on input submitted by INDIA and study submitted by M/s Viasat, a **method included in draft CPM ( Method A)**

# WRC-27: Agenda Item 1.3 (Res. 130)

## Discussion regarding Draft CPM Text

**Method A:** Add 51.4-52.4 GHz band in Table 22-2 to include EPFD limits for the E-to-S to protect GSO FSS space station from non-GSO FSS gateway emissions

**Method B:** Allocation to non-GSO FSS gateway ES in the 51.4-52.4 GHz band, with appropriate conditions to protect in-band and adjacent-band primary services. For protection of GSO FSS networks from single-entry and aggregate unacceptable interference from NGSO FSS gateway ESs in the 51.4-52.4 GHz band, the provisions of Nos. **22.5L** and **22.5M**, and associated Resolutions, would be extended to include NGSO FSS systems operating in the new allocation.

**Method C:** Allocation to non-GSO FSS gateway ES in the 51.4-52.4 GHz band, with appropriate conditions to protect in-band and adjacent-band primary services. For protection of GSO FSS networks from single-entry and aggregate unacceptable interference from non-GSO FSS gateway earth stations in the 51.4-52.4 GHz band, modified provisions based on 22.5L and 22.5M are proposed

Method C is equivalent to Method B with the only difference being the provisions to protect GSO networks from single-entry and aggregate interference

# WRC-27: Agenda Item 1.5 (Res. 14)

## **Studies on development of regulatory measures:**

- to limit the unauthorized operations of non-GSO earth stations in the FSS and MSS
- and associated issues related to the service area of non-GSO FSS and MSS satellite systems

## **Background:**

reported challenges faced by some member states in relation to the unauthorized operation of user terminals operating in their territory in the Earth to-space direction

# WRC-27: Agenda Item 1.5 (Res. 14)

## Indian Contributions so far:

**4A/536-E:** supports effective enforcement of existing measures (e.g., further strengthening of Resolution **22 (Rev.WRC-23)**) and if required, the development/consideration of possible additional measures that do not adversely affect non-GSO service provision.

**4A/659-E:** Proposal to update the draft CPM text in the working document towards draft CPM text.

- (i) Restrict unauthorized operation of earth stations: Geo-location capabilities for E/S can be used
- (ii) Remote de-activation of unauthorized non-GSO earth stations
- (iii) Exclusion of territory from the service area
- (iv) any unauthorized up-linking attempts made from the territory of an administration, that has not authorized such operations (affected administration), is immediately ceased and affected administration is informed