



# 5<sup>th</sup> India Spectrum Management Conference

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# *Agenda Item 1.11 - Inter Satellite Link*

## Background

- ISL in L and S-band 1518-1544 MHz, 1545-1559 MHz, 1610-1645.5 MHz, 1646.5-1660 MHz, 1670-1675 MHz and 2483.5-2500 MHz
- N-GSO satellites and Short duration missions are increasing in number.
- Data has to be made available in real time
- MSS allocations in 1-3 GHz. No space to space allocations within this band
- Possibility of space-to-space links exist within MSS band.

## Current Work Progress and open issues

- Key stations definition (User station and Service provider stations)
- Cone of coverage of the MSS service provider space station
- Incumbent service parameters for study (in-band, adjacent band)
- Compatibility with incumbent services
- Preliminary results
- Requirement of studies in space-earth direction?

## *Agenda Item 1.11 - Inter Satellite Link*

### Compatibility studies (In-band and adjacent band)

- Studies in 1525-1544 MHz, 1545-1559 MHz, 1626.5-1645.5 MHz and 1646.5 – 1660 MHz.
- Studies in 2483.5-2500 MHz.
- Depends on several factors: Orbital parameter, Power levels, and antenna pattern
- MSS characteristics- ITU –R M.1184, MIFR parameters

### ISRO's interest:

- Protection of navigation services in 2483.5 -2500 MHz band
- Regulatory provisions for operation of ISL.

### CPM Methods

- 2 methods are being considered

# Agenda Item 1.12 -Low Data rate MSS

## Background

- Requirement of low-data-rate (LDR)MSS systems.
- Limited to non-geostationary systems
- Candidate frequency bands :
  - 1 427-1 432 MHz
  - 1 645.5-1 646.5 MHz
  - 1 880-1 920 MHz
  - 2 010-2 025 MHz

## Compatibility studies (in-band and adjacent band)

- IMT, HIBS
- Earth Exploration Satellite services
- Meteorological Satellite
- Space Operation
- Space Research

# Agenda Item 1.12 -Low Data rate MSS

## ITU Studies

- Definition of LDR systems
- Spectrum requirements
- Technical and Operational Characteristics
- Spectrum sharing and interference mitigation techniques.
- Preliminary study on co-existence of N-GSO LDR MSS system
- Studies on sharing with incumbent services and adjacent band studies.
- Good progress is made

## CPM Methods

- Methods are being considered based on the frequency band

## ISRO's interest

- Protection of Space services in 2025-2110 MHz band
- Regulatory provisions for operation of Low Datarate MSL.

# Agenda Item 1.12 -Low Data rate MSS

Compatibility studies:(In-band and adjacent band)

- IMT, HIBS
- Earth Exploration Satellite services
- Meteorological Satellite
- Space Operation
- Space Research

ISRO's interest:

- Protection of Space services in 2025-2110 MHz band
- Regulatory provisions for operation of Low Datarate MSL.

## *Agenda Item 1.14 Additional MSS allocations*

### Background

- Harmonisation of allocation in all regions
- Candidate frequency bands:
  - 2 010-2 025 MHz (Earth-to-space)
  - 2 160-2 170 MHz (space-to-Earth)
  - 2 120-2 160 MHz (space-to-Earth)

### Current Work Progress:

- Spectrum requirements
- Technical and Operational Characteristics

# Agenda Item 1.14 Additional MSS allocations

Compatibility studies:(In-band and adjacent band)

- IMT, HIBS
- Earth Exploration Satellite services
- Meteorological Satellite
- Space Operation
- Space Research

ISRO's interest:

- Protection of EESS & Space operations in adjacent band

## Activities in Navigation area

- ITU R-M 1787 provides Description of systems and networks in the radionavigation-satellite service in L band. This recommendation is revised to take into account the new emerging systems.
- Recommendation on Protection of RNSS operations in L-band from the adjacent and spurious emissions of IMT transmissions
- Methodology of computation of aggregate interference from L-band SAR into RNSS in 1215-1300 MHz band.