

The background is a light blue gradient with several stylized celestial bodies. In the top right, there is a large planet with green, red, and white landmasses. In the bottom left, there is a planet with green and yellow stripes. Scattered throughout are several smaller, dark blue, irregularly shaped objects representing asteroids or moons.

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Spectrum issues for Satellite and Non
Terrestrial services

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Spectrum issues for Satellite and Terrestrial services



Background

- Non-terrestrial network (NTN): communication network with airborne or spaceborne assets as well as assets on the ground. Satellites, HAPS, HBS, etc.
- Satellite service operate under FSS, BSS, MSS, RDSS etc.
- Terrestrial networks operate under FS, MS etc.
- Hybrid networks using satellite communication (SATCOM) technology to extend existing cellular communications. – D2D (DC-MSS?)
- Significant opportunity for joint operations by satellite and terrestrial operators
- The issues to addressed:
 - Technological
 - Spectrum Issues
 - Regulatory/Licenses

Spectrum issues for Satellite and Terrestrial services



Technological Issues

- Tests and trails are undertaken and demonstrated by multiple players from LEO & GEO – messaging, talking, ... , given projections for broadband services in the near future
- No modifications to IMT UEs
- No interference to incumbent services
- Satellite payloads to operate in transparent mode
- Satellite payloads to operate in regenerative mode
- Dealing with Doppler shift
- Interfaces between MNOs and SNOs
 - Synergy
 - Authentication
 - Spectrum resource management
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Spectrum issues for Satellite and Terrestrial services



Spectrum Issues

- Whether to use IMT spectrum or MSS
- Spectrum harmonization is very important for economy of scale and efficient implementation
- WRC-27 AI 1.13 : Frequency range 694/698 MHz to 2.7 GHz.
(ITU R-M 1036 provides the basis)
- Technical and operational characteristics of MSS (GSO & N-GSO)
- Technical Characteristics of incumbent services and protection criteria.
- The WP-4C and WP-5D are active in discussing these issues

Spectrum issues for Satellite and Terrestrial services



Regulatory/Licensing Issues

- Satellites provide regional / global coverage – challenge of catering in different bands
- Supplemental Coverage from Space- Handful of spectrum bands
- Cross border coordinations
- National licensing issues - Whether single service or distinct service

THANK YOU