

3GPP TSG-RAN, TSG-SA # 102
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To: TSG RAN#102, TSG SA#102

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**Title: LS on 3GPP NTN Based Satellite Networks Deployment Considerations
and GSOA recommendations on NTN in Rel-19**



GSOA provides a platform for cooperation and acts as the global voice of the satellite industry to promote common interests at national, regional, and global levels by:

Engaging in advocacy around spectrum, regulatory and industrial policy to create favourable frameworks for the provision of satellite services

Promoting innovation and investment in satellite technology and services

Driving recognition of the socio-economic benefits of satellites

Raising awareness of technical matters, operational best practices, and quality standards

Promoting the industry by conducting and sponsoring capacity-building workshops, events and campaigns around satellite communications on relevant topics

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Telstra

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a Thales / Leonardo company

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- Opportunity - NTN/TN integration is a reality:
 - A global standard for SatCom has been defined -- several technical demonstrations have been presented by the mobile/satellite industry
 - NTN Rel-17 supports satellite connectivity to smartphones and IoT devices in frequency bands below 7.125 GHz
 - NTN Rel-18 will enhance uplink coverage and NTN/TN mobility as well as support satellite connectivity to VSAT user terminals in frequency bands above 10 GHz
 - NTN Rel-19 is expected to incorporate new capabilities, increase diversity of device types & QoS requirements, improve network architectures to facilitate deployment and integration of NTN with existing networks, and operation of 3GPP NTN based satellite networks in new bands

- What about the deployment of NTN networks?

Matrix of industry initiatives/areas of interest led by satellite network operators for the different deployment scenarios:

	Narrowband connectivity to IoT devices (NTN-IoT in FR1)		Narrowband/Broadband connectivity to handheld devices (NTN-NR in FR1)	Broadband connectivity to non-handheld devices (VSAT) (NTN-NR in above 10 GHz Band)	
Space Segment	Re-use of existing GSO	NGSO	NGSO	GSO	NGSO
Operators	EchoStar Viasat-Inmarsat TerreStar Solutions	Sateliot EchoStar OmniSpace Viasat-Inmarsat	EchoStar OmniSpace Viasat-Inmarsat SES	Intelsat Eutelsat-Oneweb Viasat-Inmarsat SES	Intelsat Eutelsat-Oneweb Viasat-Inmarsat SES
Timeline Indication	2023-2025	2024-2029	2026-2029		

Observation:

- NTN standard is making encouraging impact to the SatCom and mobile industry
- Satellite Direct-to-Device Connectivity Bringing Connectivity to Everyone, Everywhere, Anytime [1]
- “Growing momentum of telco-satellite partnerships has resulted in leaps in innovation in the realm of non-terrestrial-network (NTN) technology and deployment economics” [2]

GSOA Recommendations:

- **3GPP TSG RAN and SA to prioritize the definition of new features and capabilities for NTN in Rel-19 to enable improved performance, new use cases, and optimized interoperability with terrestrial networks**

[1] <https://gsoasatellite.com/wp-content/uploads/GSOA-D2D-Paper.pdf>

[2] <https://data.gsmaintelligence.com/research/research/research-2022/satellite-2-0-going-direct-to-device>

Thank You

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