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**AN INTRODUCTION TO THE MOBILE SATELLITE SERVICE
ASSOCIATION (MSSA)**

(Item on the Agenda: 3.1 and 3.4)

**(Information document submitted by MOBILE SATELLITE
SERVICE ASSOCIATION)**

Impact on the sector:

The Mobile Satellite Services Association (MSSA) is a non-profit industry association, founded in 2024, that seeks to promote and advance the emerging mobile satellite service direct-to-device (D2D) ecosystem and supports the efforts of D2D solutions providers, including terrestrial mobile and satellite operators, OEMs, infrastructure providers, chip vendors, and others. The MSSA has a vision to integrate terrestrial and 3GPP standards-based non-terrestrial networks (NTN) to deliver scalable, sustainable and affordable connectivity to any device, anytime, anywhere. Its members are steering this important new initiative together, to bring significant scale and choice to promote and advance the emerging D2D and IoT ecosystems.

Executive Summary:

The MSSA advances the development of mobile satellite service direct-to-device (D2D) and IoT connectivity through an ecosystem of non-terrestrial network (NTN) providers, that are committed to seamlessly extending mobile coverage globally. Founding members Viasat, Terrestrial Solutions, Ligado Networks, Omnispace and Yahsat support a vision focused on facilitating the integration and evolution of terrestrial and satellite mobile networks to deliver scalable, sustainable, and affordable high-performance cellular-like services, to any device, anytime, anywhere in the world.

To support this rapidly emerging market, the non-profit association will work to ensure mobile satellite services (MSS) L- and S-band operators play a central role in facilitating the future of a robust and competitive D2D services market. Through the coordinated deployment of technical standards and enhancement of regulatory frameworks, the MSSA drives new initiatives to foster support for MSS-based services leveraging the 3GPP mobile standards.

Introduction

The MSSA is a global non-profit industry association, founded in 2024, that fosters innovation and operationalization to enable satellite-to-terrestrial mobile telecommunication service evolution through the development of technical standards and coordination of regulatory advocacy. It seeks to promote and advance the emerging direct-to-device (D2D) ecosystem, and supports the efforts of D2D solutions providers, including terrestrial mobile and satellite operators, OEMs, infrastructure providers, chip vendors, and others. It utilizes over 100 MHz of L-band and S-band spectrum¹ already allocated and licensed for mobile satellite services (MSS).

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To support this rapidly emerging market, the non-profit association will work to ensure MSS L- and S-band operators play a central role in facilitating the future of a robust and competitive D2D services market. Through the coordinated deployment of technical standards and enhancement of regulatory frameworks, the MSSA drives new initiatives to foster support for MSS-based services, leveraging the 3GPP mobile standards. The MSSA seeks to be the voice for standards-based 3GPP NTN in the L- and S- bands.

MSS licensed spectrum provides significant advantages over other solutions, including enabling existing space networks to immediately offer D2D services, an existing global regulatory framework for D2D, no interference with terrestrial networks, and more spectrum to advance 5G New Radio (5G-NR) services. MSS spectrum also enables all MNOs to offer space/terrestrial integration in their entire service area without sacrificing terrestrial spectrum.

Association Objectives

The MSSA aims to advance global mobile connectivity for D2D and IoT services via open, standards-based solutions. Its key goals include:

- Enhance seamless global roaming between terrestrial and multi-orbit satellite networks through the development of recommended specifications.
- Achieve scale through improved coordination and cooperation mechanisms among MSS operators to maximize the utility of over 100 MHz of already available and licensed global MSS spectrum in nations desiring advanced NTN services.
- Provide a neutral forum for coordination of 3GPP NTN and other international standards activities.

¹ See: 3GPP 38.101-5, NR; User Equipment (UE) radio transmission and reception; Part 5: Satellite access Radio Frequency (RF) and performance requirements, <https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=3982>

NTN satellite operating band	Uplink (UL) operating band Satellite Access Node receive / UE transmit FUL _{low} – FUL _{high}	Downlink (DL) operating band Satellite Access Node transmit / UE receive FDL _{low} – FDL _{high}	Duplex mode
n256	1980 MHz – 2010 MHz	2170 MHz – 2200 MHz	FDD
n255	1626.5 MHz – 1660.5 MHz	1525 MHz – 1559 MHz	FDD
n254	1610 – 1626.5 MHz	2483.5 – 2500 MHz	FDD

NOTE: NTN satellite bands are numbered in descending order from n256.

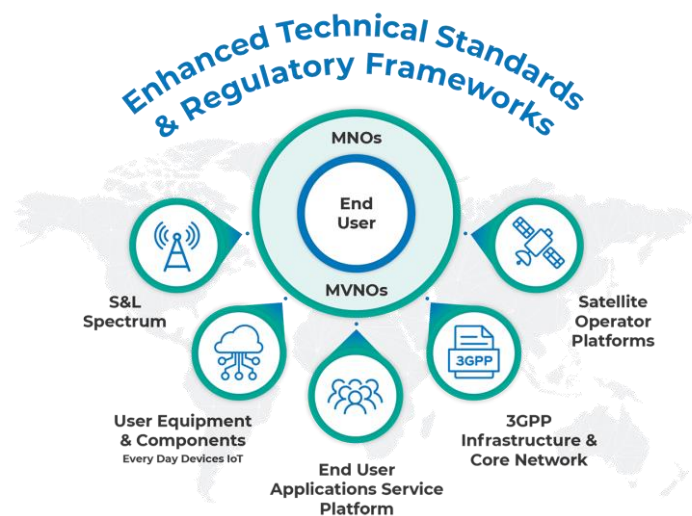
- Unlock interoperable architectures and standards for use in multi-orbit satellite systems, ground infrastructure, and end-user equipment.
- Support mechanisms for individual nations to participate in the new space economy via open standards and architectures, and via the space networks supported by MSSA.
- Support the integration of space networks into national telecommunications infrastructure via trusted local partners and within sovereign regulatory and national security frameworks.
- Advocate for policies, laws, and regulations, including those related to rational, efficient, safe and sustainable uses of spectrum and orbits, and where appropriate, objective and quantitative metrics regarding all objects in orbit around Earth.

MSSA Ecosystem

The MSSA believes that D2D has the potential to bridge the connectivity gap by complementing the capabilities of existing terrestrial mobile networks and handsets -particularly in unserved and underserved areas (whether urban, suburban, or rural)- while leveraging economies of scale.

The Association will create an open forum for collaborative development of recommended technical specs and best practices for terrestrial and satellite interoperability. Government stakeholders, companies, delegations, other associations, etc., are welcome to join the MSSA, adding their value to the entire ecosystem and becoming members to enhance the MSSA member’s vision of integrating terrestrial and NTN services to deliver scalable, sustainable, and affordable connectivity to any device, anytime, anywhere.

The MSSA intends to align with 3rd Generation Partnership Project (3GPP) standards and other applicable standards to extend terrestrial mobile coverage globally for both Mobile Network Operators (MNOs) and Over-the-Top (OTT) internet services. In addition, the MSSA will support essential 5G-New Radio (NR)-NTN and NB-NTN initiatives on behalf of the MSS ecosystem, including the augmentation of current L- and S-band capabilities.



As D2D in MSS spectrum is a rapidly emerging market, an MSS-focused association provides the following benefits to the ecosystem:

- unites efforts to foster global support for new MSS solutions;
- accelerates market adoption and innovation, and
- provides a forum to coordinate and drive advocacy for space sustainability and regulatory goals

offers a neutral platform for working, code of conduct, and identifying viable technical solutions and processes, as well as an open forum for jointly developing and coordinating 3GPP and other standards submissions/responses.

Conclusion

The MSSA joined CITELE PCC.I and PCC.II with the aim of advancing global mobile connectivity for D2D and IoT services via open, standards-based 3GPP NTN solutions. The Association plans to submit contributions on a range of topics including the benefits of utilizing MSS L- and S- band spectrum for D2D and IoT, the importance of 3GPP NTN standards-based solutions, and the role that MSS can play in complementing terrestrial networks to bridge the digital divide and meet the United Nations Sustainability Goals.