uk spectrum policy forum

PUK SPF Cluster 1 & 4

Landscape of NTNs and Spectrum Management

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ECHOSTAR

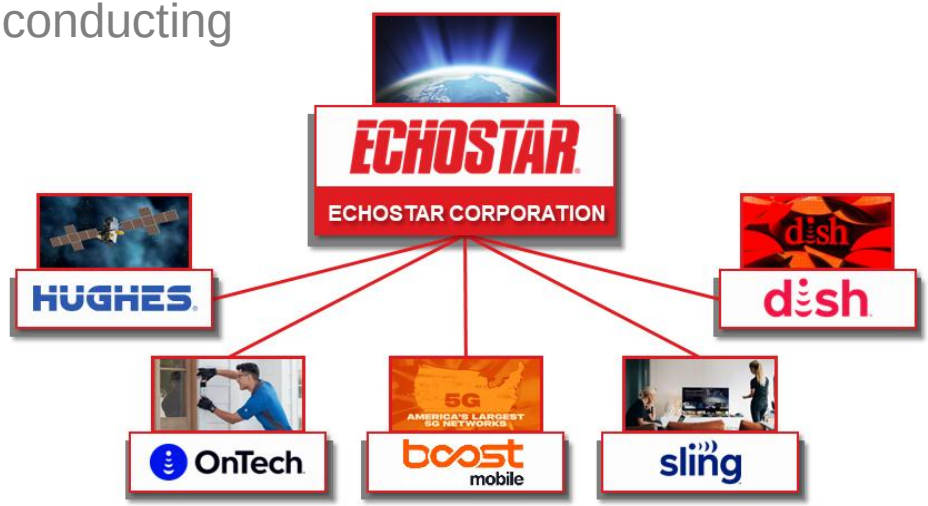
THE COMPANY'S PERSPECTIVE

About EchoStar

- EchoStar Corporation (EchoStar®) is a premier global provider of satellite communication solutions, headquartered in the United States and conducting business around the globe.

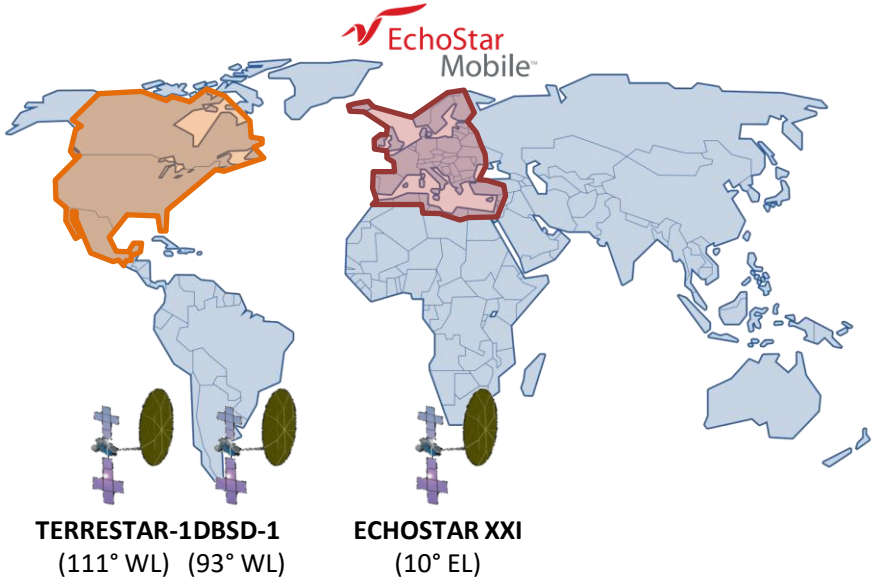
We are a global powerhouse

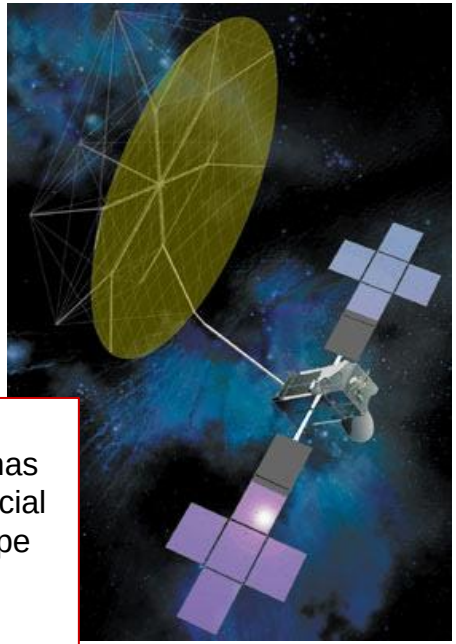
- Satellite owner/operator with a fleet of 10 owned and leased Ku-, Ka-, and S-band geostationary satellites
- Leading global provider of satellite broadband technology and services. World's #1 consumer high-speed satellite Internet service, with over 1.5 million subscribers in the Americas
- Consumer wireless services through Boost Mobile and other brands. Building America's First Smart Network™ to redefine the way people and things connect.
- EchoStar holds MSS S band spectrum rights in the Americas, the European Union and other European countries, including in the UK.



EchoStar MSS Operations

- EchoStar and its subsidiaries have a growing EU-base, as well as a global technical, operational, and marketing presence for satellite and terrestrial services. This includes 2 GHz band rights across Europe and the Americas.
- EchoStar and its affiliates operate three 2 GHz MSS GSO networks: ECHOSTAR XXI (E21), DBSD-1 (D1) and TerreStar-1 (T1).





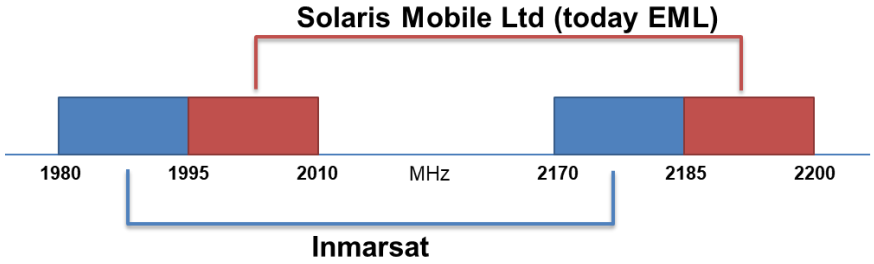
EchoStar Mobile, an EchoStar subsidiary, has been offering commercial MSS throughout Europe using its E21 satellite. Because of its high capacity and its 18-meter antenna, E21 is designed specifically to enable D2D communications.

EchoStar Mobile Limited

- EchoStar Mobile Ltd (EML), a wholly owned subsidiary of EchoStar Corporation, has been offering commercial Mobile-Satellite Services (MSS) throughout Europe since 2017.
- Through the acquisition of Solaris Mobile Ltd, EML holds a EU license for the provision of MSS in the 2 GHz band.
- EML has also obtained S band MSS authorizations in some non-EU countries, including Iceland, Lichtenstein, Norway, Switzerland and the UK.

S band Spectrum in Europe

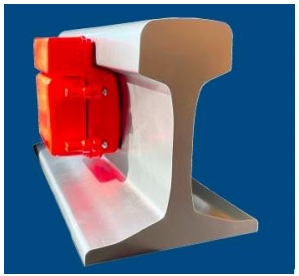
- EC Decision 2007/98/EC established the harmonized use of the 2 GHz band for the provision of MSS, including CGC.
- EC Decision 2009/449/EC awarded the 2 GHz band to Inmarsat Ventures Ltd and Solaris Mobile Ltd for the provision of MSS.



EML Today

- In 2022, EML began deploying LoRa standard-based services and devices which it developed. This has led to significant growths in market demand for 2 GHz MSS throughout Europe.
- EML developed the EM2050 radio module (based on LoRa technology) and message-based service plans for direct-to-satellite IoT services.
- Direct-to-satellite services have been adopted by several key verticals, including aggrotech, environmental monitoring, infrastructure/utilities and asset tracking.
- Today there are over 5000+ terminals in the EU market with expected further growth.

EM2050 Module and Antenna



Railway Sensor

Pipeline Sensor

Agritech Applications

Environmental

EML Today

- EML also provides innovative MSS and CGC solutions throughout Europe, including partnering with SkyFive and Airbus in Germany for command and control in urban air mobility applications. EML holds licenses for 8 CGC sites in Germany.

- With 3GPP's Release 17 for Non-Terrestrial Networks, EML is now operating its NTN based services across the EU.
- EchoStar and its partners, Skylo and Bullitt, have brought to market the first 3GPP-NTN direct-to-device service in Europe using the 2 GHz band and its E21 satellite.

KEY PRIORITIES FOR WRC-27

MSS WRC-27 Agenda Items

AI 1.12. Low-data-rate MSS allocations

- Sharing and compatibility studies must ensure the protection of incumbent services, including in-band and adjacent frequency bands already allocated to the MSS.
- Specifically, studies must examine the impact of the proposed bidirectional operations on incumbent services in all candidate bands (e.g., Current MSS allocation in the 2010-2025 MHz range for the uplink direction in Region 2) .
- Any regulatory considerations for low-data-rate MSS systems should not include operation of such systems on an exclusive basis.

MSS WRC-27 Agenda Items

AI 1.13. MSS allocations for D2D

- Sharing and compatibility studies must ensure the protection of existing MSS operations from potential new MSS allocations operating in opposite directions in-band and in adjacent frequency bands already allocated to the MSS. (e.g., current MSS uplink allocations in the 1980-2010 MHz range globally, and in the 2010-2025 MHz range in Region 2).
- Any regulatory considerations for MSS systems potentially enabling direct connectivity between space stations and IMT user equipment to complement terrestrial IMT network coverage should not allow for exclusive operation.

MSS WRC-27 Agenda Items

AI 1.14. Additional MSS allocations

- We support sharing studies for possible new allocations to the MSS.
- This Agenda Item provides potential new allocations to the MSS that can accommodate any application falling under conventional MSS.