



5G Direct-to-Cell (D2C) Training

This 5G D2C training provides a complete and practical overview of Direct-to-Cell (D2C) and 5G Non-Terrestrial Networks (NTN), covering WRC-23/27 regulatory decisions, satellite constellations, 3GPP D2X standardisation, and the latest Direct-to-Device architectures. Participants will understand how technologies like Starlink, OneWeb, and 3GPP NTN enable satellite-to-phone connectivity using standard LTE/NR smartphones. The course also explains MSS/FSS/IMT spectrum options, transparent vs regenerative satellites, and the real capacity and limitations of D2C solutions for mobile operators

Audience

Telecom engineers, CTO, CXO, Satellite and mobile operator professionals

Duration

6h

Module 1: Introduction: What D2C Is, and What It Is Not

- Definition of NTN Non-terrestrial networks
- LEO constellation is boosting satellite market
- Non-Terrestrial Network (NTN) introduction
- Direct-to-Device: the terminology
- LEO Sat Broadband is not D2D
- Direct to Device: How it works

Module 2: WRC-23 & WRC-27: Regulatory Foundations for D2C

- WRC-23 recap: key agenda items and decisions impacting 5G NTN and Direct-to-Device (D2C).
- WRC-27 in China: main topics related to mobile–satellite convergence and NTN/D2C.
- How WRC-27 outcomes could unlock or limit large-scale D2C deployments.
- Regional dynamics (US, Europe, Asia, Africa) related to D2C.

Module 3: 5G NTN D2C constellations and Use Cases

- NTN and D2C use cases
- Satellite Network operators and constellations
- Starlink, Eutelsat OneWeb, Amazon LEO, and other major players.
- The LEO broadband Benchmark
- D2D Satellite benchmark
- LEO's impact on mobile backhauling.

Module 4: D2C & NTN Standardisation in 3GPP

- Roadmap for NTN D2D solutions and 3GPP standard
- Pros and Cons IMS Vs MSS
- MSS spectrum for AST and SpaceX
- 3GPP target bands for MSS bands
- D2D Spectrum timeline

Module 5: Direct-to-Cell Solutions & Architectures

- Direct-to-Device solutions: the evolution
- NR-NTN-enabled smartphones.
- IoT-NTN-enabled devices.
- Transparent and regenerative architectures.
- Starlink current and Target Architecture

Module 6: Starlink Direct-to-Cell Capacity Analysis

- Starlink's Device-to-Cell (D2C) solution description.
- Capacity analysis and performance assessments.
- Downlink and uplink throughput expectations.
- Limitations and strategic implications for MNOs.