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

Module 1 – 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 2 – 5G NTN & D2C Use Cases and Constellations

- Overview of satellite constellations relevant for NTN & D2C.
- Starlink, OneWeb, Kuiper, and other major players.
- NTN and D2C use cases in Mobile and Broadband.
- LEO's impact on mobile backhauling.

Module 3 – D2C & NTN Standardisation in 3GPP

- 3GPP NTN / D2C standardisation roadmap: from Rel-17 to Rel-19.
- NR-NTN and IoT-NTN evolution.
- Frequencies for D2C: MSS, FSS, and IMT spectrum.
- D2C in MSS vs IMT spectrum.
- Standardisation of D2C services.
- 3GPP target bands for MSS-based D2C.

Module 4 – Direct-to-Cell Solutions & Architectures

- Integrated smartphone with satellite capability.
- Unmodified smartphones for D2C.
- NR-NTN-enabled smartphones.
- IoT-NTN-enabled devices.
- Transparent and regenerative architectures.
- Introduction to semi-transparent / semi-regenerative architectures.

Module 5 – D2C Ecosystem & Starlink Direct-to-Cell Capacity Analysis

- Mapping the D2C ecosystem (operators, satellite players, chipset vendors, regulators).
- Starlink's Device-to-Cell (D2C) solution description.
- Capacity analysis and performance assessments.
- Downlink and uplink throughput expectations.
- Limitations and strategic implications for MNOs.