5G NR SA Signalling - 3 days

CONTENTS

This course constitutes a genuine training paradigm in the global telecommunication infrastructure for 5G Stand Alone (SA) signaling procedures. Audience will follow a full SA signaling analysis associated with log files extracts and examples in the overall RRC Idle, RRC connected mode, mobility and Accessibility analysis together with optimization procedures.

TARGET AUDIENCE

Technical professionals, RAN planning engineers, RAN optimization engineers, who need a better understanding in 5G NR SA optimization or troubleshooting procedures.

PREREQUISITES

A good understanding of 5G NR Physical Layer, with some technical competence on planning and optimization principles.

COURSE OUTCOMES

- Explain in full details the L3 (RRC) signalling and L2 (MAC) signalling
- Explore the 5G NR SA signalling flows
- Practical approach using SA log files with emphasis to radio parameters and optimization

COURSE OUTLINE

5G SA Primary Requirements

- 5G SA idle mode
  - 5G NR SA SSB contents and info
  - 5G NR SA SSB measurements
  - 5G NR SA CORESET0/SIB1 determination and content analysis
  - 5G NR SA initial cell selection/reselection
- 5G SA beam management
  - p1, p2, p3 procedures
  - Initial SSB beam sweeping and beam management parameters
  - Initial Accessibility analysis
  - Initial Beam Selection - Signalling analysis
  - TX Beam refinement - Signalling analysis
  - RX beam refinement - Signalling analysis

5G SA Connected Mode

- 5G Core related SA QoS
  - 5GC QoS overview
  - QoS IP flows vs. QoS Bearers
  - SDAP Protocol
  - 5GC authentication signalling flow establishment
  - 5G NR SA NAS/AS security
- 5G SA Registration
  - 5G NR SA NAS procedures
  - 5G NR SA RRC protocol messages
  - 5G NR SA RRC procedures
  - 5G NR SA Registration signalling flow
- 5G SA User Service analysis
  - 5G NR SA Initial Accessibility
  - 5G NR SA MO/MT signalling flow

5G SA Mobility

- SA mobility

    - 5G SA A1, A2, A3, A4, A5 events
    - 5G SA intra-frequency handover
    - 5G SA inter-frequency handover
    - 5G SA inter-technology RwR
    - 5G SA inter-technology handover
- 5G SA EPS Fallback
    - 5G SA EPS Fallback overview
    - 5G SA EPS Fallback signalling flow analysis

Trace log analysis with examples will support all sections.