GSM/EGPRS Parameter Optimisation & Troubleshooting on Um Interface

Course Number: GSM2500-01EN | Duration: 5 Days

Target Audience
- MS & GERAN Development Staff
- Network Planning/Performance Engineering Staff
- Optimisation Personnel & IOT/System Test Engineers

Prerequisites
- GSM/EGPRS Signaling & Protocols (GSM2300-01EN)

Learning Objectives
After completing this course, the students will be able to:
- Analyse reason for drops based on measurements from Um- and Abis-Interface.
- Understand the parameters controlling MS behavior in Packet Idle & Packet Transfer Mode.
- Conduct combined Abis- & A-interface traces as well Abis- & Gb-interface traces.
- Identify the call-trace & MS experiencing call setup problems or drops or HO failures.
- Perform parameter tunings and trials for improving radio network KPI’s.

Course Outline
1. Capacity Optimisation on Um
   1.1 Dynamic CCCH Parameter Tuning
   1.2 Dynamic SDCCH Parameter Tuning
   1.3 Dynamic Half-Rate
   1.4 VAMOS Configuration & Setup
2. Capacity Optimisation on A- & Gb-Interface
   2.1 AoIP Parameter Settings
   2.2 Transcoder Free Operation (TrFO)
   2.3 Gb over IP Parameter Settings
3. BSS Parameter Optimisation
   3.1 Cell Selection & Reselection
   3.2 Power Control
   3.3 Handover Control
   3.4 DTX Parameterisation
   3.5 AMR Codec Adaptation
4. Interference Analysis & Reduction
   4.1 C/I Scanner Measurements
   4.2 HO due to Interference
   4.3 Idle Channel Supervision
   4.4 Antenna Tuning
   4.5 Frequency Tuning
   4.6 Frequency Hopping Configurations
5. Drop Call Analysis & Parameter Optimisation
   5.1 RLF Warning Tuning
   5.2 RLT Value Tuning
   5.3 T200 & N200 Tuning
   5.4 Repeated SACCH & FACCH
   5.5 Resilience to Abis-Interruption
   5.6 Clear Request per Cause Distribution
6. CCCH Capacity Planning & Optimisation
   6.1 RACH Load Analysis
   6.2 Dynamic CCCH (PCH vs. AGCH)
   6.3 Paging Issues – Missed Calls
   6.4 Location Area Dimensioning
7. Call Setup Failure & Optimisation
   7.1 NAS Failure Reasons (DISC Causes)
   7.2 User & MS Failure (e.g. CM Service Reject)
   7.3 Radio Quality Issues (SDCCH & TCH)
   7.4 Congestion Problems
8. EGPRS TBF Tuning
   8.1 Capacity of a PDCH-Timeslot vs. C/I
   8.2 UL TBF Establishment Performance
   8.3 Delayed TBF Release Optimisation
   8.4 PDTCH Upgrade/Downgrade Strategy
9. EGPRS RLC/MAC Optimisation
   9.1 EPDAN & EPUAN Analysis
   9.2 Link Adaptation & MCS Selection
   9.3 RLC/MAC Timer & Counter Tuning
   9.4 NCO & Cell Change Procedure
   9.5 Uplink & Downlink Power Control
10. BSSGP Layer Optimisation
    10.1 MS Flow Control Parameterisation
    10.2 GPRS Suspend & Auto Resumption
    10.3 Analysis of Radio Status
    10.4 Analysis of Flush Logical Link
11. GMM, SM & Other Parameter Optimisation
    11.1 BSS Paging Co-ordination vs. NOM-1
    11.2 Ready Timer vs. Cell Update Load
    11.3 QoS & Packet Flow Context
    11.4 Problems with DTM & Advantages