

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