GSM In-Building Coverage Design and Optimisation Training Course

10 – 14 January 2027
Johannesburg

AGILE LEADERS
Training Center

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Ref: 1679_226286 **Date:** 10 – 14 January 2027 **Location:** Johannesburg **Fees:** 4500 Euro

Overview

GSM In-Building Coverage Design and Optimisation Training Course is a one-week professional course for indoor radio specialists, who leave with a GSM In-Building Coverage Design and Acceptance Pack. The course connects indoor RF propagation, coverage and capacity requirements, site survey evidence, link budget design, distributed antenna systems, repeaters, interference control, handover, commissioning and acceptance testing. Participants make design decisions traceable from requirements to measured performance. Agile Leaders Training Center develops practical GSM in-building coverage capability.

Who Should Attend

- Teams responsible for radio network planning and indoor coverage design
- Specialists responsible for RF optimization and interference diagnosis
- Engineers responsible for in-building solution implementation and commissioning
- Field teams responsible for surveys, walk tests and acceptance evidence
- Technical managers responsible for indoor mobile coverage decisions

The course assumes participants can interpret basic cellular measurements and site drawings at work, and leaves out general GSM fundamentals, macro-network planning, 5G-only systems and vendor product certification.

Departments and Industries

The course supports departments that design, install or assure indoor mobile coverage across occupied facilities.

- Mobile network radio planning and optimization
- Telecommunications engineering and managed services
- Building systems, facilities and property operations
- Transport hubs, healthcare facilities and industrial sites
- System integration, construction and technical consulting

Learning Objectives

By the end of this course, participants will be able to:

- Analyze indoor coverage, traffic and capacity requirements
- Apply survey methods and indoor propagation assumptions
- Build GSM link budgets with distribution losses
- Compare passive DAS, active DAS and repeater options
- Diagnose interference, isolation and handover problems
- Evaluate commissioning results against acceptance criteria

Course Agenda

Day 1: Requirements and Site Survey

- Indoor Coverage and Capacity Requirements Matrix
- Building Drawing and RF Zone Review Method
- Site Survey Route and Measurement Point Plan
- Baseline Received-Level and Quality Measurement Log
- Penetration, Floor and Wall Attenuation Register

Day 2: Propagation and Link Budget Design

- Indoor RF Propagation Assumption Sheet
- GSM Downlink and Uplink Link Budget Model
- Feeder, Connector and Splitter Loss Calculation
- Antenna Type, Placement and Coverage Cell Map
- Coverage Margin and Capacity Constraint Review

Day 3: Distribution Architectures and Repeaters

- Passive Distributed Antenna System Topology
- Active Distributed Antenna System Architecture Map
- Donor Antenna Selection and Orientation Method
- Repeater Gain, Isolation and Noise Assessment
- Architecture Option Evaluation and Design Decision Record

Day 4: Interference, Mobility and Implementation Control

- Co-Channel and Adjacent-Channel Interference Diagnostic Tree
- Indoor-to-Outdoor Leakage Assessment Method
- Cell Selection and Handover Parameter Review
- Installation Inspection and Feeder Labeling Checklist
- Commissioning Sequence and Fault Escalation Plan

Day 5: Verification and Acceptance Practice

- Exercise: Reconcile Survey Evidence with the RF Zone Map
- Exercise: Validate the Link Budget and Distribution Losses
- Exercise: Diagnose Repeater Isolation and Interference Symptoms
- Exercise: Evaluate Walk-Test Coverage and Handover Evidence
- Capstone: GSM In-Building Coverage Design and Acceptance Pack

Practical Exercises

Suggested activities use office, transport facility and industrial-building coverage scenarios.

- Suggested activity: translate floor plans and service requirements into an RF survey plan
- Suggested activity: calculate a link budget through antennas, feeders, splitters and building losses
- Suggested activity: compare passive DAS, active DAS and repeater options against constraints
- Suggested activity: assess walk-test evidence and document acceptance exceptions

FAQs

Who suits GSM in-building coverage design training and what does it assume?

GSM in-building coverage design training suits RF planning, optimization, implementation and assurance teams. It assumes basic familiarity with cellular radio measurements and site drawings, while excluding introductory GSM theory and vendor-specific configuration.

How does GSM indoor RF planning differ from macro-network planning?

GSM indoor RF planning accounts for building penetration, floors, walls, distribution losses, antenna placement and indoor mobility. Macro-network planning emphasizes outdoor cells, terrain, broad-area traffic and public-network coverage.

When should a GSM repeater be used for in-building coverage?

A GSM repeater should be considered only after donor signal quality, antenna isolation, gain, noise, interference and coverage objectives are evaluated. It is an engineered option, not an automatic remedy for every weak-signal area.

What evidence supports GSM in-building coverage acceptance?

GSM in-building coverage acceptance uses traceable requirements, installation records, calibrated measurement routes, received-level and quality results, interference observations, handover checks, exceptions and corrective-action evidence.

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Conclusion

Participants take back a GSM In-Building Coverage Design and Acceptance Pack containing requirements, survey records, propagation assumptions, link budgets, architecture decisions, commissioning checks and acceptance evidence. The pack makes indoor RF choices traceable across planning, installation and verification. It also gives teams a shared basis for diagnosing performance gaps and documenting corrective action.