WCDMA RAN W18

Training Programs

Catalog of Course Descriptions

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Introduction

Ericsson has developed a comprehensive Training Programs service to satisfy the competence needs of our customers, from exploring new business opportunities to expertise required for operating a network. The Training Programs service is delineated into packages that have been developed to offer clearly defined, yet flexible training to target system and technology areas. Each package is divided into flows, to target specific functional areas within your organization for optimal benefits.

Service delivery is supported using various delivery methods including:

Delivery Method
Instructor Led Training (ILT)
Web-based Learning (WBL)
Blended Learning/Training (BLD)

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AMOS/EMCLI in Radio Access Network

LZU1082401 R1A

Description:

The objective of this course is to present how to use Advanced Managed Object Scripting (AMOS) and Ericsson Management Command Line Interface (EMCLI) in Radio Access Network (RAN) elements. All participants will learn the procedures to access network elements and execute generic commands, fault management commands, log commands, hardware and software commands, configuration management commands, performance commands, RNC-specific commands and RBS (Digital Unit and Baseband -based) commands.

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical and practical instructor-led lessons given in a technical environment using equipment and tools.

Learning objectives:

On completion of this course the participants will be able to:

1 AMOS/EMCLI Introduction
1.1 Describe AMOS/EMCLI concepts and basic functions
1.2 List all nodes able to use AMOS/EMCLI
1.3 Detail how to access each node using AMOS/EMCLI

2 AMOS/EMCLI Generic commands
2.1 List all main generic commands in AMOS/EMCLI
2.2 Run AMOS/EMCLI in Offline Mode

3 AMOS/EMCLI Fault Management and Log commands
3.1 Explain how AMOS/EMCLI handle Fault Management and Log files
3.2 List main commands for Fault Management and Log files

4 AMOS/EMCLI Hardware / Software commands
4.1 Explain how AMOS/EMCLI handle Hardware / Software Management
4.2 List main commands for Hardware / Software Management

5 AMOS/EMCLI Performance Commands
5.1 Explain how AMOS/EMCLI handle Performance Management
5.2 List main commands for Performance Management

6 AMOS/EMCLI Configuration Commands
6.1 Explain how AMOS/EMCLI handle Configuration Management

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6.2 List main commands for Configuration Management

7 AMOS/EMCLI RNC / RBS (Digital Unit
7.1 List the main specific commands for RNC / RBS (Digital Unit) / Baseband

Target audience:

This course is suitable for anyone who is required to use AMOS and EMCLI in Ericsson's radio access network.

Prerequisites:

Successful completion of the following courses:

GSM System Survey, LZU108852
Ericsson WCDMA System Overview, LZU1085418
LTE/SAE System Overview, LZU1087020
Ericsson Radio System Overview, LZU1089991

Duration and class size:

The length of the course is 3 days and the maximum number of participants per session is 8.

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Baseband Radio Node - Field Operation

LZU1082768 R1A

Description:

The "Baseband Radio Node - Field Operation" course introduces the Field Maintenance/Field Technician personnel to the Baseband based radio node and the regular operation and maintenance tasks performed at the site. The course also describes node integration and commissioning at the radio site. Which O&M tools are used during integration? Will there be different tools for GSM, WCDMA or LTE radio nodes? What are the differences and implications of various integration methods 'LMT Integration', 'LMT Integration on-site configuration', 'Zero Touch integration' and 'Zero Touch integration off-site pre-configuration'?

The course uses the Element Management Command Line Interface (EMCLI) which is the main tool for local access for the Baseband node. Participants will learn the procedures to access network elements and execute commands for generic operations, fault management, log handling, hardware and software management, configuration management and performance management.

Learning situation:

This is a Blended Learning.

The WBL component(s) is self-paced interactive learning with multimedia content, delivered online and the ILT component is based on theoretical and practical instructor-led lessons given in a technical environment using equipment and tools.

Learning objectives:

On completion of this course the participants will be able to:

1 Explain briefly the Ericsson Radio System concept
1.1 Outline the different radio site components, including the Baseband products, the new radio products and enclosures

2 Describe the management tools used for Baseband
2.1 Know on an overview level EMGUI, EMCLI, Ericsson CLI, Integration tool and Emergency access web interface
2.2 How to install ECLI tool on the client PC
2.3 How to configure a client to connect to the Baseband

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3 Understand the commissioning and integration process of a Baseband radio node.
3.1 Start the Integration GUI and initiate the integration
3.2 Integrate and monitor the process
3.3 Check for any alarms
3.4 Complete and store integration report

4 Perform Field Operation tasks using EMCLI tool
4.1 List the main generic commands in EMCLI
4.2 Explain how EMCLI handle Fault Management and Log files
4.3 Explain how EMCLI handle Hardware / Software Management
4.4 Explain the backup procedure with EMCLI
4.5 Perform lock/unlock and restart procedures with EMCLI
4.6 List main EMCLI commands for Performance Management
4.7 List main EMCLI commands for Configuration Management
4.8 List the specific commands for the Baseband

Target audience:

This course is suitable for anyone who is required to operate the Baseband Radio Node site in the field for routine tasks.

Prerequisites:

Successful completion of the following courses:

Ericsson Radio System Overview, LZU1089991

Duration and class size:

The length of the course is 2 days (ILT) and 1 hour (WBL) and the maximum number of participants is 8.

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Baseband Radio Node - Operation and Configuration

LZU1082512 R2A

Description:

Are you ready to introduce the most powerful baseband into your Radio Access Network? What are the features and functionalities of the new Baseband Radio Node? How will the configuration of transport and radio network managed objects look under the Ericsson Common Information Model? Which are the tools (user interfaces) that could be used to configure a Baseband? How would one handle the Configuration, Performance, Security and Fault management operations in a Baseband Radio Node?
"Baseband Radio Node Operation and Configuration" provides the answers to all the questions above. The course includes theoretical sessions where what need to be configured are described and investigated, followed by practical exercises in which the configurations are made.
The course introduces the Baseband unit [also known as (or associated with) “Baseband Radio Node” / MSRBS-V2 / COM / RCS / ECIM / G2 / DUS_gen2], and its features and characteristics. After the course, participants will be familiar with integration procedure, the managed objects that need to be configured according to the Ericsson Common Information Model. The Mul-, S1-, X2, Iub- and Abis-interfaces (with and without IpSec) including basic radio network configuration for LTE/WCDMA/GSM are defined during the training. The students also get hands-on experience (in the areas of Fault/ Software/ Configuration/ Performance/Security Managements) on a Baseband Radio Node unit deployed in an LTE /eNodeB, WCDMA/NodeB and GSM/BTS (18 software) environment.

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical and practical instructor-led lessons given in a technical environment using equipment and tools.

Learning objectives:

On completion of this course the participants will be able to:

1 Explain RAN Architecture, Ericsson Radio System building blocks and Baseband modules.

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1.1 Describe the interfaces in Radio Access Network Architecture.
1.2 List the Building blocks in Ericsson Radio system
1.3 Describe the capabilities of Baseband 5216/5212, Baseband R503 and the new versions 6620/6630/ 6303/6502/6318 and P614.
1.4 Explain the hardware and software architecture of Baseband.
1.5 Compare the Hardware differences between Baseband, DUS 41 and DUL 20.
1.6 Explain the different possible options of O&M with the Baseband.

2 Describe the Transport Network functionalities and introduce ECIM MOM
2.1 Describe the Mu, S1, X2, Iub and Abis protocol and recognize the Managed objects related to Transport network.
2.2 List the transmission capabilities for Baseband Radio Node and Baseband Transport Node.
2.3 Relate the IP and Ethernet functionalities of Baseband to the RAN Transport Network
2.4 Introduce and Explain in the brief the Ericsson Common Information Model (ECIM)
2.5 Compare the Managed objects related to transport network in baseband with CPP nodes.
2.6 List out the different synchronization options that are supported by the Baseband.
2.7 Explain what IP Security (IPsec) is and how it is supported in RAN
2.8 Recognize Managed Objects related to IPsec implementation and some key attributes that define the working of IPsec

3 Explain the Radio Network in Baseband Radio Node
3.1 Explain the concept of cell and its relation to sector and antenna system in RBS.
3.2 Introduce the new radio products in Ericsson radio system
3.3 Recognize the Managed Objects related to radio network configuration
3.4 Relate the Managed Objects and figure out the changes according to Ericsson Common Information Model (ECIM)
3.5 Edit and implement the files for on-site usage that would create the Radio network (Cells, Cell relations) as applicable in an eNodeB, NodeB or BTS.

4 Describe the Integration, Operation and Management aspects of Baseband and implement them using the O&M tools.
4.1 Explain the possible External Management interfaces and login option to the Baseband
4.2 Describe in brief the Integration process for Baseband eNodeB and NodeB or BTS.

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4.3 Explain the configuration files that are used in the integration of a Baseband Radio Node
4.4 Compare the different Configuration Options available for Baseband
4.5 Demonstrate with exercises the Configuration Management, Performance Management and Fault Management in the Baseband
4.6 Explain the Security Management process in the Baseband
4.7 Describe the process to collect the ESI/DCG logs and perform basic troubleshooting

Target audience:

This course is suitable for anyone who is required to configure/operate/maintain Baseband Radio Node.

Prerequisites:

Successful completion of the following courses:

LTE/SAE System Overview, LZU1087020
LTE L16 Configuration, LZU1082168-Optional
or
WCDMA System Overview, LZU1085418
WCDMA EVO-C 8200 Configuration, LZU1088931-Optional
or
GSM System Survey, LZU108852
Ericsson Radio System Overview, LZU1089991 – Recommended

Duration and class size:

The length of the course is 3 days and the maximum number of participants per session is 8.

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Baseband Radio Node - Troubleshooting

LZU1082767 R1A

Description:

With the introduction of the new Ericsson Radio System, what are the main challenges while operating and handling Baseband Radio Node unit? What are the common faults, how are they detected and solved? How does Ericsson local/field support enable and collects logs from a Baseband unit?

The objective of this course is to describe the main troubleshooting processes for Baseband Radio Node unit.

During the course, the participants will be able to detect faults, analyze and collect different types of logs, perform alarm handling procedures, describe and use troubleshooting tools, initiate performance recordings, verify transport network connectivity, and execute emergency recovery procedure.

This training also offers hands-on experience in an LTE, WCDMA and GSM RAN environment.

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical and practical instructor-led lessons given in a technical environment using equipment and tools.

Learning objectives:

On completion of this course the participants will be able to:

1 Describe and use Baseband troubleshooting tools
1.1 List the areas in the Baseband unit that require troubleshooting knowledge
1.2 Review the Ericsson Common Information Model (ECIM) Managed Object Model (MOM)
1.3 Explain the main tools used to support the Baseband unit such as EMCLI, ECLI
1.4 Describe when to use the RBS related tools in troubleshooting the Baseband unit
1.5 Explain when to use the ENM related tools in troubleshooting the Baseband unit

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2 Detail emergency recovery procedure and collect data
2.1 List how to collect detailed node data for customer service requests
2.2 Apply the Data Collection Guide for the Baseband unit using EMCLI, ECLI, EA tools.
2.3 Know the principles of node field recovery
2.4 Be able to perform node recovery actions
2.5 List and explain the functions of the various files that make up a Backup

3 Describe the steps involved in transport and radio network troubleshooting
3.1 Check O&M connectivity on the Mul interface
3.2 Discuss issues related to transport network configuration and actions required
3.3 Verify the Network Synchronization status
3.4 Discuss issues related to radio network configurations and actions required
3.5 Identify the Managed Objects that hold parameters related to mobility

4 Discuss and perform system Management level troubleshooting concepts
4.1 Explain troubleshooting CM, SM, PM, FM issues with EMCLI, ECLI, EA tools
4.2 List the related Managed objects for troubleshooting security Management issue
4.3 Expand and act on Alarms
4.4 Relate counter values to RBS’s performance

Target audience:

This course is suitable for anyone who is required to have detailed knowledge of Baseband Radio Node troubleshooting procedures.

Prerequisites:

Successful completion of the following courses:

Ericsson Radio System Overview, LZU1089991
Baseband Radio Node - Operation and Configuration - LZU1082512

Duration and class size:

The length of the course is 2 days and the maximum number of participants per session is 8.

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Ericsson Radio System Overview

LZU1089991 R5A

Description:

Do you need to understand how Ericsson Radio System is a solution to the changing radio access needs towards the 5G? What are new products that have been introduced in Ericsson Radio System which will coexist with the existing products in Ericsson's radio access networks?
The "Ericsson Radio System Overview" course provides the participants with a comprehensive overview of Ericsson's new packaging of the radio access network products in Ericsson Radio System.

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical instructor-led lessons.

Learning objectives:

On completion of this course the participants will be able to:

1 Discuss the evolution of the radio access network
1.1 Identify a typical existing site and its challenges to meet the future demands
1.2 List the requirements for the future networks with roadmap
1.3 Explain the multi-standard, multi-band and multi-layer solutions with Ericsson Radio System
1.4 Discuss how a typical Ericsson Radio System based site could look like

2 List the features of the baseband products
2.1 Identify and list the primary features of new Basebands
2.2 List the existing Digital Units and explain their primary features
2.3 Explain with use cases different baseband deployment configurations

3 Describe the different Fronthaul products suited for macro and small cell deployments
3.1 Describe what Fronthaul is
3.2 Explain the characteristics and products under DWDM and CWDM
3.3 List and understand the specifications of Fronthaul 6392

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4 Identify different Radio Products and their primary features
4.1 List the characteristics of the latest radio units including the 5G/NR radios that are available in Ericsson Radio System
4.2 Describe the characteristics and the usage of the new Remote Radio Units (RRUs)
4.3 Explain the characteristics and advantages of the Antenna Integrated Radio (AIR) products
4.4 List the benefits of the new installation options and features Introduced

5 Describe the wide range of Backhaul products for Outdoor and Indoor Scenarios
5.1 List the various Aggregation Units offered in Ericsson Radio System, and explain their usage
5.2 List the characteristics of the new products in Router 6000 Series
5.3 Match the new products in the Mini Link Portfolio to the Indoor and Outdoor usage

6 List the new enclosure and power options available under Ericsson Radio System Hardware
6.1 Describe the different Enclosure options and its Outdoor/indoor functionality
6.2 Identify Power System Solutions for Macro, Main remote and Hybrid configurations
6.3 Explain small cell implementation with the various Indoor Power Products
6.4 Discuss the Installation options and Configuration for the Power Products

7 Expand the products under Small cell portfolio and describe their features and benefits
7.1 List the characteristics of New Micro RBS, Pico RBS, Radio Dot System (RDS) and their configuration options
7.2 List the characteristics and usage of the various Wi-Fi Access Points (AP) products

8 List and discuss the available Energy solution options under the Ericsson Radio System portfolio
8.1 Describe the various energy saving solutions implemented for a site deployment
8.2 Explain how Ericsson radio system products helps in reducing Total Cost of Ownership (TCO) and power consumption for the operator
8.3 Explain, with examples, how one can build energy-optimized networks

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Target audience:

This course is suitable for anyone who is required to be familiar with Ericsson Radio System.

Prerequisites:

Successful completion of the following courses:

Successful completion of the following courses:
LTE/SAE System Overview, LZU1087020 (ILT)
or
LTE/SAE Overview, LZU1087318 (WBL)

Duration and class size:

The length of the course is 2 days and the maximum number of participants per session is 16.

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Ericsson WCDMA System Overview

LZU1085418 R21A

Description:

Do you need to understand what 3rd generation systems are all about? Do you get lost when people talk about Wideband Code Division Multiple Access (WCDMA) system? This course explains the purpose of the WCDMA Core, Radio, and Service Network Elements together with the standardization of the WCDMA access network. In addition, the participants will learn how Ericsson's mobile core network solution connects to external networks such as WCDMA Radio Access Networks, PSTN Networks, PABXs, IMS/VoIP networks or other Mobile Networks. The focus is on general principles rather than specific technical details

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical instructor-led lessons.

Learning objectives:

On completion of this course the participants will be able to:

1 Detail the nodes and interface in WCDMA Network
1.1 Explain the idea of the converged industries and the layered core network
1.2 Present the 3GPP network model, and Ericsson network
1.3 Explain on overview level the functionality of each node and its architecture
1.4 Show some statistics about WCDMA today and the market trend related to technology

2 Understand the standardization bodies involved in 3rd generation
2.1 Distinguish the Standardization bodies involved in the WCDMA Systems
2.2 Give in own words why standards are important in Telecommunications
2.3 Acknowledge what standardization bodies are, and what are their functions
2.4 Express the concept of full duplex communication and FDD.
2.5 State the frequency bands and systems chosen for the different areas

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3 Explain on an overview level the Ericsson Mobile Core Network Solution
3.1 Explain on an overview level the architecture of the mobile core network
3.2 Describe the Mobile Softswitch Solution
3.3 Detail the architecture and functions of the MSC-Server and M-MGW
3.4 Describe the two nodes involved in the P.S, domain of the core network
3.5 Recall the transport domain, and the various transport technologies used
3.6 Describe interconnections and protocols in the C.S. and P.S. Domains
3.7 Identify the function of the main database nodes
3.8 Explain basic traffic cases in the Mobile Softswitch Solution

4 Explain the 3rd Generation Radio Access Network
4.1 Explain various access techniques
4.2 State the coding types used in WCDMA, and how they prevent interference in the uplink and downlink
4.3 Recognize the Importance of power control
4.4 List the different handover scenarios in terms of soft, softer and hard handover
4.5 Acknowledge the architecture of the Ericsson RAN Nodes RNC and RBS
4.6 Identify the basic principles of HSDPA and EUL

5 Detail the Network Services involved in WCDMA
5.1 Acknowledge the functions of the service layer
5.2 Detail various terminal technologies and platforms used
5.3 Identify the difference between Applications and enablers, and detail some of the more common enablers
5.4 Acknowledge the architecture and operation of the IP Multimedia Subsystem (IMS)

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Target audience:

This course is suitable for anyone who is required to be familiar with Ericsson's WCDMA System.

Prerequisites:

Successful completion of the following courses:

The participants should be familiar with general telecom technologies.

Duration and class size:

The length of the course is 2 days and the maximum number of participants per session is 16.

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GSM/WCDMA/LTE RBS 6xxx Field Maintenance

LZU108xxxx RxA

Description:

There are many RBS 6000 field maintenance courses that are collectively described here. All these courses (except the RBS 6401 and RBS 6402) are Digital Unit (DU)-based. They are all 1-day in duration. Please consult Ericsson Learning Services for ordering the course description or the course occasion. The full list of courses is at the end of this description.

The following is the course description for the course "WCDMA RBS 6601 Field Maintenance" (LZU1087675 R5A):

This course is a task-based course covering hardware replacement and maintenance of the RBS 6601 standard node with RRUS 01 type (optional radio units for hybrid configuration such as RRUW, RRUS 02, RRUS 11, RRUS 12, mRRUS 12 and AIR 11/21 are available in the Appendix). The participants will perform hardware fault localization, hardware replacement and configuration tasks on RBS 6601 type. On completion of this course the participants will also be familiar with the features of the operation and maintenance tools such as Element Manager (EM), COmmand Line Interface (COLI) and Node Command line Interface (NCLI).

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical and practical instructor-led lessons given in a technical environment using equipment and tools.

Learning objectives:

On completion of this course the participants will be able to:

1 Explain on overview level the WCDMA RAN Site Concept for RBS
1.1 Explain the basic WCDMA Radio Access Network
1.2 Outline the RBS 6000 portfolio and Support System
1.3 Understand RBS 6000 Building Block and Hybrid configuration
1.4 Identify the Distribution Frame (DF) and the Site Support Unit
1.5 Identify the Antenna System Controller, (ASC) and the Remote Electrical Tilt Unit,

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2	Perform maintenance and configuration tasks on the RBS 6601 nodes
2.1	Explain RBS 6601 Main features
2.2	Explain the RBS 6601 Hardware architecture
2.3	Identify the RBS 6601 Connection interfaces
2.4	Explain DUW Hardware architecture
2.5	Identify the MU connection Interfaces
2.6	Explain the Battery Backup System 6601
2.7	Understand the RBS 6601 Maintenance procedures
2.8	Explain RBS 6601 Handling faulty equipment
3	Use the Customer Product Information (CPI) and Tool Kits
3.1	Explain the CPI Library structure of the node
3.2	Find information in the CPI Library with use of regular expression
3.3	Find operational instructions (OPI) and maintain the node according to the OPI
3.4	Find additional information on an alarm and solve the problem with the help of the
3.5	Know the different tool kits exist and how to order the Tool Kits
4	Connect to a node using COLI and also using NCLI
4.1	Understand basic commands using COLI and using NCLI
4.2	Have a basic understanding of the functionality and technology used in COLI and
4.3	Understand the basic principles behind the Managed Object Model (MOM)
4.4	Understand the file system in a CPP based node
4.5	Investigate the purpose and location of various types of logs
5	Use the Element manager (EM)
5.1	Download and start the Element Manager
5.2	Access and use the different “Views”; Containment, ATM, Equipment, IP, Licensing,
5.3	Find the alarm list and comment on the Alarms and Events on the Alarm and Event
5.4	Access the property help feature from each window
5.5	Create a Customized View (User Defined) in Element Manager
5.6	Handling License Key Files, LKF
5.7	Explain how to format the node
5.8	Explain how to load the basic package software

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Target audience:

This course is suitable for anyone who is required to perform hardware replacement at the WCDMA site with RBS 6601 enclosure.

Prerequisites:

Successful completion of the following courses:

Ericsson WCDMA System Overview, LZU1085418
RBS 6000 Overview, LZU1087503
CPP Node Features and Functions, LZU1086116

Duration and class size:

The length of the course is 1 day and the maximum number of participants per session is 8.

List of courses under this example description

GSM RBS 6101 Field Maintenance (LZU1087894)
GSM RBS 6102 Field Maintenance (LZU1087643)
GSM RBS 6201 Field Maintenance (LZU1087646)
GSM RBS 6202 Field Maintenance (LZU1088284)
GSM RBS 6301 Field Maintenance (LZU1087891)
GSM RBS 6601 Field Maintenance (LZU1087674)
WCDMA RBS 6101 Field Maintenance (LZU1087895)
WCDMA RBS 6102 Field Maintenance (LZU1087644)
WCDMA RBS 6201 Field Maintenance (LZU1087647)
WCDMA RBS 6202 Field Maintenance (LZU1088278)
WCDMA RBS 6301 Field Maintenance (LZU1087892)
WCDMA RBS 6302 Field Maintenance (LZU1088932)
WCDMA RBS 6401 Field Maintenance (LZU1089576)
WCDMA RBS 6501 Field Maintenance (LZU1089732)
LTE RBS 6101 Field Maintenance (LZU1087896)
LTE RBS 6102 Field Maintenance (LZU1087645)
LTE RBS 6201 Field Maintenance (LZU1087648)
LTE RBS 6202 Field Maintenance (LZU1088285)
LTE RBS 6301 Field Maintenance (LZU1087893)
LTE RBS 6401 Field Maintenance (LZU1089575)
LTE RBS 6402 Field Maintenance (LZU1089944)

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LTE RBS 6501 Field Maintenance (LZU1089729)
LTE RBS 6601 Field Maintenance (LZU1087890)

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Mixed Mode Configuration in RBS

LZU1082324 R1A

Description:

How is mixed mode configured in the baseband and digital units? What conditions should be met for LTE-WCDMA, LTE-GSM and GSM-WCMDA mixed mode implementation? What are the possible hardware, software and synchronization methods that would support the mixed mode implementation?

Mixed Mode Configuration in RBS course will be able to help to determine the solution for the questions mentioned above. This course is a combined theory and practical instructor led course, discussing and applying mixed mode concept, mixed mode possible scenarios, hardware and software configurations and synchronization options on baseband and digital units.

The course focuses on LTE, WCDMA and GSM mixed mode implementation (DU and Baseband). In addition, it also includes management tools, O&M view and Node Group Synchronization configurations. The students would be able to get a hands-on experience to perform mixed mode configuration.

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical instructor-led lessons.

Learning objectives:

On completion of this course the participants will be able to:

1 Explain the RAN System Architecture, Mixed Mode Concept in DU and Baseband modules
1.1 Explain the basic GSM, WCDMA and LTE Radio Access Network
1.2 Describe the features and capabilities of the baseband unit and digital units
1.3 Explain the benefits of the mixed mode feature Implementation
1.4 Determine the different RAT mixed mode scenarios
1.5 Detail the hardware requirements and cabling connections for mixed mode implementation

2 Know the synchronization methods supported for baseband and digital Units

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2.1 Introduce Node Group Synchronization-Mixed Mode CPRI
2.2 List the Synchronization options supported for Digital Units
2.3 Know the configuration needed in Basebands for the mentioned synchronization options

3 List the configuration steps in Multi-Standard Mixed Mode Baseband and Radio Configurations
3.1 Explain the interworking of mixed mode using baseband and digital units
3.2 Explain the configuration for LTE-WCDMA Mixed Mode implementation on a baseband unit
3.3 Explain the configuration for LTE-GSM Mixed Mode implementation on a baseband unit
3.4 Explain the configuration for GSM-WCDMA Mixed Mode implementation on a baseband unit
3.5 Compare the O&M similarities for the above Mixed mode scenarios

Target audience:

This course is suitable for anyone who is required be able to understand and/or implement mixed mode in a RBS site.

Prerequisites:

Successful completion of the following courses:

Successful completion of the following courses:
Ericsson Radio System Overview
Baseband Radio Node – Operation and Configuration OR
LTE (DU-based) Configuration

Duration and class size:

The length of the course is 2 days and the maximum number of participants per session is 16.

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Security in Ericsson RAN Overview

LZU1082396 R1A

Description:

How secure is your Radio Access Network ? Why do we focus most on security in Ericsson ? What are the different security features in transport network ? How can we implement IPSEC in a current RAN network ? How would one handle user management and certificate enrollment in the RAN products? What security measures are being implemented over the air interface in GSM,WCDMA and LTE?

"Security in Ericsson RAN Overview" provides the answers to all the questions above. The course includes theoretical sessions where what need to be configured are described and investigated, followed by exercises in which the configurations are shown.

The course introduces the Security Concepts deployed in RAN products. After the course the participants will be familiar with the managed objects that need to be configured for IPSEC in Baseband/DUS and describe the requirements and scenarios for OAM security. The concepts of centralized user management and certificate management are also covered .The students also learn about the security handling procedures in the radio domain of the GSM, WCDMA and LTE networks.

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical instructor-led lessons.

Learning objectives:

On completion of this course the participants will be able to:

1 Describe the importance of security in Radio Access Networks.
1.1 List the Recent frauds reported in the area of telecom.
1.2 Discuss the security measures that need to be taken in current networks.
1.3 Know the role and responsibility of PSIRT in Ericsson.
1.4 Differentiate the level of security in RAN products.
1.5 Underline the security needs for a RAN network operator.

2 Explain and brief the Security features in transport network.

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2.1 Explain what IP Security (IPsec) is and how it is supported in RAN.
2.2 List the different network scenarios and requirements for IPSEC deployment.
2.3 Recognize Managed Objects related to IPsec implementation and some key attributes that define the working of IPsec.
2.4 Compare the Managed Objects related to IPSEC in baseband and CPP based Nodes.
2.5 Describe the importance for OAM security and role of TLS.

3 Describe in detail about centralized user management and Certificate enrollment.
3.1 Explain the basic function of Centralized user management.
3.2 List the centralized user management flow followed in NE Integration.
3.3 Categorize the Access control methods used in LDAP configuration(TBAC/RBAC).
3.4 Describe the steps in creating Proxy accounts and handling COM users.
3.5 Brief in detail the Certificate enrollment process involved in the nodes.
3.6 Know the overview of PKI certificates.

4 Explain the security detail needed for GSM, WCDMA, LTE and 5G.
4.1 Name ciphering and integrity algorithms supported in Ericsson LTE RAN for radio interface.
4.2 Describe the security handling procedure in LTE Radio Access Network.
4.3 Name ciphering and integrity algorithms supported in Ericsson WCDMA RAN for radio interface.
4.4 List the security measures needed for 5G Network.

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Target audience:

This course is suitable for anyone who is required to have detailed knowledge of security solution in the transport network.

Prerequisites:

Successful completion of the following courses:

LTE/SAE System Overview
Baseband Radio Node - Operation and Configuration (recommended)

Duration and class size:

The length of the course is 1 day and the maximum number of participants per session is 16.

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WCDMA RAN 2018 Delta

LZU1082793 R1A

Description:

How has the Ericsson WCDMA RAN been improved with the W18.Q1, Q2, Q3, and Q4 releases? What new features have been introduced and what are the enhancements to the existing features?
What new parameters and counters have been introduced to support these new features and how have the existing parameters and counters been modified? What new hardware is available in the W18 RAN?
The WCDMA RAN 2018 Delta course explains the new/changed features, parameters, counters and hardware relevant to W18 WCDMA RAN.

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical instructor-led lessons.

Learning objectives:

On completion of this course the participants will be able to:

1 Give an overview of the W18 RAN software releases and Base Package W18 Enhancements
1.1 Describe the highlights of the W18 Software Release
1.2 Explain the WCDMA RAN Base and Value Packages
1.3 Explain the WCDMA RAN Base Packages that have been enhanced in W18.Q1, Q2, Q3 and Q4

2 Explain the WCDMA RAN Value Package Enhancements in 2018
2.1 Describe the WCDMA RAN Value Packages that have been enhanced in W18.Q1, Q2, Q3 and Q4

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Target audience:

This course is suitable for anyone who is required to have detailed knowledge of the changes brought on by the software W18 software.

Prerequisites:

Successful completion of the following courses:

The participants should be familiar with the operation of both Ericsson WCDMA Radio and
Transport Networks. Ideally they should have attended the following courses (or their earlier release versions):
WCDMA W18 Radio Network Functionality, LZU1082400.

Duration and class size:

The length of the course is 1 day and the maximum number of participants per session is 16.

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WCDMA RAN Air Interface

LZU1082691 R1A

Description:

The WCDMA RAN Air Interface course will bring the Wideband Code Division Multiple Access (WCDMA) air interface down to earth. It compares WCDMA with GSM and CDMA technologies, and explains Power Control, RAKE receiver and handovers (including soft, softer, and inter-frequency handovers). In-depth descriptions and explanations of the logical, transport and physical channel models of WCDMA and synchronization and random access are provided.

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical instructor-led lessons.

Learning objectives:

On completion of this course the participants will be able to:

1 Describe the fundamental principles of cellular WCDMA technology
1.1 Describe and compare TDMA and WCDMA multiple access methods.
1.2 Explain on an overview level, the WCDMA transmitter architecture.
1.3 Describe the data protection coding methods: CRC Coding, FEC Coding, Viterbi decoding, block interleaving, turbo codes.
1.4 Explain the use of channelization and scrambling codes.
1.5 Describe the modulation and filtering in a WCDMA system.

2 Describe the WCDMA power control, RAKE receiver and handover
2.1 Recognize the concepts of multipath reflections, fading, and turn-the-corner effects.
2.2 Explain the function of the WCDMA RAKE receiver.
2.3 Explain the necessity for open loop, inner loop and outer loop power control.
2.4 Describe the different handover scenarios: Soft- and softer handover, Inter-frequency handover and Inter-Radio Access Technology handover.
2.5 Explain cell reuse and code planning.
2.6 Underline the issues concerning WCDMA cell planning.
2.7 Discuss WCDMA cell capacity considerations.

3 Explain in detail the WCDMA channel structure

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3.1 Detail the 3GPP Standardization Committee and specification structure.
3.2 Describe the concepts of logical, transport, and physical channels.
3.3 Explain details of the WCDMA physical layer.
3.4 List different aspects of the WCDMA downlink.
3.5 List the different aspects of the WCDMA uplink.
3.6 Explain the concept of MIMO.
3.7 Explain the concept of Multi Carrier.

4 Explain timing, synchronization and random access in WCDMA
4.1 Explain base station downlink timing.
4.2 Describe the synchronization procedure.
4.3 Explain the random access procedure.
4.4 Describe the establishment of dedicated channels.
4.5 Explain soft handover timing.

Target audience:

This course is suitable for anyone who is required to have detailed knowledge of WCDMA radio interface.

Prerequisites:

Successful completion of the following courses:

Ericsson WCDMA System Overview, LZU1085418

Duration and class size:

The length of the course is 3 days and the maximum number of participants per session is 16.

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WCDMA RAN EVO-C 8200 Configuration

LZU1088931 R9A

Description:

The WCDMA RNC EVO Controller is introduced to meet the future demand on RAN networks and some key characteristics will be capacity and flexibility demands. This configuration course introduces the participants to the hardware of EVO Controller 8200 as well as configuration procedures of WCDMA EVO Controller.
The course covers basic Ethernet and IP concepts along with the Managed Objects that are used for configuring the functionality in the RAN nodes. All the Interfaces for IP transport are covered along with SIGTRAN and Cell Network Configuration.

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical and practical instructor-led lessons given in a technical environment using equipment and tools.

Learning objectives:

On completion of this course the participants will be able to:

1 Explain the WCDMA RAN system
1.1 Describe the evolution of EVO Controller
1.2 Describe the WCDMA RAN System Architecture
1.3 Explain the role of the Iu, Iur and Iub interfaces
1.4 Describe the concepts of Load Based Handover
1.5 Describe the EVO Controller products
1.6 Explain the features of the Active Patch Panel (APP), CAX
1.7 Explain about EVO Controller hardware and software

2 Configure Iu interface
2.1 Describe the protocol stacks for Iu-CS, Iu-PS and Iur over IP/Ethernet
2.2 Explain how IP connectivity is implemented on the WCDMA RNC EVO Controller
2.3 Explain the function of protocols and concepts such as IPAccessHosts, SCTP and Multi-Homing and M3UA
2.4 Explain how to configure Iu-CS User Plane over IP/Ethernet
2.5 Explain how to configure Iu-PS User Plane over IP/Ethernet
2.6 Detail the configuration of Iur Control and User Plane over IP/Ethernet

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3 Configure Iub over IP
3.1 Explain the protocol stack for Iub transmission over IP/Ethernet
3.2 Describe the concepts such as Iub links, Radio Network and Transport Network
3.3 Configure the RBS for Iub over IP in the EVO Controller 8200.

4 Configure the Cell Network
4.1 Explain how WCDMA radio parameters are mapped onto the cell network
4.2 Configure Location, Routing and Service Areas, UTRAN Registration Areas, MBMS Service and Cell Broadcast Areas
4.3 Configure UTRAN Cells, Channels, UTRAN and eUTRAN Neighbor Relations

Target audience:

This course is suitable for anyone who is required configure RNC 8200 in a WCDMA RAN.

Prerequisites:

Successful completion of the following courses:

Ericsson WCDMA System Overview, LZU1085418
Ericsson Radio System Overview, LZU1081991
WCDMA RAN W16 Operation, LZU1082348

Duration and class size:

The length of the course is 3 days and the maximum number of participants per session is 8.

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WCDMA RAN EVO-C 8200 Troubleshooting

LZU1089165 R8A

Description:

Once the network is up and running, how are faults detected and handled in Ericsson's WCDMA RAN nodes? How does Ericsson local/field support enable and collect logs from the RNC and nodeB?

WCDMA RAN EVO-C 8200 Troubleshooting explains how, once a fault is detected, logs are collected to be included in Customer Service Requests (CSRs). It also gives an overview on how Ericsson enables traces and sets up the environment to collect logs, so that they can be appended to the CSRs.

This training is useful for operation and maintenance personnel to get an understanding of the different logs, how traces are enabled/collected and also to get an overall picture of the fault handling process in a WRAN network.

IP based transport networks are covered in the course. Telnet sessions (for COLI access) and the Advanced Managed Object Scripting (AMOS) tool from the ENM are used during the training.

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical and practical instructor-led lessons given in a technical environment using equipment and tools.

Learning objectives:

On completion of this course the participants will be able to:

1 Identify the system concepts, hardware, redundancy and configurations of EVO-C platform
1.1 Use COLI/AMOS commands to comprehend Fault Tolerant Core (FTC) concept and Reliable Program Unit concept
1.2 Describe how link redundancies work in IP based transport interfaces
1.3 Describe the concept of moveable Connection End Point (Mv CEP)
1.4 Explain the purposes, characteristics and configurations for the hardware available at a nodeB site
1.5 Explain Paging Priority for overload protection
1.6 Comprehend the file system in the EVO-C

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1.7 Be able to perform an emergency recovery of an RNC from a backup placed outside of the node
1.8 Describe the Subscriber Capacity of EVO Controller 8200 and RBSs
1.9 Be able to interpret Managed Object attributes to explain how interfaces are configured from RNC and nodeB using Element Manager and AMOS
1.10 Understand the RNC restart security protection
1.11 Explain Cross-Sector Antenna Sharing Redundancy (CSASR) Combined Cell
1.12 Identify supervision of 4 Way Receiver Diversity

2 Explain how to use different Applications in ENM
2.1 Start and explain when to use various applications in ENM
2.2 Lock and restart boards and nodes including the soft/hard lock concepts
2.3 Check the status of the Manage Objects to find out the health of the node
2.4 Acknowledge when COLI is used and when Element Manager/NCLI are used
2.5 Describe the load balance feature in EPB_Blade
2.6 Explain UE context Pooling
2.7 Perform Product Inventory and explain the output
2.8 Describe the information that comes with an alarm, and follow the alarm handling procedure

3 Investigate the purpose and the location of the various types of logs in RNC
3.1 Know the location and purpose and read Alarm and Event logs
3.2 Explain how Ericsson Local Support enables traces in the process of troubleshooting, and uses the target monitor application to capture the traces
3.3 Find out the location and purpose of Error Log, Post Mortem Dump(PMD) Log and Availability Log
3.4 Find out the purpose and location of the Security and Audit trail logs
3.5 Perform data collection to include in the Customer Service Request (CSR) when a problem is suspected in the WRAN network
3.6 Explain Trace improvement, UE-ID sent to RBS in all Radio Link Setup messages
3.7 Describe Trace Overload Protection
3.8 Explain UE Real Time Trace Phase 2

4 Be able to tie together the Performance Statistics and Performance Monitoring in the process of troubleshooting in WRAN Network
4.1 Be able to initiate statistics from the ENM

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4.2 Be able to initiate performance recording (e.g. UETR) from the ENM
4.3 Be able to read counter values and tie them to the situations in the network
4.4 Perform a Health Check on the node/network

Target audience:

This course is suitable for anyone who is required to operate/maintain/troubleshoot a RNC 8200 in a WCDMA RAN.

Prerequisites:

Successful completion of the following courses:

Ericsson WCDMA System Overview, LZU1085418
WCDMA RAN Operation with ENM, LZU1082687 **OR** WCDMA RAN W17 Operation, LZU1082523
WCDMA RAN EVO-C 8200 Configuration, LZU1088931

Duration and class size:

The length of the course is 3 days and the maximum number of participants per session is 8.

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WCDMA RAN EVO-C 8300 Configuration

LZU1082688 R1B

Description:

The WCDMA RNC EVO Controller 8300 is introduced to meet the future demands on RAN networks. Some key characteristics include capacity and flexibility demands. This configuration course introduces the participants to the hardware of EVO-C 8300 as well as configuration procedures of WCDMA EVO Controller.
The course covers basic Ethernet and IP concepts along with the Managed Objects that are used for configuring the functionality in the RAN nodes. All the Interfaces for IP transport are covered along with SIGTRAN and Cell Network Configuration.

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical and practical instructor-led lessons given in a technical environment using equipment and tools.

Learning objectives:

On completion of this course the participants will be able to:

1 Explain the WCDMA RAN system
1.1 Describe the evolution of EVO Controller
1.2 Describe the WCDMA RAN System Architecture
1.3 Explain the role of the Iu, Iur and Iub interfaces
1.4 Describe the concepts of Load Based Handover
1.5 Describe the EVO Controller products
1.6 Explain the features of the External Connection included in SMXB
1.7 Explain about EVO Controller hardware and software

2 Configure Iu interface
2.1 Describe the protocol stacks for Iu-CS, Iu-PS and Iur over IP/Ethernet
2.2 Explain how IP connectivity is implemented on the WCDMA RNC EVO Controller
2.3 Explain the function of protocols and concepts such as IPAccessHosts, SCTP and Multi-Homing and M3UA
2.4 Explain how to configure Iu-CS User Plane over IP/Ethernet
2.5 Explain how to configure Iu-PS User Plane over IP/Ethernet

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2.6 Detail the configuration of Iur Control and User Plane over IP/Ethernet
2.7 Detail the configuration of RNC in Pool

3 Configure Iub over IP
3.1 Explain the protocol stack for Iub transmission over IP/Ethernet
3.2 Describe the concepts such as Iub links, Radio Network and Transport Network
3.3 Configure the RBS for Iub over IP in the EVO Controller 8300.

4 Configure the Cell Network
4.1 Explain how WCDMA radio parameters are mapped onto the cell network
4.2 Configure Location, Routing and Service Areas, UTRAN Registration Areas, MBMS Service and Cell Broadcast Areas
4.3 Configure UTRAN Cells, Channels, UTRAN and eUTRAN Neighbor Relations

Target audience:

This course is suitable for anyone who is required be able to configure the RNC 8300 for WCDMA RAN.

Prerequisites:

Successful completion of the following courses:

Ericsson WCDMA System Overview, LZU1085418
WCDMA RAN W17 Operation, LZU1082523 OR
WCDMA RAN Operation with ENM, LZU1082687

Duration and class size:

The length of the course is 3 days and the maximum number of participants per session is 8.

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WCDMA RAN Initial Tuning

LZU1082345 R1A

Description:

How is the initial tuning of a WCDMA Radio Access Network performed? What tools and methods are used to perform the initial tuning process? This course will guide the students through the tools and processes used by Ericsson to perform Initial Tuning of the WCDMA RAN. After this course the participant will be able to collect and analyze data collected during the Initial Tuning process. They will also be able to use this data to perform initial tuning WCDMA RAN.

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical instructor-led lessons.

Learning objectives:

On completion of this course the participants will be able to:

1 Detail the general Radio Network Tuning process
1.1 Explain the service content of WCDMA RAN Tuning
1.2 Explain the service content of WCDMA RAN Optimization
1.3 Explain the difference between RAN Tuning and RAN Optimization

2 Perform preparations necessary to perform RAN Tuning
2.1 Define clusters and drive test routes
2.2 Perform a design and consistency check
2.3 Setup drive test tools

3 Implement and perform the process of pilot tuning
3.1 Explain what data to collect with TEMS Scanner
3.2 Collect and export TEMS Scanner data
3.3 Post process data using TEMS Data collection and MapInfo or Tatuk GIS
3.4 Analyze and interpret the collected data in order to improve coverage, interference and missing neighbor cases
3.5 Implement changes in order to improve the performance

4 Perform UE tuning for Circuit Switched data
4.1 Explain the process of UE tuning
4.2 Define and show different performance indicators using TEMS Investigation

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4.3 Post process data using TEMS Data collection and MapInfo or Tatuk GIS
4.4 Perform UE tuning for circuit switched data with focus on accessibility, retainability and integrity
4.5 Implement changes in order to improve the performance of the Network

5 Perform UE tuning for Packet Switched Data
5.1 Explain the measurements that are unique to Packet Switched data
5.2 Analyze PS Data TEMS Investigation logfiles
5.3 Implement changes in order to improve the performance of the Network
5.4 Real Case analysis to improve system capacity and throughput

6 Perform UE tuning for HSPA Data
6.1 Explain the measurements that are unique to HSPA
6.2 Describe the HSPA tuning process
6.3 Analyze HSPA TEMS Investigation logfiles
6.4 Implement changes in order to improve the performance of the Network
6.5 Explain UL interference impact to EUL throughput
6.6 Explain overall codes utilization and HSPA performance
6.7 Real Case analysis for HSPA capacity and throughput enhancement

Target audience:

This course is suitable for anyone who has a good WCDMA radio knowledge and need to perform initial tuning.

Prerequisites:

Successful completion of the following courses:

WCDMA RAN W17 Performance Management and Optimization, LZU1082399

Duration and class size:

The length of the course is 3 days and the maximum number of participants per session is 16.

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WCDMA RAN Node B (Digital Unit – Based) Commissioning

LZU1082346 R1A

Description:

This course provides the participants hands-on experience of the procedures that need to be performed for the commissioning and integration of the RBS 6000 series.

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical and practical instructor-led lessons given in a technical environment using equipment and tools.

Learning objectives:

On completion of this course the participants will be able to:

1 Detail the principle of Integration in WCDMA RAN Network
1.1 Identify WCDMA System Architecture
1.2 Summarize the steps involved in RAN Integration Nodes
1.3 Show the Integration Flow
1.4 Explain which management tools are needed for each step

2 Identify Pre-Configuration Activities before Commissioning
2.1 Recognize all Requirements for Commissioning
2.2 Explain the steps that need to be performed in the RAN
2.3 Explain the steps need to be performed in CN before RBS Integration

3 Perform the commissioning and integration of the RBS
3.1 Perform Initial Configuration of the RBS
3.2 Configure the Thin Client to connect to the RBS
3.3 Configure the Node IP address
3.4 Load Basic Packet SW
3.5 Perform basic hardware configuration using the Cabinet Equipment Wizard
3.6 Perform Site Basic Configuration of the RBS
3.7 Configure the O&M access for the RBS using the O&M access configuration wizard
3.8 Verify Synchronization status to ensure stability of the node
3.9 Perform Site External Configuration on the node

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3.10 Integrate the external hardware for site, sectors and cells using the Site External
3.11 List the steps needed and perform site-external configuration on the node
3.12 Explain briefly Site Specific configuration
3.13 Detail what is configured during Site Specific configuration
3.14 Load Site Specific Transport and Radio Network scripts
3.15 Perform Configuration Validation
3.16 Validate IP/ATM connectivity
3.17 Verify RBS Local Cell and verify LED status
3.18 Explain the Baseband Hardware and x3 R(RUS) Radio Unit

Target audience:

This course is suitable for anyone who is required to commission a DU-based nodeB (for WCDMA) at a RBS site.

Prerequisites:

Successful completion of the following courses:

CPP Node Features and Functions, LZU1086116
RBS 6000 Overview, LZU1087503
WCDMA RAN Field Maintenance, LZU1085510

Duration and class size:

The length of the course is 1 day and the maximum number of participants per session is 8.

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WCDMA RAN Operation with ENM

LZU1082687 R1A

Description:

The "WCDMA RAN Operation with ENM" course covers common operational tasks in the WCDMA radio network that NOC and OMC personnel come across in their daily work, using Ericsson Network Manager (ENM) as the operational tool. Hardware, Software, Configuration, Fault and Performance Management concepts are covered. Practical exercises, based on work-order like instructions, contribute to the understanding of WCDMA network operations. ENM tools and Element Management tools relevant for WCDMA are used where applicable.

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical and practical instructor-led lessons given in a technical environment using equipment and tools.

Learning objectives:

On completion of this course the participants will be able to:

1 Explain the WCDMA network architecture and the Operation and Maintenance (O&M) support
1.1 Note the primary functions of the nodes that build up WCDMA Network
1.2 Describe, on an overview level, the O&M infrastructure, and the functions of each component
1.3 Explain the Operation and Maintenance architecture of RNC (EVO-C based) and NodeB (Digital Unit based and Baseband-based)
1.4 List the various ENM applications related to the WCDMA RAN management

2 Perform hardware and software management in WCDMA RAN
2.1 List and explain the functions of various hardware units that could be present at an RNC-EVOC based and NodeB site- Digital Unit or Baseband 5216/5212 based.
2.2 Know and perform configuration backup management operations towards RNC and NodeB using ENM's SHM and Topology Manager, EM, COLI, ECLI and AMOS
2.3 List the software upgrade procedure in WCDMA RAN and explain how ENM/SHM may be used to carry out the upgrade procedure

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2.4 Discuss the various ways hardware and software inventory may be created using the ENM and the node management interfaces

3 Perform fault management in WCDMA RAN
3.1 Explain the fault management model
3.2 Lock, unlock and restart various units in the RNC and NodeB
3.3 Solve some common alarms by following Procedural Information, using network management and element management tools/interfaces

4 Perform performance management on the WCDMA RAN
4.1 List the performance observables in the WCDMA RAN, and explain how they are related to Key Performance Indicators
4.2 Explain the UTRAN performance management solution
4.3 Identify the various performance statistics/recordings generated in the WCDMA RAN (Statistics, Cell Traffic Recording, General Performance Event Handling, User Equipment Traffic Handling)
4.4 Create new Subscription Profile and verify the collection of statistics using the ENM and COLI/ECLI
4.5 Explain what streaming events are and collect these events

5 Perform basic configuration changes using ENM, EM/ECLI and AMOS
5.1 Describe the configuration of RNC and NodeB through ENM-CLI
5.2 Note the different tools and procedures that could be used for configuration
5.3 Perform configuration changes in an existing RNC and NodeB using Element Manager, ECLI, EMCLI, ENM and AMOS

Target audience:

This course is suitable for anyone who is required to operate WCDMA RAN using ENM as the network management tool.

Prerequisites:

Successful completion of the following courses:

Ericsson WCDMA System Overview, LZU1085418
ENM Technical Foundation, LZU1082329

Duration and class size:

The length of the course is 2 days and the maximum number of participants per session is 8.

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WCDMA RAN Quality of Service

LZU1082347 R1A

Description:

Do you know how Quality of Service is implemented in WCDMA? What is Quality of Service (QoS) in mobile networks? Which are the QoS parameters? How is it implemented in the Radio Access Network, both in the Radio NW layer and in the Transport NW layer? How QoS is configured? What is QoS mapping? Would you like to learn more? This course explains the Quality of Service framework and the QoS related features in the UTRAN.

In addition this course gives an overview of the UMTS end to end QoS architecture and provides in-depth understanding of the RAN QoS concept and principles. It explains the QoS attributes and emphasizes in the QoS configuration in RAN, in the Radio Network layer, as well as in the Transport Network layer. It covers the QoS related RAN features and it explains the ARP QoS profile, the RNL QoS profile and the TNL QoS profile. Also the course contains several examples of QoS configuration.

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical instructor-led lessons.

Learning objectives:

On completion of this course the participants will be able to:

1 Introduction to the WCDMA Quality of Service
1.1 Discuss QoS necessity
1.2 Explain the concept of Quality of Service and its attributes
1.3 Describe how the QoS Attributes are related to different WCDMA traffic classes
1.4 Describe the UMTS Classes and Traffic Classes
1.5 Explain the purpose of UMTS Bearer Services and the QoS parameters
1.6 Explain the purpose of Radio Access Bearers (RABs) and the QoS parameters
1.7 Describe the E2E QoS implementation
1.8 Briefly about the Radio Network QoS configuration
1.9 Use the Ericsson Customer Product Library to locate the QoS descriptions

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2 Explain the Quality of Service features
2.1 Explain the QoS related optional features in the Radio Network layer (RNL)
2.2 Describe how to implement the HSPA QoS Profiling feature
2.3 Detail the HSDPA QoS Factors and RBR Weights
2.4 Discuss about Gold, Silver, and Bronze operator configuration
2.5 Show how to use the OSS Common Explorer to configure the QoS Factors
2.6 Identify the OSS commands related to QoS
2.7 Explain how the mapping is done between the QoS parameters that are received from the CN to the QoS parameters that are used by the RAN
2.8 Explain how the ARP, THP, MBR are used
2.9 Explain how the configuration of the QoS parameters can be done in the RNL
2.10 Give examples of QoS configuration

3 Explain the Radio QoS related functionality
3.1 Describe how QoS is achieved in the WCDMA Radio Networks
3.2 Present how the QoS configuration can impact in the HSDPA User Plane
3.3 Explain the interaction between QoS and Capacity management actions
3.4 Explain the interaction between QoS and Flow Control functions
3.5 Explain the interaction between QoS and Scheduling actions
3.6 Explain the interaction between QoS and Mobility functions
3.7 Explain the interaction between QoS and Load Sharing functions
3.8 Explain the interaction between QoS and AQM based Congestion Control for HSDPA

4 Explain the Transport QoS related functionality
4.1 Describe how QoS is achieved in the WCDMA Transport Networks
4.2 Explain the concept of QoS in the Transport Network layer of an ATM based network
4.3 Explain the concept of QoS in the Transport Network layer of an IP based network
4.4 Explain the TNL related optional features and IP Network QoS function
4.5 Explain the TNLQoSProfile

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Target audience:

This course is suitable for anyone who is required to have a detailed knowledge of quality of service concepts in WCDMA RAN.

Prerequisites:

Successful completion of the following courses:

WCDMA EVO-C 8200 Configuration, LZU1088931
WCDMA RAN W16 Functionality, LZU1082199
WCDMA RAN W16 Protocols and Procedures, LZU1082198

Duration and class size:

The length of the course is 2 days and the maximum number of participants per session is 16.

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WCDMA RAN Radio Network Design

LZU1082685 R1A

Description:

How can a Radio Access Network (RAN) be dimensioned when coverage and capacity have such a strong impact in WCDMA? How should High Speed Uplink and Downlink Packet access (HSDPA/HSUPA) be dimensioned? Given the range of Radio Access Bearers (RABs) available in the Ericsson, what is the best way to dimension them? What is the best way to design neighboring cell lists for inter-frequency and intra-frequency handover? What is second carrier deployment strategy? How to handle smart-phone blooming issue in Radio Network?
With the help of the WCDMA Radio Network Design course the attendees will learn how Radio Network design tasks are performed according to the latest Ericsson guidelines. This new competence will be tested on PC based exercises using the Ericsson Radio Network Proposal Tool that cover R99 and HSPA dimensioning. The principles of multi carrier dimensioning are also described in detail as are the principles of neighboring cell list design, UTRAN Registration Area design, channel element dimensioning and scrambling code design. Besides, RBS and transmitter interference issues are also explained in details

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical instructor-led lessons.

Learning objectives:

On completion of this course the participants will be able to:

1 Explain the various WCDMA cell planning steps
1.1 Explain the various WCMDA Radio Network Design stages and the tools involved
1.2 Explain Ericsson’s Radio Network Proposal Tool RNPT for use by Ericsson staff
1.3 Explain how OSS-RC fits into the Radio Network Design Process
1.4 List the WRAN cell planning and initial tuning tools
1.5 Explain overall dimensioning workflow

2 Explain what is meant by traffic requirements
2.1 Explain the difference traffic classes

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2.2 List the RABs supported by Ericsson
2.3 Convert Circuit Switched (CS) traffic requirements from BHCH/MHT to mE
2.4 Convert R99 Packet Switched (PS) traffic requirements from kbps to kByte/h
2.5 Convert High Speed Packet Switched (HSxPA) traffic requirements from GByte/month to kByte/BH
2.6 Calculate the 'Average Subscriber Traffic Profile'

3 Calculate uplink and downlink Mpole values for a cell and estimate the load
3.1 Explain the 3GPP channel models used for Radio Network Design
3.2 Use the Ericsson formulae to calculate the uplink and downlink Mpole values for cells serving these channel models
3.3 Explain how single (ErlangB) and multi-service (K-R) blocking probabilities are calculated
3.4 Calculate the load on a cell serving a given number of CS and PS users

4 Perform link budget calculations
4.1 Explain link budget margins, losses and gains
4.2 Perform uplink and downlink link budget calculations

5 Perform Radio Network Dimensioning for R99 services
5.1 Perform Radio Network Dimensioning for R99 services
5.2 Use the Ericsson RNPT to perform R99 dimensioning tasks

6 Dimension High Speed Packet Access (HSPA)
6.1 Dimension High Speed Packet Access (HSPA)
6.2 Explain Ericsson Common Channel planning
6.3 Explain HSDPA dimensioning
6.4 Explain EUL dimensioning
6.5 Explain how to use the Ericsson RNPT to perform HSPA dimensioning tasks

7 Explain the WCDMA RAN deployment aspects
7.1 Describe LA/RA/URA planning
7.2 Explain the dimensioning of Downlink Code
7.3 Explain downlink Scrambling Code planning
7.4 Describe Indoor Planning
7.5 Explain the Ericsson second carrier deployment Strategy
7.6 Explain the use of hierarchical cell structures
7.7 Explain the use of service offsets in the WCDMA RAN
7.8 Describe neighbor cell list planning for intra-frequency, inter-frequency and IRAT-handover
7.9 Describe Multiband operation aspects

8 List the RBSs in Ericsson's RBS 6000 Family
8.1 Explain RBS 6000 variants

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8.2 Explain Mixed Mode in Multi Standard RBS
8.3 Explain the use of the Antenna System Controller (ASC)
8.4 Explain the Ericsson Channel Element dimensioning principle
8.5 Perform simple Channel Element dimensioning calculations
8.6 Explain the various antenna down tilt methods
8.7 List some antennas offered by Ericsson

9 Explain on overview level the transmitter interference characteristics
9.1 Explain Adjacent Channel Leakage Ratio (ACLR) and spurious emissions
9.2 Describe the receiver interference characteristics
9.3 Explain Adjacent Channel Selectivity (ACS) and receiver blocking
9.4 Explain Adjacent Channel Interference Ratio (ACIR)
9.5 Describe the co-existence problems that can appear

Target audience:

This course is suitable for anyone who has a detailed knowledge of WCDMA radio to perform radio network design.

Prerequisites:

Successful completion of the following courses:

WCDMA Air Interface, LZU1082691
WCDMA RAN W18 Protocols and Procedures, LZU1082689
WCDMA RAN W18 Radio Network Functionality, LZU1082686

Duration and class size:

The length of the course is 3 days and the maximum number of participants per session is 16.

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WCDMA RAN W17 Operation

LZU1082523 R1A

Description:

This course describes the main Operation Support System (OSS-RC) tools used in WCDMA Radio Access Networks (WRAN). The objective of this training is to present how to use the applications available for fault management, hardware structure, software analysis, performance measurement and configuration procedures.

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical and practical instructor-led lessons given in a technical environment using equipment and tools.

Learning objectives:

On completion of this course the participants will be able to:

1 Explain the WCDMA RAN System and Hardware Architecture
1.1 Describe the WCDMA Radio Access Network architecture
1.2 Explain EVO-C 8200 and RBS (DU-based) Hardware structure overview
1.3 Present the OSS-RC system overview
1.4 List the main OSS-RC applications for WCDMA RAN
1.5 Present the Baseband platform

2 Perform Fault Management on WCDMA Radio Access Network
2.1 Explain the Fault Management Model and Fault Categories
2.2 Describe the Fault Management process and Fault Handling procedures for WCDMA
2.3 Analyze alarms by following Procedural Information, using OSS-RC (Alarm List Viewer, Alarm Status Matrix and Alarm Log Browser), AMOS and EM
2.4 Differentiate between the functions of the Command Line Interface (COLI) and Node Command Line Interface (NCLI)
2.5 Describe additional information on an alarm and solve the problem with the help of the CPI

3 Perform Software and Hardware Management on WCDMA RAN
3.1 Explain the hardware and software architecture in WCDMA RAN nodes
3.2 Describe the file system implementation of CPP based nodes
3.3 Analyze Software Management Organizer Framework

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3.4 Explain the main Inventory, Backup Administration (CV) and License Administration procedures for WCDMA RAN using Software Management Organizer and some extra tools (Cabinet Viewer, EM, AMOS, and CLI)
3.5 List the Hardware and Software Upgrade procedure in WCDMA RAN and understand how OSS-RC may be used to carry out the upgrade
3.6 Identify where find information at CPI related to SW and HW Management activities

4 Perform Performance Management on the WCDMA RAN
4.1 Describe the Performance Management Architecture and Model
4.2 Describe the performance statistics/recordings generated in the WCDMA RAN
4.3 Explain the Subscription Profile principle
4.4 Describe the Data Collection Process and Administration for the WCDMA RAN
4.5 Perform WCDMA RAN Performance Management procedures using the OSS-RC
4.6 Identify where find information at CPI related to Performance activities

5 Perform basic Configuration procedures using OSS-RC and Element Manager
5.1 Describe the main steps in the Design and Integration of a WCDMA RAN
5.2 Explain the WCDMA RAN Configuration Service Workflow
5.3 Describe the Transport (TN) Configuration process
5.4 Explain Common Explorer (CEX) in OSS-RC
5.5 Explain the Fallback Area principle
5.6 List the main applications used in Transport and Radio network configuration in OSS-RC
5.7 Note the different tools and procedures that could be used for configuration
5.8 Identify where find information at CPI related to Configuration activities

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Target audience:

This course is suitable for anyone who is required to operate a RNC 8200 and DU-based nodeBs using the OSS-RC as the Network Management tool.

Prerequisites:

Successful completion of the following courses:

Ericsson WCDMA System Overview, LZU1085418
OSS-RC Overview, LZU1089803

Duration and class size:

The length of the course is 3 days and the maximum number of participants per session is 8.

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WCDMA RAN W18 Performance Management and Optimization

LZU1082690 R1A

Description:

How can the performance of the Ericsson WCDMA Radio Access Network W18 be monitored? What are the Key Performance Indicators (KPI) that should be used? How should this performance management data be used to optimize the WCDMA RAN?
In this 'WCDMA RAN W18 Performance Management and Optimization' course students will be introduced to the W18 radio network counters and associated KPI formulas. They will be guided through Accessibility, Retainability and Integrity optimization tasks. Through a series of practical exercises they will become familiar with the optimization of release 99 and High Speed Packet Access (HSPA) networks.
The students will also be introduced to the following optional OSS-RC and ENM Optimization tools:
- WCDMA User and Cell Traffic Recording (UETR/CTR)
- WCDMA General Performance Event Handling (GPEH)
- WCDMA Measurements Result Recording (WMRR)
- WCDMA Neighbor Cell Support (NCSW)
- WCDMA Event Based Statistics (EBSW)
- Basic performance management operations with AMOS
- PM Initiation and Collection (PMIC) for Performance Management in ENM
- KPI Management for mapping KPIs in ENM
- Network Health Monitor to verify health of Network in ENM

The students will also get the opportunity perform practical exercises using all of the above tools during the course.
Ericsson Network Management (ENM) and AMOS will be used for practical exercises in the standard course delivery. (OSS-RC option can also be arranged, if requested in advance.)

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical and practical instructor-led lessons given in a technical environment using equipment and tools.

Learning objectives:

On completion of this course the participants will be able to:

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1 Explain about Performance Management and Optimization process
1.1 Describe the structure and stages in the life of the WCDMA RAN
1.2 Explain the difference between RAN Tuning and Optimization
1.3 Briefly explain how WCDMA RAN statistics are collected by the ENM
1.4 Describe the basic WCDMA RAN Optimization process
1.5 Briefly explain the function of the optional ENM Optimization Tools

2 Explain the Performance Statistics (Counters)
2.1 Explain the collection and storage process for performance statistics
2.2 Explain how statistics are stored on the WCDMA RAN nodes and ENM
2.3 Explain the various radio network counter types used in the WCDMA RAN
2.4 List the RNC and RBS counter Managed Object classes
2.5 Use Customer Product Information to find RNC and RBS counter descriptions
2.6 Explain how radio network counters fit into call scenario flow charts
2.7 Explain the RNC and RBS counter limitations and associated alarms
2.8 Use Customer Product Information to find WCDMA RAN KPI formulas

3 Explain about Subscription Profiles
3.1 Use the ENM to collect radio network counters
3.2 Create activate and delete performance statistics subscription profiles

4 Elaborate about the Service Accessibility Optimization procedure
4.1 Briefly explain the Service Accessibility Optimization procedure
4.2 Explain Admission and congestion control and the associated parameters
4.3 Create Accessibility KPI formulas to find the worst performing cells
4.4 Use a selection of counters to explain the reason for this poor performance
4.5 Suggest parameter changes to improve the accessibility performance

5 Explain the Service Retainability Optimization procedure
5.1 Briefly explain Radio Network Supervision and the associated parameters
5.2 Briefly explain WCDMA RAN handover algorithms and associated parameters

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5.3 Create Retainability KPI formulas to find the worst performing cells
5.4 Use a selection of counters to explain the reason for this poor performance
5.5 Suggest parameter changes to improve the retainability performance

6 Explain the Service Integrity Optimization procedure
6.1 Briefly explain WCDMA RAN Power Control and the associated parameters
6.2 Briefly explain the WCDMA RAN Channel Switching and the associated parameters
6.3 Create Integrity KPI formulas to find the worst performing cells
6.4 Use a selection of counters to explain the reason for this poor performance
6.5 Suggest parameter changes to improve the integrity performance

7 Explain step-by-step procedure on HSPA Optimization
7.1 Explain the HSPA Optimization procedure
7.2 Briefly explain the operation of HSDPA and EUL and the associated parameters
7.3 Explain the impact of latency and TCP window size on HSPA throughput
7.4 Create KPI formulas to measure HSPA user throughputs
7.5 Suggest network modifications to improve HSPA throughput

8 Explain what is contained in UETR and CTR files
8.1 Explain briefly how recording files are collected and stored
8.2 Explain what events are collected
8.3 Explain what measurements are collected

9 Explain what is contained in GPEH recordings
9.1 Explain briefly how GPEH files are collected and stored
9.2 Explain what Node-internal events are collected
9.3 Explain what inter-Node events are collected

10 Use the ENM Subscription Profiles to collect UETR, CTR and GPEH
10.1 Create, activate and delete UETR, CTR and GPEH subscription profiles in PMIC

11 Parse UETR, CTR and GPEH binary files into ASCII or tab-delimited format
11.1 Use the WCDMA Recording File Viewer to parser UETR and CTR binary files into
11.2 Parse GPEH binary files into ASCII or tab-delimited format using the Data Collection Subscription Profiles GUI
11.3 Viewing Traffic Recordings via Network Status Display (NSD)

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11.4 Viewing Key Performance Indicators via Network Status Display (NSD)
11.5 Describe and use the KPI Management application in ENM
11.6 Understand how the Network Health Monitor widgets may be monitored to check the some KPIs

12 Use the tools that belong to the Radio Network Optimizer (RNO) for WCDMA
12.1 Explain what can be collected with the WCDMA Measurement Result Recording (WMRR) tool
12.2 Use the WMRR to collect data and produce a performance report
12.3 Use the WCDMA Neighboring Cell Support (WNCS) tool to find missing neighbor definitions in the WCDMA RAN
12.4 Discuss the Geo-Observability for WCDMA (GEO-W) application

13 AMOS presentation
13.1 Open an AMOS session
13.2 Use AMOS to perform basic Performance Management operation

Target audience:

This course is suitable for anyone who is required to understand, configure and analyze the counters, events and KPIs in WCDMA RAN.

Prerequisites:

Successful completion of the following courses:

WCDMA RAN Air Interface, LZU1082691
WCDMA RAN W18 Protocols and Procedures, LZU1082689
WCDMA RAN W18 Radio Network Functionality, LZU1082686

Duration and class size:

The length of the course is 5 days and the maximum number of participants per session is 8.

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WCDMA RAN W18 Protocols and Procedures

LZU1082689 R1A

Description:

This course covers the WCDMA RAN protocols and procedures. It gives an in-depth understanding of the WCDMA Systems radio access architecture and signaling, as well as the WCDMA Systems Bearer Service, End-to-End service and Radio Bearer Service. It covers the WCDMA radio access interfaces, such as Uu, Iub, Iur and Iu. Also this course covers the protocols used over these interfaces: RRC, BMC, RLC, MAC and the physical layer for the Uu interface, NBAP for the Iub interface, RNSAP for the Iur interface, RANAP and SABP for the Iu interface. It also describes the transport technology used in the Iu and the Iub interfaces, ATM vs IP.
The purpose of the course is to enable the student to understand complete traffic cases for circuit switched and packet switched traffic with all signaling included. Practical protocol analysis using TEMS investigation is also included.

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical instructor-led lessons.

Learning objectives:

On completion of this course the participants will be able to:

1 Explain the WCDMA Radio Access Network architecture
1.1 State the main functions of the network elements
1.2 List the Interfaces

2 Explain the main functions of the protocols involved in WCDMA
2.1 Explain how signaling takes place between the UE and the Core Network
2.2 State the main functions of Radio Resource Control (RRC), Radio Link Control (RLC), Medium Access Control (MAC), the physical layer and their relations
2.3 Explain the interaction of the WCDMA protocols and the mapping of logical, transport and physical channels
2.4 Explain the general protocol model for the Iub, the Iur and the Iu interface

3 Explain the UMTS Quality of Service

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3.1 Explain the concept of Quality of Service and how it is related to different traffic classes
3.2 Explain the purpose of UMTS Bearer Services and Radio Access Bearers (RABs)
3.3 List the different attributes of the RABs and explain how they are used
3.4 List supported RABs

4 Explain the RCC Protocol
4.1 Explain the RCC Protocol
4.2 Explain the interaction between RRC and the lower layers in the control plane
4.3 Explain the RRC layer structure
4.4 Explain the RRC Service States and the difference between connected and idle mode
4.5 Explain the functions and services of RRC
4.6 Explain the RRC procedures

5 Explain the RLC and MAC protocol
5.1 Explain the RLC functions
5.2 List the different modes of RLC (transparent, unacknowledged and acknowledged mode) and explain the structure of the PDU involved in these cases
5.3 Explain the MAC functions
5.4 Explain the MAC architecture, its entities and their usage for the mapping of transport channels
5.5 List the contents of the MAC Packet Data Unit (PDU)
5.6 Explain the Transport Format selection and the relation between Combinations (TFC) and Sets (TFCS)
5.7 Explain Channel Type Switching
5.8 Explain the structure and mapping of physical channels.

6 Explain the Cell Broadcast service - BMC and SABP Protocols
6.1 Explain the Cell Broadcast service - BMC and SABP Protocols
6.2 Explain the Cell Broadcast Service
6.3 Explain the SABP Functions
6.4 Explain the BMC Functions

7 Explain the Iub Interface and the NBAP Protocol
7.1 Explain the Iub interface and the Radio Network Layer protocols: the Node B Application Part (NBAP) signaling protocol in the control plane and the user plane protocols for common transport channel (CCH) data streams and dedicated transport channel (DCH) data streams
7.2 Explain the main functions and procedures of NBAP signaling protocol
7.3 Explain the main functions and procedures of the user plane protocols for CCH and DCH data streams (Frame Protocols)

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7.4 Explain two Iub Transport Network solutions: Iub over ATM vs Iub over IP

8 Explain the Iur Interface and the RNSAP Protocol
8.1 Explain the Iur interface and the Radio Network Subsystems Application Part (RNSAP) protocol structure
8.2 Explain the main functions and procedures of RNSAP
8.3 Explain two Iur Transport Network solutions: Iur over ATM vs Iur over IP

9 Explain the Iu Interface and the RANAP Protocol
9.1 Explain the Iu Interface and the RANAP Protocol
9.2 Explain the Iu interface and the Radio Access Network Application Part (RANAP) protocol structure
9.3 Explain the main functions and procedures of RANAP
9.4 Explain two Iu Transport Network solutions: Iu over ATM vs Iu over IP

10 Explain IRAT Mobility
10.1 Explain IRAT mobility between WCDMA and GSM/GPRS networks
10.2 Explain Wifi mobility
10.3 Explain mobility between WCDMA and LTE

11 HSPA Aspects
11.1 Detail the data flow when HS-DSCH is employed
11.2 Explain in detail the MAC-hs PDU
11.3 Explain the Transport Block Sizes for HS-DSCH
11.4 Explain Transport Format selection
11.5 Explain Transport Format indication
11.6 List the MAC-hs function at network - and at UE side
11.7 Describe the HSDPA Flow Control
11.8 Describe the L1/L2 protocols and functions of EUL
11.9 Explain what does Enhanced L2 functionality include
11.10 Detail the EUL uplink data flow
11.11 Explain the use of Transport Formats
11.12 Describe the EUL Flow Control
11.13 Explain Mobility Management for HSPA

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Target audience:

This course is suitable for anyone who is required to have detailed knowledge of signaling procedures in the WCDMA RAN.

Prerequisites:

Successful completion of the following courses:

Ericsson WCDMA System Overview, LZU1085418
WCDMA Air Interface, LZU1082691

Duration and class size:

The length of the course is 4 days and the maximum number of participants per session is 16.

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WCDMA RAN W18 Radio Network Functionality

LZU1082686 R1A

Description:

What is the difference between R99 and HSPA bearers and how does the Ericsson WCDMA RAN handle these? What are the main parameters that influence this? Where can I find detailed information on the Ericsson Radio Access Network functionality areas?
This course will explain the main Ericsson parameters used to control Idle Mode, Radio Connection Supervision, Capacity Management, Mobility and Channel Switching for R99 and HSPA. During the course students will become familiar with these areas by performing practical exercises using TEMS Investigation logfiles from live networks. The students will also be guided through the Ericsson Customer Product lnformation (CPI) so that they can further study each area after the course

Learning situation:

This is an Instructor-Led Training.

This course is based on theoretical instructor-led lessons.

Learning objectives:

On completion of this course the participants will be able to:

1 Give an overview of the Ericsson WCDMA Functionality areas
1.1 Describe the techniques used to achieve broadband data rates with R99, HSDPA and EUL
1.2 Explain the HSDPA Multi Code Transmission
1.3 Explain the HSPA scheduling algorithms used by Ericsson
1.4 Describe the HSPA Optional Features available in the release W16
1.5 Use the Ericsson Customer Product Library to locate functionality descriptions

2 Describe the Ericsson WCDMA RAN Idle Mode Functionality
2.1 List the contents of the WCDMA SIBs
2.2 Describe WDMA cell selection and reselection
2.3 Describe how idle mode mobility is performed between WCDMA, GSM and LTE

3 Describe the Ericsson WCDMA RAN Radio Connection Supervision Functionality

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3.1 Explain the main parameters that control R99 and HSPA system releases
3.2 Describe W16 enhancements over the Network Initiated Call Re-establishment feature

4 Describe the Ericsson WCDMA RAN Power Control Functionality
4.1 Configure the power of common control channels
4.2 Describe the R99 open, inner and outer loop Power Control Algorithms
4.3 Explain how the power control loops operate for HSPA

5 Describe the Ericsson WCDMA RAN Capacity Management Functionality
5.1 Describe how Quality of Service is implemented in the WCDMA RAN
5.2 Explain the resources that are used for capacity management
5.3 Describe the main parameters that control admission and congestion control

6 Describe the Ericsson WCDMA RAN Channel Switching Functionality
6.1 Explain the various channel switching algorithms used in the WCDMA RAN
6.2 Explain how channel switching is handled for Smartphones and multi-RABs

7 Describe the Ericsson WCDMA RAN Mobility Functionality
7.1 Describe the various R99 and HSPA mobility algorithms used by Ericsson
7.2 Explain load sharing between WCDMA and other frequencies and systems

Target audience:

This course is suitable for anyone who is required to have detailed knowledge of radio network functionalities in a WCDMA RAN.

Prerequisites:

Successful completion of the following courses:

Ericsson WCDMA Systems Overview, LZU1082522
WCDMA W17 Air Interface, LZU1085418

Duration and class size:

The length of the course is 4 days and the maximum number of participants per session is 16.

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WCDMA RAN W18.Q1 and W18.Q2 Delta

LZU1082714 R1A

Description:

How did Ericsson's WCDMA RAN improve with the W18.Q1 and W18.Q2 software releases? What new features were introduced and how were the existing features enhanced?

This Web-based Learning Delta course explains the new and enhanced features included in the W18.Q1 and W18.Q2 releases.

Learning situation:

This is a Web-Based Learning.

This is a self-paced interactive learning with multimedia content, delivered online.

Learning objectives:

On completion of this course the participants will be able to:

1 Explain the contents of the W18.Q1 and Q2 releases.

2 Describe the enhancements to the 'Combined Cell' Value Package.

3 Describe the enhancements to the 'IPSec' Value Package.

4 Describe the enhancements to the HD Voice' Value Package.

5 Describe the enhancements to the 'Uplink Efficiency' Value Package.

6 Describe the enhancements to the 'Time and Phase Synchronization' Value Package.

7 Describe the enhancements to the 'Traffic Management Advanced WCDMA-LTE' Value Package.

8 Describe the enhancements to the 'WCDMA Base Package' Package.

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Target audience:

This course is suitable for anyone who is required to have detailed knowledge of the new and enhanced features included in the W18.Q1 and W18.Q2 releases.

Prerequisites:

Successful completion of the following courses:

WCDMA System Overview - LZU1085418
WCDMA RAN Air Interface - LZU1082691 or earlier
WCDMA RAN W18 Radio Network Functionality - LZU1082686 or earlier

Duration and class size:

The length of the course is approximately 1 hour.

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WCDMA RAN W18.Q3 Delta

LZU1082741 R1A

Description:

How has the Ericsson WCDMA RAN been improved with the W18.Q3 release? What new features have been introduced and how have the existing features been enhanced?
This Web Based Learning Delta course explains the new and enhanced features included in the W18.Q3

Learning situation:

This is a Web-Based Learning.

This is a self-paced interactive learning with multimedia content, delivered online.

Learning objectives:

On completion of this course the participants will be able to:

1 Explain the contents of the W18.Q3 release.

2 Describe the enhancements to the 'Traffic management advanced WCDMA-LTE' Value Package.

3 Describe the enhancements to the 'Mobile Broadband' Value Package.

4 Describe the enhancements to the 'HD Voice' Value Package.

5 Describe the enhancements to the 'Combined Cell'' Value Package.

6 Describe the enhancements to the 'Smartphone Efficiency overhead Reduction' Value Package.

7 Describe the enhancements to the 'Uplink Efficiency' Value Package.

8 Describe the enhancements to the 'IPSec' Value Package.

9 Describe the enhancements to the 'WCDMA Base Package' package

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Target audience:

This course is suitable for anyone who is required to have detailed knowledge of WCDMA RAN W18.Q3 software features.

Prerequisites:

Successful completion of the following courses:

WCDMA System Overview, LZU1085418
WCDMA RAN Air Interface, LZU1082691 or earlier
WCDMA RAN W18 Radio Network Functionality, LZU1082686 or earlier

Duration and class size:

The length of the course is approximately 30 minutes.

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WCDMA RAN W18.Q4 Delta

LZU1082740 R1A

Description:

How has the Ericsson WCDMA RAN been improved with the W18.Q4 release? What new features have been introduced and how have the existing features been enhanced?
This Web Based Learning Delta course explains the new and enhanced features included in the W18.Q4

Learning situation:

This is a Web-Based Learning.

This is a self-paced interactive learning with multimedia content, delivered online.

Learning objectives:

On completion of this course the participants will be able to:

1 Explain the contents of the W18.Q4 release.

2 Describe the enhancements to the 'Traffic management advanced WCDMA-LTE' Value Package.

3 Describe the enhancements to the 'Mobile Broadband' Value Package.

4 Describe the enhancements to the 'Shared Network' Value Package.

5 Describe the enhancements to the 'Psi Coverage' Value Package.

6 Describe the enhancements to the 'ANR' Value Package.

7 Describe the enhancements to the 'WCDMA Base Package' Package.

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Target audience:

This course is suitable for anyone who is required to have detailed knowledge of the features and functions introduced by WCDMA W18.Q4 software.

Prerequisites:

Successful completion of the following courses:

WCDMA System Overview, LZU1085418
WCDMA RAN Air Interface, LZU1082691 or earlier
WCDMA RAN W18 Radio Network Functionality, LZU1082686 or earlier

Duration and class size:

The length of the course is approximately 30 minutes.

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