

Training Proposal for PS Project



HUAWEI
HUAWEI Learning Service
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1 Training Solution

1.1 Background Introduction

1.2 Overview

1.3 PS Training Path

PS Training Path

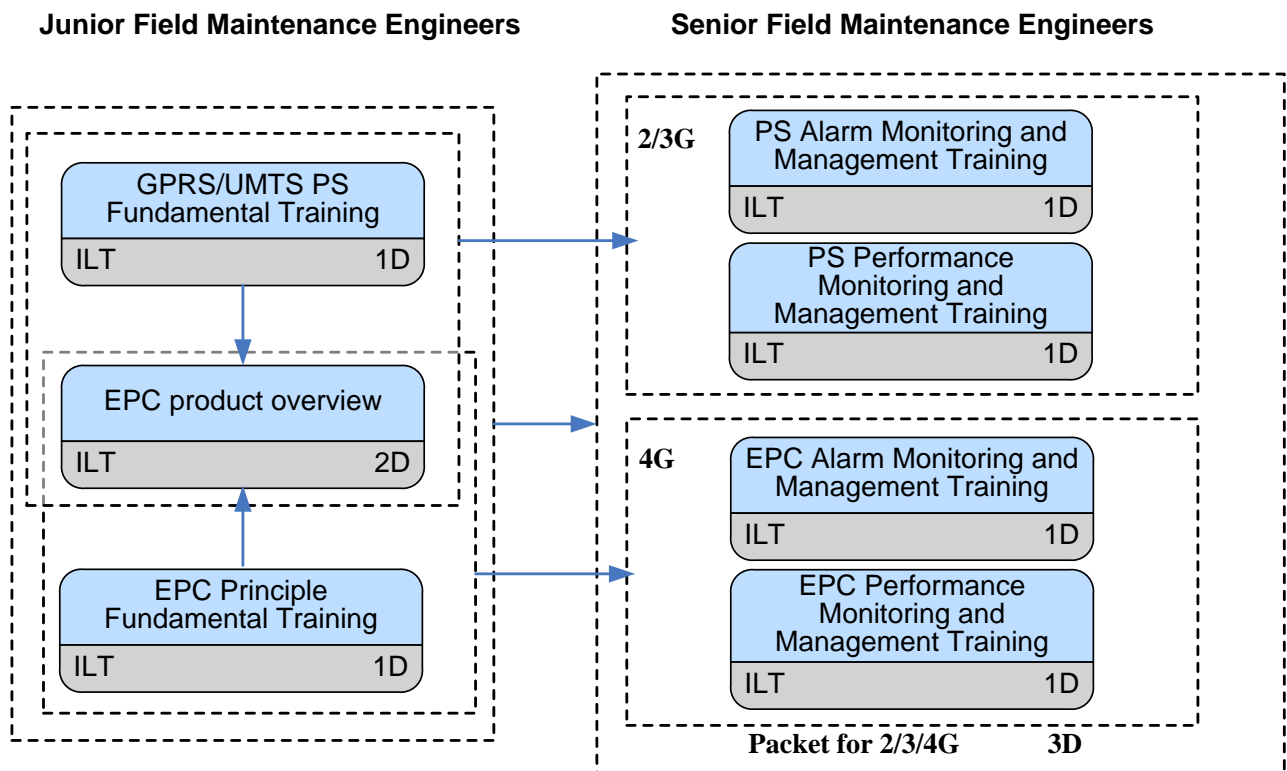


Figure1. Field Maintenance Training Path

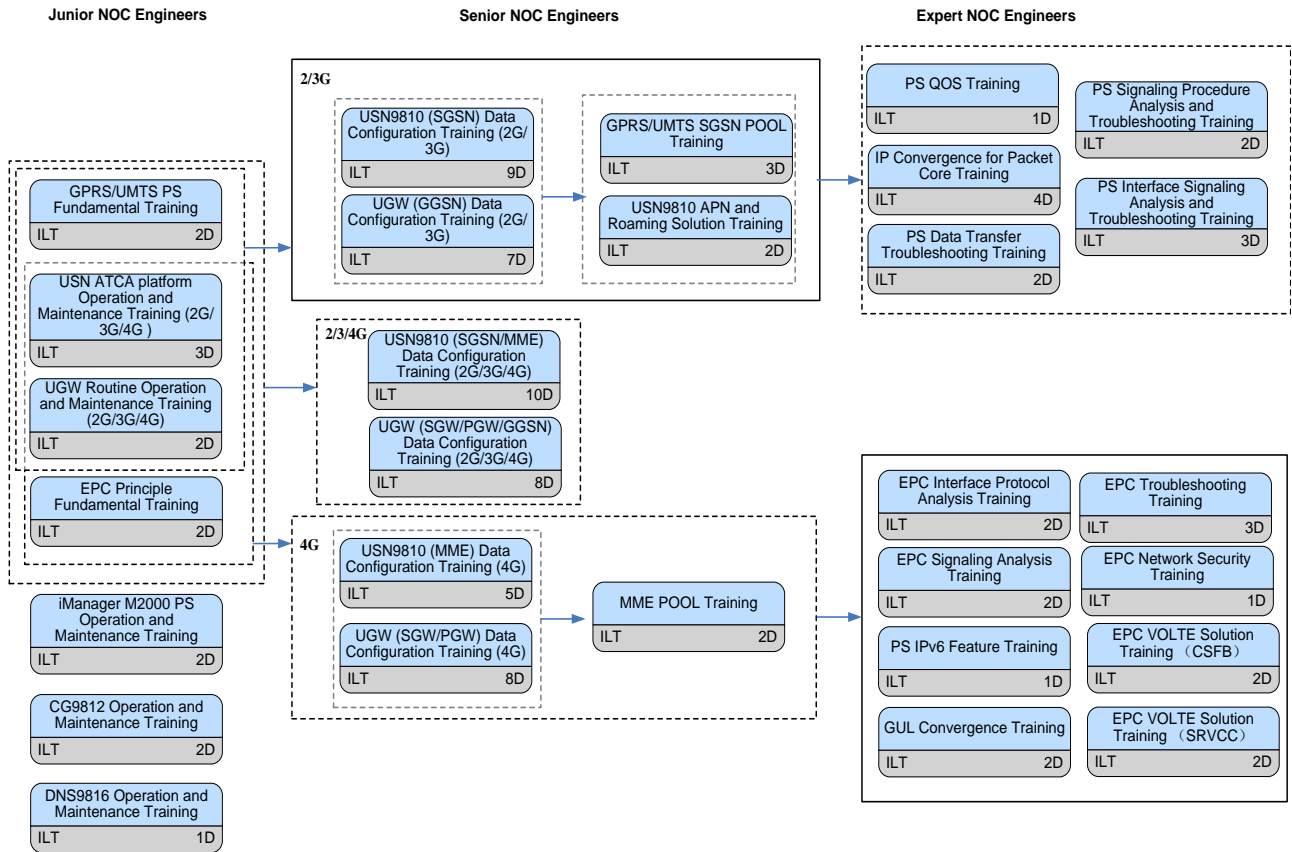


Figure2. NOC Training Path

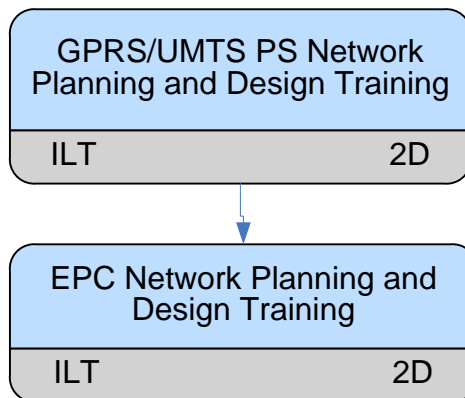


Figure3. Network Planning and Design Training Path

Senior Network Optimization Engineers

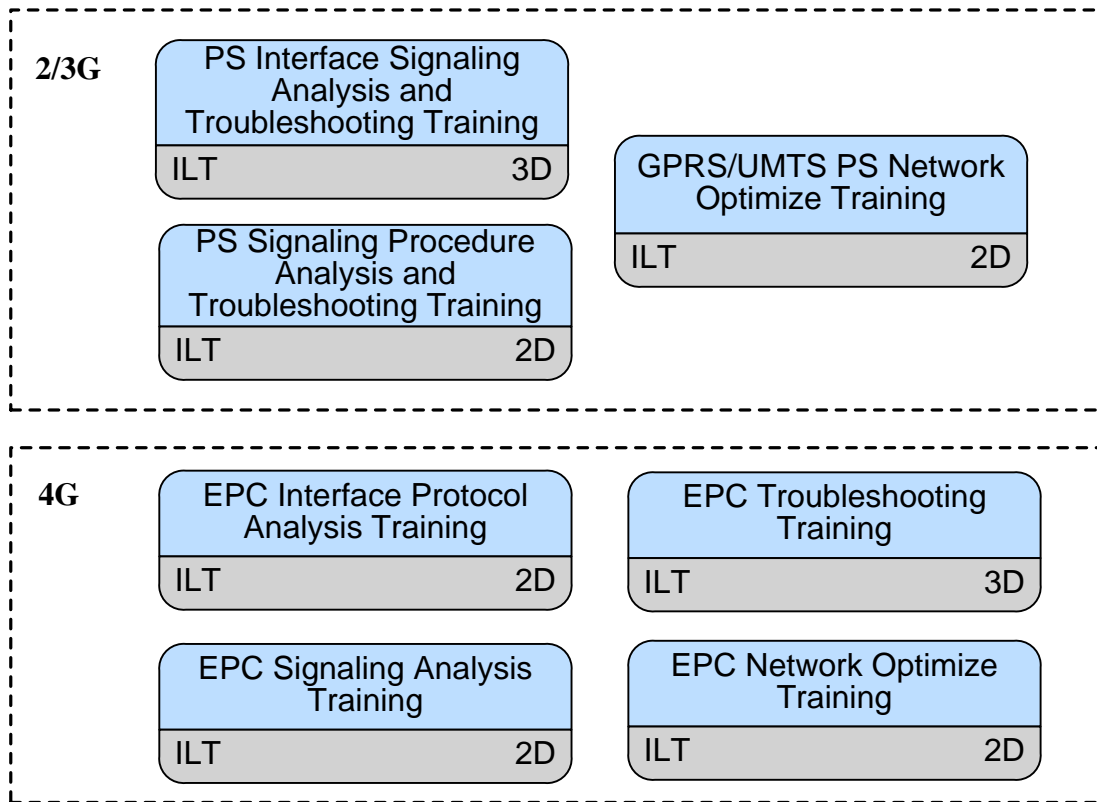


Figure4. Network Optimization Training Path

Junior Network Engineering Engineers

Senior Network Engineering Engineers

Expert Network Engineering Engineers

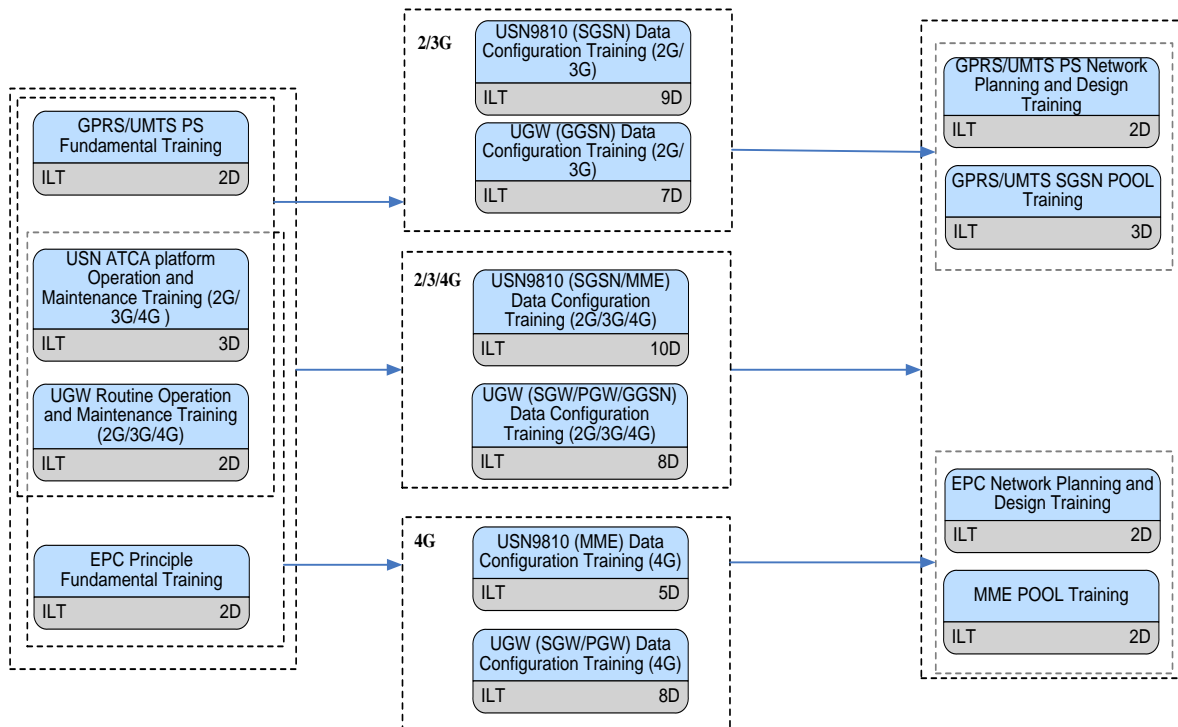


Figure5. Network engineering Training Path



Figure6. Huawei Certification Training Path

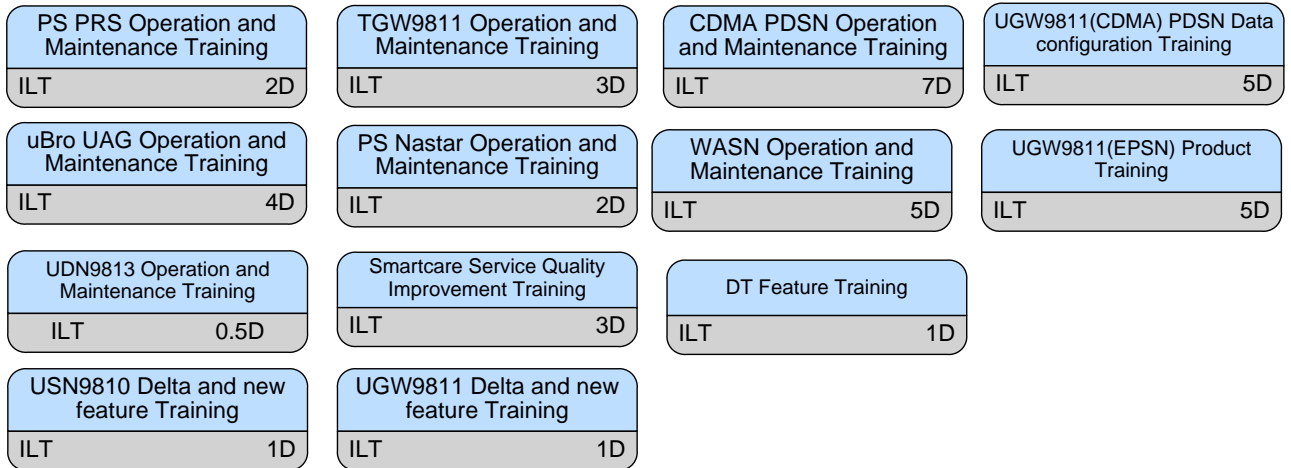


Figure7. Other Training Path

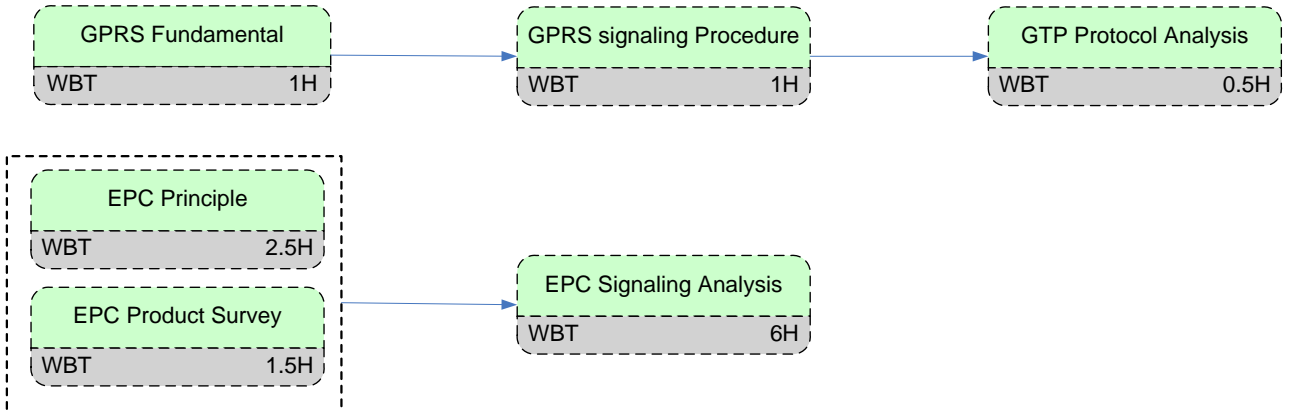


Figure8. WBT Training Path

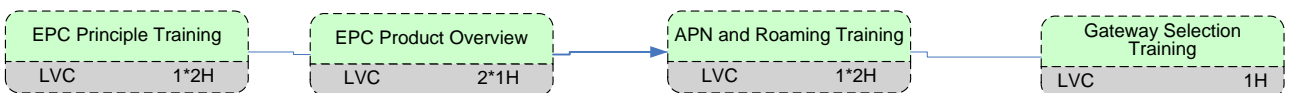


Figure9. WBT Training Path

1.4 Required Training Programs

PS For this project, the whole training solution is designed into the following programs. List of Training Program(s) for PS Project:

Training Program	Program Level	Duration (workdays)	Training Location	Class Size
PS				
GPRS/UMTS PS Fundamental Training	I	2		6 ~ 12
EPC Principle Fundamental Training	II	2		6 ~ 12
EPC product (USN&UGW&CG) overview	II	2		6 ~ 12
USN ATCA platform Operation and Maintenance Training (2G/3G/4G)	II	3		6 ~ 12
USN9810 (MME) Data Configuration Training (4G)	III	5		6 ~ 12
USN9810 (SGSN/MME) Data Configuration Training (2G/3G/4G)	III	10		6 ~ 12
USN9810 (SGSN) Data Configuration Training (2G/3G)	III	9		6 ~ 12
USN9810 Delta and new feature Training	III	1		6 ~ 12
USN9810 APN and Roaming Solution Training	III	2		6 ~ 12
UGW Routine Operation and Maintenance Training (2G/3G/4G)	II	2		6 ~ 12
UGW (SGW/PGW) Data Configuration Training (4G)	III	8		6 ~ 12
UGW (SGW/PGW/GGSN) Data Configuration Training (2G/3G/4G)	III	8		6 ~ 12
UGW (GGSN) Data Configuration Training (2G/3G)	IV	7		6 ~ 12
UGW9811 Delta and new feature Training	III	1		6 ~ 12
CG9812 Operation and Maintenance Training (Windows)	II	2		6 ~ 12
CG9812 Operation and Maintenance Training (UNIX)	II	2		6 ~ 12
CG9812 Operation and Maintenance Training(ATCA)	II	2		6 ~ 12
PS Alarm Monitoring and Management Training	II	1		6 ~ 12
EPC Alarm Monitoring and Management Training	II	1		6 ~ 12
PS Performance Monitoring and Management Training	III	1		6 ~ 12
EPC Performance Monitoring and Management Training	III	1		6 ~ 12
EPC Network Security Training	III	1		6 ~ 12
GUL Convergence Training	III	2		6 ~ 12

EPC VOLTE Solution Training (CSFB)	IV	2		6 ~ 12
EPC VOLTE Solution Training (SRVCC)	IV	2		6 ~ 12
PS IPv6 Feature Training	IV	1		6 ~ 12
GPRS/UMTS SGSN POOL Training	III	3		6 ~ 12
MME POOL Training	III	2		6 ~ 12
PS QOS Training	IV	1		6 ~ 12
IP Convergence for Packet Core Training	III	4		6 ~ 12
PS Signaling Procedure Analysis and Troubleshooting Training	IV	2		6 ~ 12
PS Interface Signaling Analysis and Troubleshooting Training	IV	3		6 ~ 12
PS Data Transfer Troubleshooting Training	IV	2		6 ~ 12
EPC Interface Protocol Analysis Training	IV	2		6 ~ 12
EPC Signaling Analysis Training	IV	2		6 ~ 12
EPC Troubleshooting Training	IV	3		6 ~ 12
GPRS/UMTS PS Network Optimize Training	IV	2		6 ~ 12
GPRS/UMTS PS Network Planning and Design Training	IV	2		6 ~ 12
EPC Network Planning and Design Training	IV	2		6 ~ 12
EPC Network Optimize Training	IV	2		6 ~ 12
iManager M2000 PS Operation and Maintenance Training	II	2		6 ~ 12
DNS9816 Operation and Maintenance Training	II	1		6 ~ 12
uBro UAG Operation and Maintenance Training	II	4		6 ~ 12
WASN Operation and Maintenance Training	II	5		6 ~ 12
TGW9811 Operation and Maintenance Training	II	3		6 ~ 12
CDMA PDSN Operation and Maintenance Training	II	7		6 ~ 12
UGW9811(CDMA) PDSN Data configuration Training	II	5		6 ~ 12
PS Nastar Operation and Maintenance Training	II	1		6 ~ 12
PS PRS Operation and Maintenance Training	II	1		6 ~ 12
UGW9811(EPDN) Product Training	II	5		6 ~ 12

UDN9813 Operation and Maintenance Training	II	0.5		6 ~ 12
SeMG9811 Product Engineer Training	II	3		6 ~ 12
DT Feature Training	II	1		6 ~ 12
Smartcare Service Quality Improvement Training	III	3		6 ~ 12
HCNA LTE HUAWEI Certification	II	6		6 ~ 12
HCNP EPC HUAWEI Certification	III	13		6 ~ 12
HCIE EPC HUAWEI Certification	IV	8		6 ~ 12
GPRS Fundamental(WBT)	I	1h		No limit
GPRS signaling Procedure(WBT)	III	1h		No limit
GTP Protocol Analysis(WBT)	III	0.5h		No limit
EPC Principle(WBT)	II	4h		No limit
EPC Signaling Analysis (WBT)	III	6h		No limit
EPC Product Survey(WBT)	II	1.5h		No limit
EPC Product Overview(LVC)	II	1*2 h		No limit
EPC Principle(LVC)	II	2*1 h		No limit
APN and international roaming(LVC)#	III	2*1 h		No limit
Gateway selction(LVC)	III	1 h		No limit

Level Description: I : Basic Course II : Intermediate Course III: Advanced Course IV: Expert Course

1.5 PS

1.5.1 GPRS/UMTS PS Fundamental Training

Training Path

GPRS/UMTS PS Fundamental Training		
OWA01	Lecture	2d

Target Audience

All Technical and non-Technical Persons

Prerequisites

- A general understanding about mobile communication and data communication.

Objectives

On completion of this program, the participants will be able to:

- Outline the UMTS PS Network Structure.
- Describe the PS Core Network interface and Protocol.
- Describe the PS Core Network Working Principle.

Training Content

OWA01 GPRS/UMTS PS Fundamental Training

- GPRS Fundamental
 - Describe the UMTS PS Network Structure.
 - Describe the PS Core Network element and function.
 - Describe the PS Core Network Interface and Protocol.
 - Describe the PS Core Network Working Principle.
 - Describe the PS Core Network attach work flow.
 - Describe the PS Core Network PDP active work flow.
 - Describe the PS Core Network MM work flow.
 - Describe the PS Core Network SM work flow.
 - Describe the PS Core Network RAU work flow.
 - Describe the PS Core Network relocation work flow.

Duration

2 working days

Class Size

Min 6, Max 12

1.5.2 EPC Principle Fundamental Training

Training Path

EPC Principle Fundamental Training		
OEA10	Lecture, LVC	2d

Target Audience

All Technical and non-Technical Personnel

Prerequisites

- A general understanding of mobile communication and data communication.
- Be familiar with Windows operation system.
- Have basic knowledge of mobile network.

Objectives

On completion of this program, the participants will be able to:

- Outline the EPC network structure.
- Describe the EPC network interface and protocol.
- Describe the EPC network working procedures.

Training Content

OEA10 EPC Principle Fundamental Training

- EPC Network Principles
 - Describe EPC architecture.
 - Describe function of each node in EPC.
 - Describe PDN connection.
 - Describe EPC bearers and TFT(s).
 - Describe tracking areas and tracking area lists.
 - Describe concepts of ISR (Idle mode Signaling Reduction).
 - Describe identifiers and legacy IDs.
 - Describe security mechanisms in EPC.
 - Describe QoS in EPC.
 - Describe the selection function in EPC.
 - Describe the protocol used in EPC (GTP, PMIP, diameter, etc.).
 - Describe attach and detach procedure.
 - Describe tracking area update procedure.
 - Describe handover procedure.
 - Describe bearer activation/modification/deactivation procedure.
 - Describe SRVCC for voice service.
 - Describe CSFB for voice service.

Duration

2 working days

Class Size

Min 6, Max 12

1.5.3 EPC product (USN9810&UGW9811&CG) overview

Training Path

EPC product (USN9810&UGW9811&CG) overview		
OEB90	Lecture, Lab, Demo	2d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of EPC network principle, mobile communication and data communication.

Objectives

On completion of this program, the participants will be able to:

- Describe USN9810 background, function, feature and specification.
- Outline USN9810 background, function, feature and specification.
- Describe UGW9811 background, function, feature and specification.
- Outline UGW9811 background, function, feature and specification.
- Describe CG9812 background, function, feature and specification.
- Outline CG9812 background, function, feature and specification.

Training Content

OEB90 EPC product (USN9810&UGW9811) overview

- USN9810(MME/SGSN) System Overview
 - Describe background knowledge of USN9810.
 - Describe functions of USN9810.
 - Describe feature and specification of USN9810.
- UGW9811 System Overview
 - Describe background knowledge of UGW9811.
 - Describe function of UGW9811.
 - Describe feature and specification of UGW9811.
- CG9812 Product System Overview
 - Describe background knowledge of CG9812.
 - Describe function of CG9812.
 - Describe feature and specification of CG9812.

Duration

2 working days

Class Size

Min 6, Max 12

1.5.4 USN ATCA platform Operation and Maintenance Training (2G/3G/4G)

Training Path

USN ATCA platform Operation and Maintenance Training(2G/3G/4G)		
OEB9B	Lecture, Lab, Demo	3d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Successful completion of the program EPC Principle Fundamental Training.

Objectives

On completion of this program, the participants will be able to:

- Describe system structure and hardware structure of USN9810.
- Perform software related installation and upgrade procedure.
- Perform hardware operation and maintenance.
- Perform the Routine Operation and Maintenance including security management, system information management, alarm management, trace management, data management, license management, performance management.

Training Content

OEB9B USN ATCA platform Operation and Maintenance Training

- USN9810(MME/SGSN) System Overview
 - Describe background knowledge of USN9810.
 - Describe functions of USN9810.
 - Describe feature and specification of USN9810.
- USN9810(MME/SGSN) Hardware System
 - Describe background knowledge of USN9810.
 - Describe system structure of USN9810.
 - Describe cable connection of USN9810.
 - Describe service flow of USN9810.
- USN9810(MME/SGSN) LMT Introduction
 - Describe USN9810 LMT software.
 - USN9810 LMT Introduction.
- USN9810(MME/SGSN) Software Installation
 - Describe USN9810 software structure.
 - Perform USN9810 LMT software Installation.
 - Perform USN9810 host software installation.
- USN9810(MME/SGSN) Hardware Operation and Maintenance

-
- Describe power on and power off the USN9810.
 - Describe hardware system status checking.
 - Perform board replacement.
 - Perform dust cleaning.
 - USN9810(MME/SGSN) Security Management
 - Perform LMT account management.
 - Perform FTP account management.
 - Perform log management.
 - USN9810(MME/SGSN) Trace Management
 - Perform trace management.
 - USN9810(MME/SGSN) Data Management
 - Describe basic knowledge of Data Management.
 - Describe configuration data backup and restore.
 - Describe system data backup and restore.
 - USN9810(MME/SGSN) Patch management
 - Describe basic principle of Patch management.
 - Describe patch management.
 - USN9810(MME/SGSN) License Management
 - Perform license checking.
 - Describe license related alarms.
 - Perform license applying.
 - Perform license installation.
 - USN9810(MME/SGSN) Alarm Management
 - Perform operation and maintenance of alarm system.
 - Describe basic alarm handling procedure.
 - USN9810(MME/SGSN) Performance Statistic
 - Describe working principle of Performance Statistic.
 - Perform performance task setting.
 - Perform performance result operation.

Duration

3 working days

Class Size

Min 6, Max 12

1.5.5 USN9810 (MME) Data Configuration Training (4G)

Training Path

USN9810 (MME) Data Configuration Training (4G)		
OEB9B	Lecture, Lab, Demo	5d

Target Audience

Field Maintenance Engineer, Second line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Successful completion of the program USN ATCA platform Operation and Maintenance Training

Objectives

On completion of this program, the participants will be able to:

- Describe the functions of protocol stacks of different interfaces.
- Perform configuration of USN hardware, System Information, interworking with eNodeB, HSS, MME, S-GW, DNS and NTP.
- Perform configuration of mobility management and session management.

Training Content

OEB9B USN9810 (MME) Data Configuration Training (4G)

- USN9810(MME) Hardware Data Configuration
 - Describe basic hardware configuration and commissioning on the ATCA.
 - Describe process group configuration and commissioning on the ATCA.
 - Describe port configuration and commissioning on the ATCA.
 - Describe clock configuration and commissioning on the ATCA.
- USN9810(MME) Local Office Data Configuration
 - Describe system information configuration.
 - Perform Local Office Data commissioning.
- USN9810(MME) S1-MME Interface Data Configuration
 - Describe background knowledge about the S1-MME interface.
 - Describe configuration procedure.
 - Perform S1-MME Interface commissioning.
- USN9810(MME) S6a Interface Data Configuration
 - Describe background knowledge about the S6a interface.
 - Describe configuration procedure.
 - Perform S6a Interface commissioning.
- USN9810(MME) S10/S11 Interface Data Configuration
 - Describe background knowledge about the S10/S11 interface.
 - Describe configuration procedure.

-
- Perform S10/S11 Interface commissioning.
 - USN9810(MME) intelligent Gateway Selection
 - Describe intelligent Gateway Selection Principle
 - Perform intelligent Gateway Selection commissioning.
 - USN9810(MME) MM SM Data Configuration
 - Perform EMM mobility management parameter data configuration.
 - Perform ESM session management parameter data configuration.
 - USN9810(MME) IP Data Configuration
 - Describe multiple basic concepts of IP network.
 - Perform IP interface - related configuration and commissioning.
 - Configure and commission the static IP route and open shortest path first (OSPF) route.
 - USN9810(MME) DNS Data Configuration
 - Describe the DNS data configuration of the MME.
 - Complete simple DNS configuration of the MME.
 - USN9810(MME) NTP Data Configuration
 - Describe the NTP principle.
 - Perform the NTP configuration of the USN9810.
 - Perform the NTP commissioning of the USN9810.

Duration

5 working days

Class Size

Min 6, Max 12

1.5.6 USN9810 (SGSN/MME) Data Configuration Training (2G/3G/4G)

Training Path

USN9810 (SGSN/MME) Data Configuration Training (2G/3G/4G)		
OEB9B	Lecture, Lab, Demo	10d

Target Audience

Field Maintenance Engineer, Second line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Successful completion of the program USN ATCA platform Operation and Maintenance Training

Objectives

On completion of this program, the participants will be able to:

- Describe the functions of protocol stacks of different interfaces.
- Perform configuration of SGSN Gb, Iu-PS, Gn, Ga and Gr interfaces.
- Perform configuration of SGSN basic service.
- Perform configuration of USN hardware, System Information, interworking with eNodeB, HSS, MME, S-GW, DNS and NTP.
- Perform configuration of mobility management and session management.

Training Content

OEB9B USN9810 (SGSN/MME) Data Configuration Training (2G/3G/4G)

- USN9810(MME/SGSN) Hardware Data Configuration
 - Describe basic hardware configuration and commissioning on the ATCA.
 - Describe process group configuration and commissioning on the ATCA.
 - Describe port configuration and commissioning on the ATCA.
 - Describe clock configuration and commissioning on the ATCA.
- USN9810(MME/SGSN) Local Office Data Configuration
 - Describe system information configuration.
 - Perform commissioning.
- USN9810(MME/SGSN) S1-MME Interface Data Configuration
 - Describe background knowledge about the S1-MME interface.
 - Describe configuration procedure of S1-MME Interface.
 - Perform commissioning.
- USN9810(MME/SGSN) S6a Interface Data Configuration
 - Describe background knowledge about the S6a interface.
 - Describe configuration procedure of S6a Interface.
 - Perform commissioning.
- USN9810(MME/SGSN) S10/S11 Interface Data Configuration

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- Describe background knowledge about the S10/S11 interface.
 - Describe configuration procedure of S10/S11 Interface.
 - Perform commissioning.
 - USN9810(MME) intelligent Gateway Selection
 - Describe intelligent Gateway Selection Principle
 - Perform intelligent Gateway Selection commissioning.
 - USN9810(MME/SGSN) Iu Interface Data Configuration
 - Describe background knowledge about the Iu interface.
 - Describe configuration procedure of Iu Interface.
 - Perform commissioning.
 - USN9810(MME/SGSN) Gb Interface Data Configuration
 - Describe background knowledge about the Gb interface.
 - Describe configuration procedure Gb Interface.
 - Perform commissioning.
 - USN9810(MME/SGSN) Gr Interface Data Configuration
 - Describe background knowledge about the Gr interface.
 - Describe configuration procedure of Gr Interface.
 - Perform commissioning.
 - USN9810(MME/SGSN) Gn/Gp Interface Data Configuration
 - Describe background knowledge about the Gn/Gp interface.
 - Describe configuration procedure of Gn/Gp Interface.
 - Perform commissioning.
 - USN9810(MME/SGSN) MM SM Data Configuration
 - Perform EMM mobility management parameter data configuration.
 - Perform ESM session management parameter data configuration.
 - USN9810(MME/SGSN) Charging Data Configuration
 - Describe the charging concept.
 - Perform charging configuration.
 - USN9810(MME/SGSN) IP Data Configuration
 - Describe multiple basic concepts of IP network.
 - Perform IP interface – related configuration and commissioning.
 - Configure and commission the static IP route and open shortest path first (OSPF) route.
 - USN9810(MME/SGSN) DNS Data Configuration
 - Describe the DNS data configuration of the MME and SGSN.
 - Complete simple DNS configuration of the MME and SGSN.
 - USN9810(MME/SGSN) NTP Data Configuration
 - Describe the NTP principle.
 - Perform the NTP configuration of the USN9810.
 - Perform the NTP commissioning of the USN9810.

Duration

10 working days

Class Size

Min 6, Max 12

1.5.7 USN9810 (SGSN) Data Configuration Training (2G/3G)

Training Path

USN9810 (SGSN) Data Configuration Training (2G/3G)		
OEB91	Lecture, Lab, Demo	9d

Target Audience

Field Maintenance Engineer, Second line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Successful completion of the program USN ATCA platform Operation and Maintenance Training

Objectives

On completion of this program, the participants will be able to:

- Perform configuration of SGSN hardware.
- Perform configuration of SGSN Gb, Iu-PS, Gn, Ga and Gr interfaces.
- Perform configuration of SGSN basic service.

Training Content

OEB91 USN9810 (SGSN) Data Configuration Training (2G/3G)

- USN9810(SGSN) Hardware Data Configuration
 - Perform configuration of ATCA SGSN9810 hardware.
- USN9810(SGSN) Local Office Data Configuration
 - Describe the procedure of ATCA SGSN9810 Data Configuration.
 - Perform configuration of ATCA SGSN9810 system.
- USN9810(SGSN) Iu Interface Data Configuration
 - Describe the related concept.
 - Perform configuration of Iu-PS interface.
- USN9810(SGSN) Gb Interface Data Configuration
 - Perform configuration of Gb interface.
- USN9810(SGSN) Gr Interface Data Configuration
 - Perform configuration of narrowband SS7 and broadband SS7.
 - Perform configuration of Gr interface.
- USN9810(SGSN) Gn/Gp Interface Data Configuration
 - Perform configuration of Gn/Gp and Ga interfaces.
- USN9810(SGSN) MM SM Data Configuration
 - Perform configuration of MM.
 - Perform configuration of SM.
- USN9810(SGSN) Charging Data Configuration
 - Perform charging configuration.

-
- Describe the charging concept.
 - USN9810(SGSN) IP Data Configuration
 - Describe the IP Data related concept.
 - Perform IP configuration.
 - USN9810(SGSN) DNS Data Configuration
 - Describe the DNS related concept.
 - Perform DNS configuration.
 - USN9810(SGSN) NTP Configuration
 - Describe the NTP related concept.
 - Perform NTP configuration.

Duration

9 working days

Class Size

Min 6, Max 12

1.5.8 USN9810 Delta and new feature Training

Training Path

USN9810 Delta and new feature Training		
OEB10	Lecture	1d

Target Audience

Field Maintenance Engineer, First and second line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Successful completion of the program USN ATCA platform Operation and Maintenance Training

Objectives

On completion of this program, the participants will be able to:

- Describe the difference between USN9810 (MME/SGSN) V900R012C00 and USN9810 V900R011C02.
- Perform some new feature in USN9810(MME/SGSN) V900R012C00

Training Content

OEB10 USN9810 Delta and new feature Training

- USN9810(MME/SGSN) V900R012C00 in Comparison with USN9810 V900R011C02
 - Comparison of System Specifications.
 - Hardware Comparison.
 - Platform Comparison.
 - New Features.
- USN9810 (SGSN) Support S4 Architecture
 - The networks involving the Support S4 Architecture feature.
 - The implementation principles of the Support S4 Architecture feature.
 - The service procedures of the Support S4 Architecture feature.
 - The deployment notes of the Support S4 Architecture feature.
- USN9810 Support Null-MSISDN
 - Support Null-MSISDN Feature Background.
 - Support Null-MSISDN Feature Implementation.
 - Support Null-MSISDN Feature Commissioning.
- USN9810(SGSN) Paging Optimization for Fixed Terminal
 - The basic principles of the Paging Optimization for Fixed Terminal feature.
 - The deployment of the Paging Optimization for Fixed Terminal feature.
 - Commissioning of the Paging Optimization for Fixed Terminal feature.
- USN9810 APN based Signaling Congestion Control

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- The principles of APN based Signaling Congestion Control.
 - The deployment of APN based Signaling Congestion Control.
 - The commissioning of APN based Signaling Congestion Control.
 - USN9810 Multi Time Zone Service
 - The function of the Multi Time Zone Service feature.
 - The application limitation of the Multi Time Zone Service feature.
 - The configuration and application of the Multi Time Zone Service feature.
 - USN9810 Gateway Selection Based on Load
 - The principles of Gateway Selection Based on Load.
 - The service procedure of Gateway Selection Based on Load.
 - The activation of Gateway Selection Based on Load.
 - The commissioning of Gateway Selection Based on Load.

Duration

1 working day

Class Size

Min 6, Max 12

1.5.9 USN9810 APN and Roaming Solution Training

Training Path

USN9810 APN and Roaming Solution Training		
OEB31	Lecture, Lab, Demo	2d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Successful completion of the program USN ATCA platform Operation and Maintenance Training

Objectives

On completion of this program, the participants will be able to:

- Describe principle of international roaming.
- Perform roaming data configurations of SGSN/GGSN/DNS/FW.
- Describe principle of APN rectify.
- Perform data configurations of APN rectify.

Training Content

OEB31 USN9810 APN and Roaming Solution Training

- EPC International Roaming Configuration
 - Describe the application of international roaming.
 - Describe the configuration of international roaming.
- EPC APN Rectify
 - Describe the function of APN rectify.
 - Describe APN Configuration.
- USN9810 Alias APN Configuration
 - Describe the function of alias APN.
 - Describe the configuration of alias APN.

Duration

2 working days

Class Size

Min 6, Max 12

1.5.10 UGW9811 Routine Operation and Maintenance Training (2G/3G/4G)

Training Path

UGW9811 Routine Operation and Maintenance Training		
OEB21	Lecture, Lab, Demo	2d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Successful completion of the program EPC Principle Training.

Objectives

On completion of this program, the participants will be able to:

- Describe system structure and hardware structure of UGW9811.
- Perform software related installation and upgrade procedure.
- Perform hardware operation and maintenance.
- Perform the Routine Operation and Maintenance including authorization management, system information management, alarm management, trace management ,log management, license management ,patch management ,data backup and restore.

Training Content

OEB21 UGW9811 Routine Operation and Maintenance Training

- UGW9811 System Overview
 - Describe background knowledge of UGW9811.
 - Describe function of UGW9811.
 - Describe feature and specification of UGW9811.
- UGW9811 Hardware System
 - Describe background knowledge of UGW9811.
 - Describe system structure of UGW9811.
 - Describe cable connection of UGW9811.
 - Describe service flow of UGW9811.
- UGW9811 Software Installation
 - Describe basic concepts of Software Installation.
 - Describe software directory structure.
 - Describe LMT software management.
 - Describe host software management.
- UGW9811 Hardware Operation and Maintenance
 - Describe power on and power off the UGW9811.
 - Describe hardware system status checking.

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- Perform board replacement.
 - Perform dust cleaning.
 - UGW9811 Software Operation and Maintenance
 - Describe authorization management.
 - Describe system information management.
 - Describe alarm management.
 - Describe trace management.
 - Describe log management.
 - Describe patch management.
 - Describe license management.
 - Describe data backup and restore.

Duration

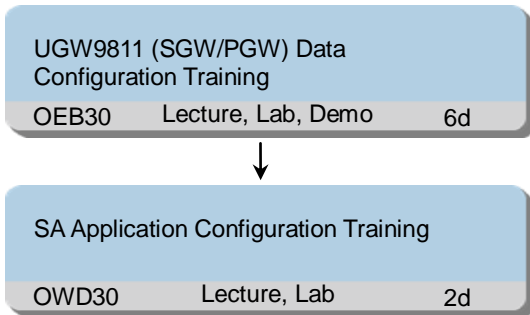
2 working days

Class Size

Min 6, Max 12

1.5.11 UGW9811 (SGW/PGW) Data Configuration Training (4G)

Training Path



Target Audience

Field Maintenance Engineer, Second line Maintenance Engineer, Routine Maintenance Engineer, Senior Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Successful completion of the program of UGW9811 Routine Operation and Maintenance Training.

Objectives

On completion of this program, the participants will be able to:

- Describe data configuration of S1-U/S11, S5/S8 and SGi interfaces
- Describe basic concept of VPN, APN and charging.
- Perform configuration of VPN, APN and charging.
- Describe the SA principles, content based charging principles and PCC concepts.
- Perform configuration of the SA function, service control function and PCC.

Training Content

OEB30 UGW9811 (SGW/PGW) Data Configuration Training

- UGW9811 System Information Configuration
 - Perform PLMN management.
 - Perform user attribute management.
 - Describe system time management.
 - Describe S-GW/SGSN access control.
- UGW9811 Single IP Configuration (EPC)
 - Describe the method and solution of Single IP function.
 - Perform the data configuration of all interfaces involved in Single IP solution.
- UGW9811 SGi Interface Data Configuration
 - Describe background knowledge of SGi Interface
 - Perform interworking with AAA server.
 - Perform interworking with internet.

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- Perform interworking with enterprise network.
 - UGW9811 APN Data Configuration
 - Describe basic concept of APN.
 - Perform APN configuration.
 - Perform virtual APN configuration.
 - Perform alias APN configuration.
 - UGW9811 VPN Data Configuration
 - Describe VPN concept.
 - Perform GRE VPN configuration.
 - Perform L2TP VPN configuration.
 - UGW9811 Offline Charging Data Configuration
 - Describe basic concept of Offline Charging.
 - Perform Offline Charging data configuration.
 - UGW9811 Online Charging Data Configuration
 - Describe basic concept of Online Charging.
 - Perform Online Charging data configuration.
 - Perform commissioning.
 - UGW9811 Gx Interface Data Configuration
 - Describe PCC concepts.
 - Perform Gx Interface Data configuration.
 - UGW9811 Security Function Data Configuration
 - Overview of security support on the UGW9811.
 - Perform security configuration.
- OWD30 SA Application Configuration Training
- GGSN9811 Service Awareness Principle
 - Describe Service Awareness Principle of GGSN9811.
 - Perform Service Awareness Configuration.
 - UGW9811 Content Based Charging Data Configuration
 - Describe UGW9811 content based charging principles.
 - Perform UGW9811 content based charging configuration.
 - UGW9811 Bandwidth Management Configuration
 - Describe the BWM configuration.
 - Perform the BWM configuration.

Duration

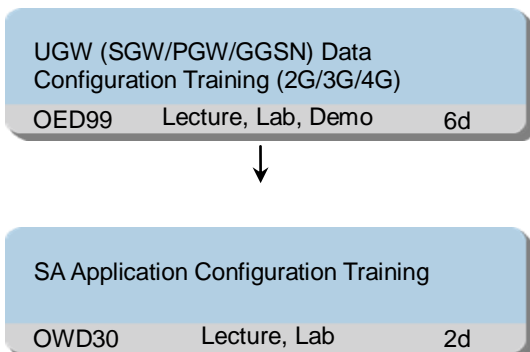
8 working days

Class Size

Min 6, Max 12

1.5.12 UGW9811 (SGW/PGW/GGSN) Data Configuration Training (2G/3G/4G)

Training Path



Target Audience

Field Maintenance Engineer, Second line Maintenance Engineer, Routine Maintenance Engineer
Second line Maintenance Engineer, Senior Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Successful completion of the program of UGW Routine Operation and Maintenance Training.

Objectives

On completion of this program, the participants will be able to:

- Describe data configuration of S1-U/S11, S5/S8 and SGi interfaces Describe basic concept of VPN, APN and charging.
- Perform configuration of VPN, APN and charging.
- Describe the SA principles, content based charging principles and PCC concepts.
- Perform configuration of the SA function, service control function and PCC.
- Perform the SA application content base charging and service control.

Training Content

OED99 UGW9811 (SGW/PGW/GGSN) Data Configuration Training

- UGW9811 System Information Configuration
 - Perform PLMN management.
 - Perform user attribute management.
 - Describe system time management.
 - Describe S-GW/SGSN access control.
- UGW9811 Single IP/N+1 Introduction(GUL)
 - Describe the method and solution of Single IP function.
 - Perform the data configuration of all interfaces involved in Single IP solution.
- UGW9811 SGi Interface Data Configuration
 - Describe background knowledge of SGi Interface.
 - Perform interworking with AAA server.

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- Perform interworking with internet.
 - Perform interworking with enterprise network.
 - UGW9811 APN Data Configuration
 - Describe basic concept of APN.
 - Perform APN configuration.
 - Perform virtual APN configuration.
 - Perform alias APN configuration.
 - UGW9811 VPN Data Configuration
 - Describe VPN concept.
 - Perform GRE VPN configuration.
 - Perform L2TP VPN configuration.
 - UGW9811 Offline Charging Data Configuration
 - Describe basic concept of Offline Charging
 - Perform data configuration of Offline Charging.
 - UGW9811 Online Charging Data Configuration
 - Describe basic concept of Online Charging
 - Perform data configuration of Online Charging
 - Perform commissioning.
 - UGW9811 Gx Interface Data Configuration
 - Describe PCC concepts.
 - Perform Gx Interface Data configuration.
 - UGW9811 Security Function Data Configuration
 - Overview of security support on the UGW9811.
 - Perform security configuration.
 - UGW911 GUL Operation
 - Describe the basic concepts about GUL convergence operation.
 - Introduce the scenarios of GUL, the working flow and key points.
- OWD30 SA Application Configuration Training
- UGW9811 Service Awareness Principle
 - Describe Service Awareness Principle of UGW9811
 - Perform Service Awareness Data Configuration of UGW9811
 - UGW9811 Content Based Charging Data Configuration
 - Describe UGW9811 content based charging principles.
 - Perform UGW9811 content based charging configuration.
 - UGW9811 Bandwidth Management Configuration
 - Describe the BWM configuration.
 - Perform the BWM configuration.

Duration

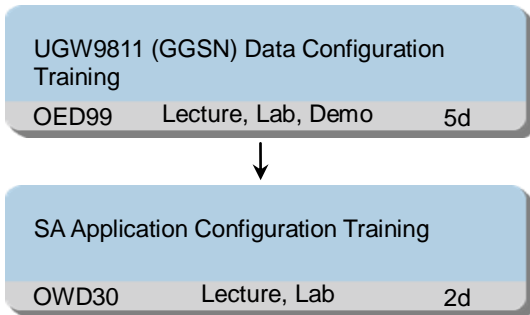
8 working days

Class Size

Min 6, Max 12

1.5.13 UGW 9811(GGSN) Data Configuration Training (2G/3G)

Training Path



Target Audience

Field Maintenance Engineer, Routine Maintenance Engineer, Second line Maintenance Engineer, Senior Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Successful completion of the program of UGW9811 Routine Operation and Maintenance Training.

Objectives

On completion of this program, the participants will be able to:

- Perform configuration of Gn/Gp, Ga and Gi interfaces and route.
- Perform data Describe basic concept of VPN, APN and charging.
- Perform configuration of VPN, APN and charging.
- Describe the SA principles, content based charging principles and PCC concepts.
- Perform configuration of the SA function, service control function and PCC.
- Perform the SA application content base charging and service control.

Training Content

OED99 UGW9811 (GGSN) Data Configuration Training

- UGW9811 System Information Configuration
 - Perform PLMN management.
 - Perform user attribute management.
 - Describe system time management.
 - Describe S-GW/SGSN access control.
- UGW9811 Single IP Configuration (GU)
 - Describe the method and solution of Single IP function.
 - Perform the data configuration of all interfaces involved in Single IP solution.
- UGW9811 SGi Interface Data Configuration
 - Describe background knowledge of SGi Interface.
 - Perform interworking with AAA server.

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- Perform interworking with internet.
 - Perform interworking with enterprise network.
 - UGW9811 Gn Interface Data Configuration
 - Describe background knowledge of Gn Interface.
 - Perform Gn Interface Data Configuration.
 - UGW9811 APN Data Configuration
 - Describe basic concept of APN
 - Perform APN configuration.
 - Perform virtual APN configuration.
 - Perform alias APN configuration.
 - UGW9811 VPN Data Configuration
 - Describe VPN concept.
 - Perform GRE VPN configuration.
 - Perform L2TP VPN configuration.
 - UGW9811 Offline Charging Data Configuration
 - Describe basic concept of Offline Charging.
 - Perform data configuration of Offline Charging.
 - UGW9811 Online Charging Data Configuration
 - Describe basic concept of Online Charging.
 - Perform data configuration of Online Charging.
 - Perform commissioning.
 - UGW9811 Gx Interface Data Configuration
 - Describe PCC concepts.
 - Perform Gx Interface Data configuration.
 - UGW9811 Security Function Data Configuration
 - Overview of security support on the UGW9811.
 - Perform security configuration.
- OWD30 SA Application Configuration Training
- UGW9811 Service Awareness Principle
 - Describe Service Awareness Principle of UGW9811
 - Perform Service Awareness Data Configuration of UGW9811
 - UGW9811 Content Based Charging Data Configuration
 - Describe UGW9811 content based charging principles.
 - Perform UGW9811 content based charging configuration.
 - UGW9811 Bandwidth Management Configuration
 - Describe the BWM configuration.
 - Perform the BWM configuration.

Duration

7 working days

Class Size

Min 6, Max 12

1.5.14 UGW9811 Delta and new feature Training

Training Path

UGW9811 Delta and new feature Training		
OED10	Lecture	1d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Successful completion of the program of UGW9811 Routine Operation and Maintenance Training.

Objectives

On completion of this program, the participants will be able to:

- Describe about the version difference between UGW9811 V900R010C00 and UGW9811 V900R009C01
- Perform new feature in UGW9811 V900R010C00

Training Content

OED10 UGW9811 Delta and new feature Training

- UGW9811 New Features Introduction
 - Introduce the version difference in all aspects.
 - Describe the overall new features of this version.
- UGW9811 EPSN Introduction
 - Describe the background of EPSN.
 - Describe the main functions of EPSN.
 - Describe the key features and specification of EPSN.
- UGW9811 EPSN Principle and Configuration
 - Describe the three implementation methods of EPSN.
 - Describe the principle of EPSN application.
 - Describe the data configuration of EPSN.
- UGW9811 TCP Optimization
 - Describe the principle of TCP optimization.
 - Describe the service procedures of TCP optimization.
 - Describe the service configuration and commissioning of TCP optimization.
- UGW9811 eQCI Support Feature Introduction
 - Describe the background of eQCI and service procedures.
 - Describe the implementation planning and service configuration.
- UGW9811 Unified PCC Feature Introduction

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- Describe the background and solution of PCC and ADC features.
 - Describe the service procedures of PCC and ADC features.
 - Describe the implementation planning and service commissioning of PCC and ADC features.

Duration

1 working day

Class Size

Min 6, Max 12

1.5.15 CG9812 Operation and Maintenance Training (Windows)

Training Path

CG9812 Administration (Windows) Training		
OWI30	Lecture, Lab	2d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Successful completion of the program GPRS/UMTS PS Fundamental Training.

Objectives

On completion of this program, the participants will be able to:

- Describe the charging principle of PS core network.
- Describe the CG9812 system structure.
- Perform key maintenance parameters configuration in CG server.
- Perform Routine Operation and Maintenance of CG server.

Training Content

OWI30 CG9812 Administration (Windows) Training

- CG9812 System Overview(Windows)
 - Describe the charging principle of PS core network.
 - Describe charging relative concept and basic structure of CDR.
 - Describe the CG9812 system structure.
- CG9812 Server Operation and Maintenance(Windows)
 - Configure key maintenance parameters in CG server.
 - Perform data backup of CG server.
- CG9812 Client Operation and Maintenance (Windows)
 - Perform alarm management.
 - Perform CG status checking.
 - Execute CDR query and analysis.

Duration

2 working days

Class Size

Min 6, Max 12

1.5.16 CG9812 Operation and Maintenance Training (UNIX)

Training Path

CG9812 Administration (UNIX) Training		
OWI31	Lecture, Lab	2d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Successful completion of the program GPRS/UMTS PS Fundamental Training.

Objectives

On completion of this program, the participants will be able to:

- Outline the charging principle of PS core network.
- Describe the CG9812 system structure.
- Perform key maintenance parameters configuration in CG server.
- Perform the Routine Operation and Maintenance of CG server.

Training Content

OWI31 CG9812 Administration (UNIX) Training

- CG9812 System Overview(Unix)
 - Describe the charging principle of PS core network.
 - Describe charging relative concept and basic structure of CDR.
 - Describe the CG9812 system structure.
- CG9812 Server Operation and Maintenance(Unix)
 - Configure key maintenance parameters in CG server.
 - Perform data backup of CG server.
- CG9812 Client Operation and Maintenance (Unix)
 - Perform alarm management.
 - Perform CG status checking.
 - Execute CDR query and analysis.

Duration

2 working days

Class Size

Min 6, Max 12

1.5.17 CG9812 Operation and Maintenance Training (ATCA)

Training Path

CG9812 Operation and Maintenance Training (ATCA)		
OWI50	Lecture, Lab, Demo	2d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Get familiar with TCP/IP.

Objectives

On completion of this program, the participants will be able to:

- Perform CG9812 routine maintenance.
- Perform CG9812 client software installation and CDR browsing/query.

Training Content

OWI50 CG9812 Operation and Maintenance Training (ATCA)

- CG9812 System Overview
 - Describe CG9812 system structure.
 - Describe CG9812 function and service.
 - Describe CG9812 operation and maintenance.
 - Describe CG9812 technical standard.
- CG9812 Software Installation
 - Describe CG9812 software installation procedure.
 - Describe how to install CG9812.
- CG9812 Data Configuration
 - Describe CG9812 basic procedure of data configuration.
 - Perform CG9812 IP address planning.
 - Perform CG9812 data configuration.
- CG9812 Operation and Maintenance
 - Perform CG9812 Client operation and maintenance.
 - Perform CG9812 Server operation and maintenance through OMU.

Duration

2 working days

Class Size

Min 6, Max 12

1.5.18 PS Alarm Monitoring and Management Training

Training Path

PS Alarm Monitoring and Management		
OWB93	Lecture, Lab, Demo	1d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Get familiar with TCP/IP.
- At least 1 year related experience in PS equipment maintenance.
- Successful completion of the program of GPRS/UMTS PS Fundamental Training.

Objectives

On completion of this program, the participants will be able to:

- Describe basic alarm.
- Perform basic method of alarm monitoring and management.

Training Content

OWB93 PS Alarm Monitoring and Management

- SGSN9810 Alarm Monitor and Management
 - Describe the related knowledge of alarm.
 - Perform the alarm monitoring of SGSN9810.
 - Perform the ordinary alarm analysis and process.
- GGSN9811 Alarm Monitor and Management
 - Describe the related knowledge of alarm.
 - Perform the alarm monitoring of GGSN9811.
 - Perform the ordinary alarm analysis and process.
- CG9812 Alarm Monitor and Management
 - Perform the alarm monitoring of CG9812.
 - Perform the ordinary alarm analysis and process.

Duration

1 working day

Class Size

Min 6, Max 12

1.5.19 EPC Alarm Monitoring and Management Training

Training Path

EPC Alarm Monitoring and Management Training		
OEB93	Lecture, Lab, Demo	1d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Get familiar with TCP/IP.
- 2 years related experience in PS equipment maintenance.
- Successful completion of the program of GPRS/UMTS PS Fundamental Training.

Objectives

On completion of this program, the participants will be able to:

- Perform the basic alarm monitoring.
- Perform the basic alarm analysis and process.

Training Content

OEB93 EPC Alarm Monitoring and Management Training

- USN9810 Alarm Monitor and Management
 - Describe the related knowledge of alarm.
 - Perform the alarm monitoring of USN9810.
 - Perform the basic alarm analysis and process.
- UGW9811 Alarm Monitor and Management
 - Describe the related knowledge of alarm.
 - Perform the alarm monitoring of UGW9811.
 - Perform the basic alarm analysis and process.
- CG9812 Alarm Monitor and Management
 - Perform the alarm monitoring of CG9812.
 - Perform the ordinary alarm analysis and process.

Duration

1 working day

Class Size

Min 6, Max 12

1.5.20 PS Performance Monitoring and Management Training

Training Path

PS Performance Monitoring Training		
OWB92	Lecture, Lab, Demo	1d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Get familiar with TCP/IP.
- 3 years related experience in PS equipment maintenance.
- Successful completion of the program of GPRS/UMTS PS Fundamental Training.

Objectives

On completion of this program, the participants will be able to:

- Describe Key Performance Indicator of SGSN.
- Describe Key Performance Indicator of GGSN.
- Perform KPI collection method.

Training Content

OWB92 PS Performance Monitoring Training

- PS Performance Monitoring Training
 - Describe the SGSN critical KPIs.
 - Describe the GGSN critical KPIs.
 - Describe the CG critical KPIs.
 - Master the KPI targets methods of observation.
- M2000 Performance Management
 - Perform M2000 Performance Management

Duration

1 working day

Class Size

Min 6, Max 12

1.5.21 EPC Performance Monitoring and Management Training

Training Path

EPC Performance Monitoring and Management Training		
OEB92	Lecture, Lab, Demo	1d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Get familiar with TCP/IP.
- 5 years related experience in PS equipment maintenance.
- Successful completion of the program of GPRS/UMTS PS Fundamental Training.

Objectives

On completion of this program, the participants will be able to:

- Describe the KPIs in USN.
- Describe the KPIs in UGW.
- Describe the KPIs in CG.
- Describe the observation method of KPI.

Training Content

OEB92 EPC Performance Monitoring and Management Training

- EPC Performance Monitor and Management
 - Describe the KPIs in USN.
 - Describe the KPIs in UGW.
 - Describe the KPIs in CG.
 - Describe the observation method of KPI.

Duration

1 working day

Class Size

Min 6, Max 12

1.5.22 EPC Network Security Training

Training Path

EPC Network Security Training		
OWB06	Lecture, Lab, Demo	1d

Target Audience

Senior Engineer, Specialist, Expert

Prerequisites

- A general understanding of mobile communication and data communication.
- Finish USN9810 Operation and Maintenance Training.
- Finish UGW9811 Operation and Maintenance Training.

Objectives

On completion of this program, the participants will be able to:

- Describe the Common Network Attack to EPC network.
- Describe the HUAWEI EPC network security solution.
- Describe the function and data configuration of SeMG9811 in HUAWEI EPC network security solution.

Training Content

OWB06 EPC Network Security Training

- EPC Network Security Solutions
 - Describe Common Attacks on the EPC Network.
 - Describe EPC network Security Threats.
 - Describe Device Security.
 - Describe Network Security.
 - Describe Service Security.
 - Describe O/M Security.
- SeMG9811 product overview
 - Describe SeMG9811 hardware and software.
 - Describe the function of SeMG9811 in HUAWEI EPC network security solution.
- SeMG9811 Data configuration
 - Perform Data Configuration of IPsec.

Duration

1 working day

1.5.23 GUL Convergence Training

Training Path

GUL Convergence Training		
OWA90	Lecture, LVC	2d

Target Audience

All Technical and non-Technical Persons

Prerequisites

- A general understanding of mobile communication and data communication.
- Successful completion of the program EPC Principle Fundamental and GPRS/UMTS PS Fundamental Training.

Objectives

On completion of this program, the participants will be able to:

- Describe EPC Principle.
- Describe EPC Network Deployment Policy.
- Describe EPC Network Element Deployment Policy.
- Describe the networking of GUL interoperation.
- Describe the principle of GUL Interoperation.
- Describe key point of GUL Interoperation Deployment.

Training Content

OWA90 GUL Convergence Training

- EPC Principle (0.5 day)
 - Describe the EPC network structure.
 - Describe the EPC Network interface and protocol.
 - Describe the EPC Network working procedures.
- GUL Interoperation Solution
 - Describe the GUL interoperation networking.
 - Describe the GUL interoperation basic principle.
 - Describe the key point of GUL interoperation deployment.
- GUL Interworking Data Configuration Case
 - Describe the TAU signaling procedure.
 - Describe the Handover signaling procedure.
- GUL Interoperation Commissioning
 - Describe the configuration of GUL interoperation.
 - Describe the basic commissioning of GUL interoperation.

Duration

2 working days

Class Size

Min 6, Max 12

1.5.24 EPC VOLTE Solution Training (CSFB)

Training Path

EPC VOLTE Solution Training (CSFB)		
OEB33	Lecture	2d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Successful completion of the program EPC Principle Fundamental Training.

Objectives

On completion of this program, the participants will be able to:

- Describe network structure of CSFB.
- Perform signaling analysis of CSFB.

Training Content

OEB33 EPC VOLTE Solution Training (CSFB)

- EPC Voice Solution Feature(CSFB)
 - Describe CSFB principle.
 - Describe CSFB key procedure.
 - Describe SGs interface and protocol.
 - Perform CSFB feature data configuration.
 - Perform CSFB network deployment.

Duration

2 working day

Class Size

Min 6, Max 12

1.5.25 EPC VOLTE Solution Training (SRVCC)

Training Path

EPC VOLTE Solution Training (SRVCC)		
OEB30	Lecture	2d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Successful completion of the program EPC Principle Fundamental Training.

Objectives

On completion of this program, the participants will be able to:

- Describe network structure of SRVCC.
- Perform signaling analysis of SRVCC.

Training Content

OEB30 EPC VOLTE Solution Training (SRVCC)

- EPC Voice Solution Feature(SRVCC)
 - Describe VoIMS call procedure.
 - Describe SRVCC interface and protocol.
 - Describe SRVCC signaling analysis.
 - Describe SRVCC solution.

Duration

2 working day

Class Size

Min 6, Max 12

1.5.26 PS IPv6 Feature Training

Training Path

IPv6 Solution for PS/EPC		
OEY00	Lecture, Lab, Demo	1d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Get familiar with TCP/IP.
- Successful completion of the program of EPC Data Configuration Training.
- Successful completion of the program of EPC Equipment Commissioning Training.

Objectives

On completion of this program, the participants will be able to:

- Describe the IPv6 implementation for PS and EPC.
- Describe the data configuration for IPv6 solution in PS and EPC.

Training Content

OEY00 IPv6 Solution for PS/EPC

- IPv6 Solution for PS/EPC
 - Introduce the IPv6 solution in PS/EPC.
 - Describe the data configuration for IPv6 solution.

Duration

1 working day

Class Size

Min 6, Max 12

1.5.27 GPRS/UMTS SGSN POOL Training

Training Path

SGSN POOL Training		
OWB76	Lecture, Lab, Case	3d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general mobile communication and data communication.
- Successful completion of the program GPRS/UMTS Principle Training.
- Successful completion of the program SGSN Routine Operation and Maintenance training.
- Successful completion of the program SGSN data configuration Training.

Objectives

On completion of this program, the participants will be able to:

- Describe the principle of SGSN POOL.
- Perform data configuration of SGSN POOL.
- Perform Operation and Maintenance of SGSN POOL.

Training Content

OWB76 SGSN POOL Training

- SGSN POOL Solution
 - Describe the principle of SGSN POOL.
 - Describe the planning of SGSN POOL.
- SGSN POOL Data Configuration
 - Perform data configuration of SGSN POOL.
 - Perform data configuration of user migration.
- M2000 SGSN Pool Operation and Maintenance
 - Perform Operation and Maintenance of SGSN POOL.
- SGSN POOL Signaling Analysis
 - Perform signaling analysis of SGSN POOL.
 - Describe the parameter of SGSN POOL procedure.
- SGSN POOL Troubleshooting
 - List the common troubleshooting case of SGSN POOL.
 - Perform SGSN POOL troubleshooting after analysis the signaling procedure.
 - Describe the procedure of SGSN POOL troubleshooting.

Duration

3 working days

Class Size

Min 6, Max 12

1.5.28 MME POOL Training

Training Path

MME POOL Training		
OEB32	Lecture, Lab, Demo	2d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Successful completion of the program of USN ATCA platform Operation and Maintenance Training (2G/3G/4G).
- Successful completion of the program of USN9810 Data Configuration Training.

Objectives

On completion of this program, the participants will be able to:

- Describe principle of MME pool.
- Perform data configuration of MME pool.

Training Content

OEB32 MME POOL Training

- MME POOL Feature Principle
 - Describe MME POOL principle.
 - Describe MME POOL data configuration.
 - Describe MME POOL Operation and Maintenance.

Duration

2 working days

Class Size

Min 6, Max 12

1.5.29 PS QOS Training

Training Path

PS QOS Training		
OWA11	Lecture	1d

Target Audience

Routine Maintenance Engineer, Optimization Engineer, Senior Maintenance Engineer.

Prerequisites

- A general understanding of mobile communication and data communication.
- Get familiar with TCP/IP and GPRS principle.
- 2 years related experience in PS domain.

Objectives

On completion of this program, the participants will be able to:

- Describe PS QoS parameter.
- Describe PS QoS negotiation process.
- Check PS service QoS parameter default value.
- Perform SGSN QoS handling.
- Perform UE and Radio Part QoS handling.

Training Content

OWA11 PS QOS Training

- QoS in GPRS and UMTS Networks ISSUE
 - Describe PS QoS parameter.
 - Describe PS QoS negotiation process.
 - PS service QoS parameter default value.
 - SGSN/GGSN QoS handling.
 - UE and Radio Part QoS handling.

Duration

1 working day

Class Size

Min 6, Max 12

1.5.30 IP Convergence for Packet Core Training

Training Path

IP Convergence for Packet Core Training		
OWA06	Lecture, Lab, Demo	4d

Target Audience

Routine Maintenance Engineer, Optimization Engineer, Senior Maintenance Engineer.

Prerequisites

- A general understanding of mobile communication and data communication.
- Get familiar with TCP/IP and GPRS Principle.

Objectives

On completion of this program, the participants will be able to:

- Describe TCP/IP fundamental related to GPRS/UMTS PS network.
- Describe IP backbone and key Data communication technology.
- Describe interconnection solution between PS and CE.
- Perform IP Planning between PS and CE.
- Perform Data configuration between PS and CE.
- Perform Iu/Gb/Gr/Gn/Ga interface networking and reliability solution.
- Execute OM interface networking and reliability solution.
- Describe PS networking troubleshooting method.
- Perform common troubleshooting according to case study.

Training Content

OWA06 IP Convergence for Packet Core Training

- Datacom Fundamental related to PS networking
 - Describe TCP/IP fundamental.
 - Describe VLAN and IP Routing fundamental.
 - Describe OSPF, VRRP and BFD protocol and application.
- Interworking topic between PS and Datacom device
 - Describe IP backbone and key Datacom technology.
 - Describe interconnection solution between PS and CE.
 - Describe IP Planning between PS and CE.
 - Describe Data configuration between PS and CE.
- PS Typical Networking and Reliability Analysis
 - Describe Iu, Gb interface networking and reliability solution.
 - Describe Gr interface networking and reliability solution.
 - Describe Gn interface networking and reliability solution.
 - Describe Ga interface networking and reliability solution.

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- Describe OM interface networking and reliability solution.
 - Troubleshooting related to PS Networking
 - Describe PS networking troubleshooting method.
 - Common troubleshooting case study.

Duration

4 working days

Class Size

Min 6, Max 12

1.5.31 PS Signaling Procedure Analysis and Troubleshooting Training

Training Path

PS Signaling Procedure Analysis and Troubleshooting		
OWB76	Lecture, Lab, Demo	2d

Target Audience

Routine Maintenance Engineer, Optimization Engineer, Senior Maintenance Engineer.

Prerequisites

- A general understanding of mobile communication and data communication.
- Get familiar with TCP/IP.
- 1 years related experience in PS equipment maintenance.
- Successful completion of the program of GPRS/UMTS PS Fundamental Training.

Objectives

On completion of this program, the participants will be able to:

- Describe important procedures and parameters of MM/SM.
- Perform MM/SM/Service Troubleshooting.

Training Content

OWB76 PS Signaling Procedure Analysis and Troubleshooting

- GPRS Signaling Procedure
 - Analysis GPRS and UMTS PS basic mobility management procedure.
 - Analysis GPRS and UMTS PS basic session management flow.
- Attach Procedure Troubleshooting
 - Perform the mobility management troubleshooting.
 - Describe the method of troubleshooting.
- RAU Procedure Troubleshooting
 - Perform RAU troubleshooting.
 - Describe the method of troubleshooting.
- Session Management Troubleshooting
 - Perform the session management troubleshooting.
 - Describe the method of troubleshooting.

Duration

2 working days

Class Size

Min 6, Max 12

1.5.32 PS Interface Signaling Analysis and Troubleshooting Training

Training Path

PS Interface Signaling Analysis and Troubleshooting Training		
OWB77	Lecture, Lab, Demo	3d

Target Audience

Routine Maintenance Engineer, Optimization Engineer, Senior Maintenance Engineer.

Prerequisites

- A general understanding of mobile communication and data communication.
- Get familiar with TCP/IP.
- 1 years related experience in PS equipment maintenance.
- Successful completion of the program of GPRS/UMTS PS Fundamental Training.

Objectives

On completion of this program, the participants will be able to:

- Describe important procedures and parameters of RANAP/MAP/GTP.
- Perform signaling procedures analysis.

Training Content

OWB77 PS Interface Signaling Analysis and Troubleshooting Training

- GTP Protocol Analysis and Troubleshooting
 - Analyze GTP Protocol.
 - Describe important parameter related to GTP protocol.
 - Describe GTP Troubleshooting Methods.
 - Introduce Common GTP troubleshooting case.
- MAP Protocol Analysis and Troubleshooting
 - Analyze MAP Protocol.
 - Describe important parameter related to MAP protocol.
 - Describe MAP Troubleshooting Methods.
 - Introduce Common MAP troubleshooting case.
- RANAP Protocol Analysis and Troubleshooting
 - Analyze GTP Protocol.
 - Describe important parameter related to GTP protocol.
 - Describe GTP Troubleshooting Methods.
 - Introduce Common GTP troubleshooting case.
- GTP' Protocol Analysis and Troubleshooting
 - Analyze GTP' Protocol.
 - Describe important parameter related to GTP' protocol.
 - Describe GTP' Troubleshooting Methods.

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- Introduce Common GTP troubleshooting case.

Duration

3 working days

Class Size

Min 6, Max 12

1.5.33 PS Data Transfer Troubleshooting Training

Training Path

PS Data Transfer Troubleshooting Training		
OWA78	Lecture, Lab, Demo	2d

Target Audience

Routine Maintenance Engineer, Optimization Engineer, Senior Maintenance Engineer.

Prerequisites

- A general understanding of mobile communication and data communication.
- Get familiar with TCP/IP.
- 1 years related experience in PS equipment maintenance.
- Successful completion of the program of GPRS/UMTS PS Fundamental Training.

Objectives

On completion of this program, the participants will be able to:

- Perform locating method of Data Transfer fault.
- Perform Troubleshooting method of Data Transfer fault.

Training Content

OWA78 PS Data Transfer Troubleshooting Training

- Essential Knowledge of PS Data Transmission
 - Know TCP/IP Protocol knowledge.
 - Know Ethereal/Wireshark tools usage.
 - Know Huawei SW/Router port mirroring method.
 - Know GGSN9811 port mirroring method.
- Locating and Rectifying PS Data Transmission Faults
 - Describe general service flow and troubleshooting.
 - Describe Data transmission problem located method.
- PS Data Transmission Troubleshooting Case Study
 - Case study for Data transmission.
- TCP Typical packet analysis
 - Describe TCP typical analysis

Duration

2 working days

Class Size

Min 6, Max 12

1.5.34 EPC Interface Protocol Analysis Training

Training Path

EPC Interface Protocol Analysis Training		
OEA02	Lecture, Lab, Demo	2d

Target Audience

EPC Engineer and Experts, PS Network Planning Engineer, System Design Engineer

Prerequisites

- A general understanding of GPRS network principle, mobile communication and data communication.

Objectives

On completion of this program, the participants will be able to:

- Perform USN9810 signaling tracing method.
- Perform S1-MME interface signaling flow and key parameters analysis.
- Perform S6a interface signaling flow and key parameters analysis.
- Perform S5/S8 interface signaling flow and key parameters analysis.

Training Content

OEA02 EPC Interface Protocol Analysis Training

- EPC S1-AP Signaling Analysis
 - Analyze S1-AP signaling flow and key parameters through S1-MME interface.
- EPC Diameter Signaling Analysis
 - Analyze Diameter signaling flow and key parameters through S6a interface.
- EPC GTP V2 Signaling Analysis
 - Analyze GTP V2 signaling flow and key parameters through S5/S8 interface.

Duration

2 working days

Class Size

Min 6, Max 12

1.5.35 EPC Signaling Analysis Training

Training Path

EPC Signaling Analysis Training		
OEA03	Lecture, Lab, Demo	2d

Target Audience

EPC Engineer and Experts, PS Network Planning Engineer, System Design Engineer

Prerequisites

- A general understanding of GPRS network principle, mobile communication and data communication.

Objectives

On completion of this program, the participants will be able to:

- Perform USN9810 signaling tracing method.
- Perform UGW9811 signaling tracing method.
- Perform EMM signaling flow and key parameters analysis.
- Perform ESM signaling flow and key parameters analysis.

Training Content

OEA03 EPC Signaling Analysis Training

- Attach Procedure Signaling Analysis
 - Analyze Attach procedure signaling flow and key parameters.
- Detach Procedure Signaling Analysis
 - Analyze Detach procedure signaling flow and key parameters.
- S1 release procedure Signaling Analysis
 - Analyze S1 release procedure signaling flow and key parameters.
- Service Request Procedure Signaling Analysis
 - Analyze Service request procedure signaling flow and key parameters.
- TAU Procedure Signaling Analysis
 - Analyze tracking area update procedure signaling flow and key parameters.
- X2-handover Procedure Signaling Analysis
 - Analyze X2 based handover procedure signaling flow and key parameters.
- S1-handover Procedure Signaling Analysis
 - Analyze S1 based handover procedure signaling flow and key parameters.
- Bearer Activation Procedures Signaling Analysis
 - Analyze bearer activation procedure signaling flow and key parameters.
- Bearer Modification Procedures Signaling Analysis
 - Analyze bearer modification procedure signaling flow and key parameters.
- Bearer Deactivation Procedures Signaling Analysis

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- Analyze bearer deactivation procedure signaling flow and key parameters.
 - UE Requested PDN Connectivity Procedure Signaling Analysis
 - Analyze UE requested PDN connectivity procedure signaling flow and key parameters.
 - PDN disconnection Procedures Signaling Analysis
 - Analyze PDN disconnection procedure signaling flow and key parameters.

Duration

2 working days

Class Size

Min 6, Max 12

1.5.36 EPC Troubleshooting Training

Training Path

EPC Troubleshooting Training		
OEB04	Lecture, Lab, Demo	3d

Target Audience

Senior maintenance Engineer, Specialist, Experts

Prerequisites

- A general understanding of mobile communication and data communication.
- Get familiar with TCP/IP.
- Successful completion of EPC USN9810 Data Configuration Training.
- Successful completion of EPC UGW9811 Data Configuration Training.

Objectives

On completion of this program, the participants will be able to:

- Describe USN9810/UGW9811 EMM/ESM troubleshooting method.
- Perform USN9810/UGW9811 EMM/ESM related fault located with signaling analysis.

Training Content

OEB04 EPC Troubleshooting Training

- EPC Attach Procedure Troubleshooting
 - List the common troubleshooting case of attach procedure.
 - Describe the procedure of attach procedure troubleshooting.
 - Perform troubleshooting after analysis the signaling of attach procedure.
- EPC TAU Procedure Troubleshooting
 - List the common troubleshooting case of TAU procedure.
 - Describe the procedure of TAU procedure troubleshooting.
 - Perform troubleshooting after analysis the signaling of TAU procedure.
- EPC Session Management Procedure Troubleshooting
 - List the common troubleshooting case of session management procedure.
 - Describe the procedure of session management procedure troubleshooting.
 - Perform troubleshooting after analysis the signaling of session management procedure.
- EPC Handover Procedure Troubleshooting
 - List the common troubleshooting case of handover procedure.
 - Describe the procedure of handover procedure troubleshooting.
 - Perform troubleshooting after analysis the signaling of handover procedure.
- EPC Troubleshooting Case Study
 - List the common troubleshooting case in live network.

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- Perform live network troubleshooting case Analysis.

Duration

3 working days

Class Size

Min 6, Max 12

1.5.37 GPRS/UMTS PS Network Optimize Training

Training Path

PS Network Optimization Training		
OWB67	Lecture, Lab	2d

Target Audience

GPRS/UMTS PS Network Optimization Engineer, System Design Engineer, Senior Engineer and Experts

Prerequisites

- A general mobile communication and data communication.
- Successful completion of the program GPRS/UMTS Principle Training.
- Successful completion of the program SGSN/GGSN Routine Operation and Maintenance training.
- Successful completion of the program SGSN/GGSN data configuration Training.

Objectives

On completion of this program, the participants will be able to:

- Describe the general procedure of PS core network optimization.
- Analyze the PS core network KPI.
- Describe Traffic Statistics Model Extraction.
- Perform Evaluation and Optimization of the SGSN9810/GGSN9811/DNS/CG Resource Capacity.

Training Content

OWB67 PS Network Optimization Training

- PS Optimization principle of core network
 - Describe the function of PS optimization.
 - Describe the procedure of PS optimization.
- Guide to Evaluation and Optimization of the SGSN9810 Attach
 - Describe definition of Attach KPI.
 - Describe the method of Attach KPI evaluation.
 - Describe the method of Attach KPI optimization.
- Guide to Evaluation and Optimization of the SGSN9810 PDP Activity
 - Describe definition of PDP Activity KPI.
 - Describe the method of PDP Activity KPI evaluation.
 - Describe the method of PDP Activity KPI optimization.
- Guide to Evaluation and Optimization of the GSN Resource Capacity
 - Describe Evaluation and Optimization of the SGSN9810 Resource Capacity.
 - Describe Evaluation and Optimization of the GGSN9811 Resource Capacity.

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- Guide to Evaluation and Optimization of the DNS Resource Capacity
 - Describe Evaluation of the DNS Resource Capacity.
 - Describe Optimization of the DNS Resource Capacity.
 - Guide to Evaluation and Optimization of the CG Resource Capacity
 - Describe Evaluation of the CG Resource Capacity.
 - Describe Optimization of the CG Resource Capacity.
 - Guide to Evaluation and Optimization of the FTP download
 - Describe definition of FTP download KPI.
 - Describe the method of FTP download KPI evaluation.
 - Describe the method of FTP download KPI optimization.
 - Guide to Evaluation and Optimization of the inter-RAU
 - Describe definition of inter-RAU KPI.
 - Describe the method of inter-RAU KPI evaluation.
 - Describe the method of inter-RAU KPI optimization.

Duration

2 working days

Class Size

Min 6, Max 12

1.5.38 GPRS/UMTS PS Network Planning and Design Training

Training Path

PS Network Planning Training		
OWB68	Lecture	2d

Target Audience

GPRS/UMTS PS Network Planning Engineer, System Design Engineer, Senior Engineer and Experts

Prerequisites

- A general mobile communication and data communication.
- Successful completion of the program GPRS/UMTS Principle Training.
- Successful completion of the program SGSN/GGSN Routine Operation and Maintenance training.
- Successful completion of the program SGSN/GGSN data configuration Training.

Objectives

On completion of this program, the participants will be able to:

- Describe PS Network Planning Principle.
- Perform the Networking Scheme for Gb/Iu/SS7/Gn/Gp/OM/Ga/Li/Gy and GGSN-SUR, GGSN-SCCG networking scheme.

Training Content

OWB68 PS Network Planning Training

- GPRS and UMTS PS Network Planning
 - Describe Network Structure Planning.
 - Describe Interface Networking Mode Planning.
 - Describe APN Planning.
 - Describe IP Address Planning.
 - Describe Roaming Planning.
 - Describe Networking Security Planning.
 - Perform Iu/Gr/Gb/Gi/Ga/Gn/Gp Interface Bandwidth Calculation.
- GPRS/UMTS PS Core Network Networking design (SGSN)
 - Describe Gb Interface Design.
 - Describe Iu Interface Design.
 - Describe SS7 Interface Design.
 - Describe Gn/Gp Interface Design.
 - Describe Ga Interface Design.
 - Describe OM Network Design.
 - Describe NTP Network Design.

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- GPRS/UMTS PS Core Network Networking design (GGSN)
 - Describe Gn/Gp Interface Design.
 - Describe Gi Interface Design.
 - Describe Ga Interface Design.
 - Describe OM Network Design.
 - Describe NTP Network Design.

Duration

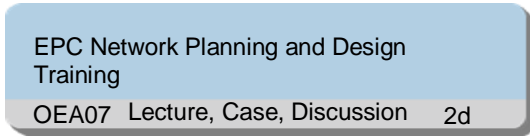
2 working days

Class Size

Min 6, Max 12

1.5.39 EPC Network Planning and Design Training

Training Path



Target Audience

PS Network Planning Engineer, System Design Engineer, Senior Engineer and Experts

Prerequisites

- A general understanding of mobile communication and data communication.
- Get familiar with TCP/IP.
- Successful completion of the program of EPC Protocol and Procedure Training.
- Successful completion of the program of EPC Equipment Commissioning Training

Objectives

On completion of this program, the participants will be able to:

- Describe EPC network planning procedure
- Finish a simple network planning task
- Describe the principle of Interface Bandwidth Calculation
- Complete an EPC network interface bandwidth calculation task.
- Describe the networking design principle

Training Content

OEA07 EPC Network Planning and Design Training

- EPC Network Planning
 - EPC Network Planning Overview
 - EPC Network Structure Planning
 - IP Address Planning
 - APN and Host Name Planning
 - QoS Planning
 - Roaming Planning
- EPC Interface Bandwidth Calculation
 - Deployment for EPC-GW.
 - Background Knowledge of EPC Interface Bandwidth Calculation
 - S1-MME Interface Bandwidth Calculation
 - S1-U Interface Bandwidth Calculation
 - S10/S11 Interface Bandwidth Calculation
 - S5/S8 Interface Bandwidth Calculation
 - S6a Interface Bandwidth Calculation
 - SGi Interface Bandwidth Calculation

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- Ga Interface Bandwidth Calculation
 - EPC Networking Design
 - Networking Design General Principle
 - Key Technique of Networking Design
 - Typical Networking Design Introduction

Duration

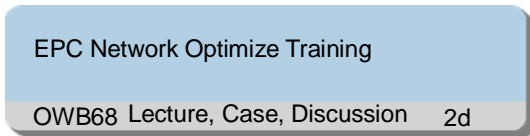
2 working days

Class Size

Min 6, Max 12

1.5.40 EPC Network Optimize Training

Training Path



Target Audience

PS Network Optimization Engineer, System Design Engineer, Senior Engineer and Experts

Prerequisites

- A general understanding of mobile communication and data communication
- Successful completion of the program EPC Principle Training.
- Successful completion of the program USN9810 /UGW9811 Routine Operation and Maintenance training.
- Successful completion of the program USN9810/UGW9811 data configuration Training.

Objectives

On completion of this program, the participants will be able to:

- Perform Evaluation and Optimization of the USN9810 and UGW9811 Resource Capacity.
- Analyze and optimize the EPC network KPI including Attach Success rate, TAU Success rate, Handover success rate, Dedicated bearer activation success rate.

Training Content

OWB68 EPC Network Optimize Training

- Evaluation and Optimization of the EPC Resource Capacity
 - Describe Evaluation and Optimization of the USN9810 Resource Capacity.
 - Describe Evaluation and Optimization of the UGW9811 Resource Capacity.
- Evaluation and Optimization of Attach Success Rate
 - Describe definition of Attach Success Rate.
 - Describe the method of Attach Success Rate evaluation.
 - Describe the method of Attach Success Rate optimization.
- Evaluation and Optimization of TAU Success Rate
 - Describe definition of TAU Success Rate.
 - Describe the method of TAU Success Rate evaluation.
 - Describe the method of TAU Success Rate optimization.
- Evaluation and Optimization of Handover Success Rate
 - Describe definition of Handover Success Rate.
 - Describe the method of Handover Success Rate evaluation.
 - Describe the method of Handover Success Rate optimization.
- Evaluation and Optimization of Dedicated Bearer Activation Success Rate
 - Describe definition of Dedicated Bearer Activation Success Rate.

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- Describe the method of Dedicated Bearer Activation Success Rate evaluation.
 - Describe the method of Dedicated Bearer Activation Success Rate optimization.

Duration

2 working days

Class Size

Min 6, Max 12

1.5.41 iManager M2000 PS Operation and Maintenance Training

Training Path

M2000 Routine Operation and Maintenance Training		
OWL21	Lecture, Lab	2d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general mobile communication and data communication.

Objectives

On completion of this program, the participants will be able to:

- Describe the overall architecture, hardware architecture, software architecture, typical configuration and interfaces of the M2000.
- Describe the software structure of the M2000 equipment, the functions of different parts.
- Describe the system reliability of the M2000 system from the aspects of system security.
- Perform the Routine Operation and Maintenance of M2000 client.

Training Content

OWL21 M2000 Routine Operation and Maintenance Training

- iManager M2000 System Structure and Function
 - Describe the overall architecture, hardware architecture, software architecture, typical configuration and interfaces of the M2000.
 - Describe the software structure of the M2000 equipment, the functions of different parts.
 - Describe the system reliability of the M2000 system from the aspects of system security, hardware security and operation security.
 - Describe the performance specifications of the M2000 system, including system capacity, bandwidth, storage capacity, processing capability, and client number.
- iManager M2000 Topology Management
 - Create NE.
 - Modify NE.
 - Remove NE.
- iManager M2000 Fault Management
 - Describe alarm definition.
 - Perform Alarm Filtering.
 - Perform Alarm Correlation.
 - Perform Alarm Handling.
- iManager M2000 Performance Management
 - Export the performance result file.

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- Define the performance query template.
 - Check the performance task status.
 - iManager M2000 Configuration Management
 - Conduct Configuration Management.
 - Execute command to NE.
 - iManager M2000 Log Management
 - Query the Log information and Analysis.
 - Perform collect client logs.
 - iManager M2000 Software Management
 - Perform patch uploading to the NE through the M2000.
 - Perform the patching operation on NE through the M2000.
 - M2000 Server Operation and Maintenance
 - Use command to perform the daily operation and maintenance of iManager M2000 System.
 - Resolve the basic problems in M2000 server based on the fault and alarm information.
 - Start, stop and Monitor the status of procedures in M2000 server.
 - Execute UNIX command to check the CPU occupation ratio and hard disk space occupation ratio of M2000 server.

Duration

2 working days

Class Size

Min 6, Max 12

1.5.42 DNS9816 Operation and Maintenance Training

Training Path

DNS9816 Operation and Maintenance Training		
OEN11	Lecture, Lab, Demo	1d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer.

Prerequisites

- A general understanding of mobile communication and data communication.
- Get familiar with TCP/IP and GPRS Principle.

Objectives

On completion of this program, the participants will be able to:

- Describe the main functions and key features of DNS9816.
- Describe the theory of system realizing and query procedure of DNS9816.
- Describe the hardware and software architecture of DNS9816.
- Perform the basic data configuration of DNS9816.
- Perform the data configuration of optional features about equipment.
- Perform the routine operation and maintenance.

Training Content

OEN11 DNS9816 Operation and Maintenance Training

- DNS9816 Product Overview
 - Describe the main functions and key features of DNS9816.
 - Describe the typical network structure scheme of DNS9816.
 - Describe the service functions of DNS.
 - Describe the applications and circumstances that equipment can apply.
- DNS9816 System Principle
 - Describe the basic structure of DNS.
 - Describe the query procedure of DNS.
 - Describe the iterative principles and recursion theorem applied in the DNS.
 - Describe the data planning and cases of DNS9816.
 - Describe the PS service procedure of DNS9816.
- DNS9816 Hardware/Software Architecture
 - Describe equipment hardware structure.
 - Describe physical cable connections of the equipment.
 - Describe equipment software structure.
- DNS9816 Basic Data Configuration
 - Perform data configuration of APN parsing.

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- Perform data configuration of relocation.
 - Perform data configuration of RAI parsing.
 - DNS9816 Feature Data Configuration
 - Describe the View function of DNS9816.
 - Perform data configuration of View function.
 - DNS9816 Operation and Maintenance
 - Perform the routine operation and maintenance including system maintenance, alarm management and features management.
 - Perform the MML start-up service.
 - Perform system data back-up and recovery.
 - Perform basic troubleshooting.

Duration

1 working day

Class Size

Min 6, Max 12

1.5.43 uBro UAG Operation and Maintenance Training

Training Path

UAG Operation and Maintenance Training		
OWB34	Lecture, Lab	4d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.

Objectives

On completion of this program, the participants will be able to:

- Describe the physical and logical structure of UAG equipment.
- Explain the functions of different boards in UAG.
- Perform the hardware, eIU, lu-PS, lu-Cs and AHR/NTP interface data configuration of UAG.

Training Content

OWB34 UAG Operation and Maintenance Training

- UAG Principle
 - Describe network structure of uBro.
 - Describe the product function of uBro.
 - Describe signaling procedure of uBro.
- UAG Hardware System
 - Describe the physical and logical structure of UAG equipment.
 - Explain the functions of different boards in UAG.
 - Identify and interpret the necessary data processing procedure (operation and maintenance realization procedure, interface signaling processing procedures, etc) according to the engineering requirements.
 - Draw the diagram of the signaling and data traffic flow in equipment among different boards.
- UAG System Overview
 - Describe UAG product function.
 - Describe UAG service feature.
- UAG Routine Maintenance
 - Check power and hardware status of UAG.
 - Power on and Power off system of UAG.
 - Perform boards and cable replacement of UAG.
 - Perform system data back-up and recovery of UAG.
 - Perform system log management of UAG.

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- Monitor and check system status with LMT client software of UAG.
 - UAG System Commissioning
 - Perform the interface commissioning in UAG.
 - UAG Software Management
 - Describe equipment software structure and start-up sequence.
 - Describe the software upgrade procedure.
 - Perform UAG software upgrade.
 - Perform UAG patch loading.
 - Perform license loading.
 - Upload system script, test system status.
 - UAG Iu-PS Interface Data Configuration
 - Perform Iu-PS Interface Control Plane Data Configuration.
 - Perform Iu-PS Interface User Plane Data Configuration.
 - Perform AG IU-PS service procedure.
 - UAG Hardware Data Configuration
 - Perform UAG Data Configuration Work Flow.
 - Perform UAG Hardware Data Configuration.
 - Perform UAG Clock Data Configuration.
 - Perform UAG Office Data Configuration.
 - UAG Iuh Interface Data Configuration
 - Basic Knowledge of elu Interface.
 - Perform elu Interface Control Plane Data Configuration.
 - Perform elu Interface User Plane Data Configuration.
 - UAG Iu-CS Interface Data Configuration
 - Perform Iu-CS Interface Control Plane Data Configuration.
 - Perform Iu-CS Interface User Plane Data Configuration.
 - Describe Iu-CS common procedure.

Duration

4 working days

Class Size

Min 6, Max 12

1.5.44 WASN Operation and Maintenance Training

Training Path

WASN9770 Operation and Maintenance Training		
OXE30	Lecture, Lab	5d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.

Objectives

On completion of this program, the participants will be able to:

- Describe system structure and hardware structure of WASN9770.
- Describe signaling flow and message.
- Perform operation and maintenance of hardware and software.
- Perform data configuration of basic service, route, and VPN.
- Describe typical application scenarios of IP-CS authentication access, Mobile IP, hot-lining, Eth-CS.
- Perform system commissioning and performance management.

Training Content

OXE30 WASN9770 Operation and Maintenance Training

- WASN9770 Product Overview
 - Describe Product Overview.
 - Describe product function.
- WASN9770 Hardware System
 - Describe the hardware structure of WASN9770.
 - Describe the working principle and functions of different subsystems.
 - Describe the function of each board.
 - Analyze the signal flow in WASN9770.
 - Analyze the typical hardware configuration of WASN9770.
- WASN9770 Hardware O/M
 - Perform checking hardware status.
 - Perform boards and cable replacement.
- WASN9770 Software O/M
 - Perform system data back-up and recovery.
 - Perform system log management.
 - Monitor and check system status with LMT.
- WASN9770 Software Management

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- Describe basic concepts.
 - Perform LMT software installation.
 - Perform host software installation through the LMT.
 - Perform initial installation of host software.
 - WASN9770 System Commissioning
 - System commissioning overview.
 - Perform system running commissioning.
 - Perform interface commissioning.
 - Perform basic service commissioning.
 - WASN9770 Performance Management
 - Describe concepts.
 - Performance analysis.
 - Performance calculation.
 - WASN9770 Signaling Flow and Message Introduction
 - Introduction to the architecture of the WiMAX network.
 - Describe initial network entry process of an IP-CS user.
 - Describe initial network entry process of an ETH-CS user.
 - WASN9770 Mobile IP Fundamental
 - Describe Mobile IP technology.
 - Describe Huawei WiMAX Mobile IP solution.
 - WASN9770 Data Configuration-Optional Service
 - Describe the related concept.
 - Perform service configuration.
 - WASN9770 Data Configuration-Basic Service
 - Describe the related concept.
 - Perform basic configuration, such as interface configuration.
 - WASN9770 Data Configuration-Route
 - Describe the related concept.
 - Perform routing configuration.
 - WASN9770 Data Configuration-VPN
 - Describe the related concept.
 - WASN9770 Typical Application Scenarios(IP-CS Authentication Access)
 - IP-CS Overview.
 - Describe Authentication and Authorization.
 - Describe configuration examples of IP-CS authentication access.
 - WASN9770 Typical Application Scenarios(Mobile IP)
 - Describe Mobile IP technology.
 - Describe Huawei WiMAX Mobile IP solution.
 - WASN9770 Typical Application Scenarios(Hot-Lining)
 - Describe Hot-Lining application.
 - WASN9770 Typical Application Scenarios(Eth-CS Application)
 - Describe Eth-CS termination scenario.

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- Describe Eth-CS transparent transmission scenario.

Duration

5 working days

Class Size

Min 6, Max 12

1.5.45 TGW9811 Operation and Maintenance Training

Training Path

TGW9811 Operation and Maintenance Training		
OXT11	Lecture, Lab, Demo	3d

Target Audience

TGW9811 Operation and Maintenance Engineer, Second line Engineer, Technical Support Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Get familiar with TCP/IP and Principle.

Objectives

On completion of this program, the participants will be able to:

- Describe WLAN solution and product overview.
- Describe the physical and logical structure of the TGW.
- Describe the board function of TGW.
- Perform the software upgrade and patch/license loading procedure.
- Perform the routine operation and maintenance.
- Perform configuration of Wa, Wa' and Gn' interfaces.
- Perform configuration of Charging.
- Perform configuration to AAA.
- Perform commissioning of TGW.

Training Content

OXT11 TGW9811 Operation and Maintenance Training

- TGW9811 System Overview
 - Describe WIFI-OFFLOAD system.
 - Describe the access principle of TGW911.
 - Describe the typical WIFI-OFFLOAD networking solution.
- TGW9811 Hardware and Software System
 - Describe system structure of TGW9811.
 - Describe cable connection of TGW9811.
 - Describe service flow of TGW9811.
 - Describe basic concepts.
 - Describe software directory structure.
 - Describe software component.
 - Describe function and purpose of software component.
- TGW9811 Operation and Maintenance
 - Describe the routine operation and maintenance of TGW9811.

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- Perform the board replacement.
 - Perform the fan replacement.
 - TGW9811 System Information Configuration
 - Describe the basic data configuration of TGW9811 hardware.
 - TGW9811 Interface Configuration
 - Describe the data configuration of TGW9811 interfaces.
 - TGW9811 Charging principle and Configuration
 - Describe the charging principle of TGW911.
 - Perform the data configuration for charging.
 - TGW9811 Signaling and Procedure Introduce
 - Describe the Key IE in WIFI-OFFLOAD signaling.
 - Describe the signaling procedure of TGW911.
 - TGW9811 Subscriber connection
 - Describe the subscriber access method of TGW9811.
 - TGW9811 Local Service Policy Control
 - Describe the Local Service Policy Control of TGW9811.

Duration

3 working days

Class Size

Min 6, Max 12

1.5.46 CDMA PDSN Operation and Maintenance Training

Training Path

CDMA PDSN Operation and Maintenance Training		
ORP03	Lecture, Lab	7d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.

Objectives

On completion of this program, the participants will be able to:

- Perform the routine and emergency operation of CDMA PDSN equipments.
- Perform data configuration for equipment interconnection and charging of PDSN.
- Implement data configuration for service of CDMA PDSN.

Training Content

ORP03 CDMA PDSN Operation and Maintenance Training

- PDSN9660 Product Overview
 - Describe hardware structure.
 - Describe board function.
- PDSN9660 Hardware and Software Overview
 - Describe the software upgrade procedure.
 - Perform the software upgrade and fall back.
 - Perform the patch loading.
 - Perform the license loading.
- PDSN9660 Software Management
 - Check power and hardware status.
 - Power on and Power off system.
 - Perform boards and cable replacement.
 - Perform system data back-up and recovery.
 - Perform system log management.
 - Monitor and check system status with LMT client software.
- PDSN9660 Routine Operation and Maintenance
 - Describe the related concept.
 - Perform domain configuration.
- PDSN9660 Domain Data Configuration
 - Describe the related concept.
 - Perform interface data configuration.

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- PDSN9660 Interface Data Configuration
 - Describe the related concept.
 - Perform mobile IP data configuration.
 - PDSN9660 Mobile IP Data Configuration
 - Describe the related concept.
 - Perform routing data configuration.
 - PDSN9660 Routing Data Configuration
 - Describe the related concept.
 - Perform IPSec data configuration.
 - PDSN9660 IPSec Data Configuration
 - Describe the related concept.
 - Perform VPN data configuration.
 - PDSN9660 VPN Data Configuration
 - Describe the related concept.
 - Perform Content-based Charging.
 - PDSN9660 Content-based Data Charging
 - Describe the related concept.
 - Describe SA Principle.
 - PDSN9660 SA Principle
 - Describe the related concept.
 - Perform Online Charging Configuration.
 - PDSN9660 Online Charging Data Configuration
 - Describe the related concept.
 - Describe security function.
 - PDSN9660 Security Functions
 - Describe the related concept.
 - Perform service control configuration.
 - PDSN9660 Service Control Data Configuration
 - Perform Reliability Networking Data Configuration.

Duration

7 working days

Class Size

Min 6, Max 12

1.5.47 UGW9811(CDMA) Data configuration Training

Training Path

UGW9811 (CDMA) Data configuration Training		
OEB99	Lecture, Lab, Demo	5d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication
- Successful completion of the program of CDMA principle training.

Objectives

On completion of this program, the participants will be able to:

- Describe PDSN system structure and function.
- Describe PDSN hardware structure.
- Describe PDSN software structure.
- Perform PDSN routine operation and maintenance.
- Perform PDSN interface data configuration and system data configuration.
- Describe principle of content based charging.
- Describe CSN/Mobile IP/Follow control feature.

Training Content

N/A UGW9811(CDMA) PDSN Data configuration Training

- UGW9811 V900R010C01 VPN Configuration(PDSN)
 - Describe Concept of the VPN
 - Perform Configuration of the GRE VPN
 - Perform Configuration of the L2TP VPN
- UGW9811 V900R010C01 Configuration of System Data and Interface Data (PDSN & HSGW)
 - Perform System Data Configuration
 - Perform Interface Data Configuration
- PDSN9660 V900R010C01 PCC Principle and Data Configuration(PDSN)
 - Describe the feature of PCC function
 - Describe the network structure of PCC solution
- PDSN9660 V900R010C01 Online Charging Configuration
 - Describe the Principle and Function of Online Charging.
 - Familiar with the Commands and Steps of Online Charging
- PDSN9660 V900R010C01 Content-based Charging
 - Master the principle of PDSN9660 content-based charging
 - Master the data configuration of PDSN9660 content-based charging

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- UGW9811 V900R010C01 SA Principle and Configuration
 - Describe SA Principle
 - Perform SA Configuration
 -

Duration

5 working days

Class Size

Min 6, Max 12

1.5.48 PS Nastar Operation and Maintenance Training

Training Path

PS Nastar Training		
OWT12	Lecture, Lab, Demo	2d

Target Audience

Routine Maintenance Engineer, Optimization Engineer, Senior Maintenance Engineer.

Prerequisites

- A general understanding of mobile communication and data communication.
- Get familiar with TCP/IP and GPRS Principle.

Objectives

On completion of this program, the participants will be able to:

- Describe PS Nastar architecture, hardware deployment and feature function.
- Grasp PS Nastar typical networking, software installation.
- Perform client service operation, configuration and maintenance.

Training Content

OWT12 PS Nastar Training

- Nastar Product Description and Typical Networking
 - Describe the function of Nastar.
 - Outline the solution of Nastar.
 - Describe the networking and configuration of Nastar.
 - Describe generation mechanism of records.
- CN Nastar Server Operation and Maintenance
 - Describe the Operation and Maintenance of Nastar.
 - Describe the Files Structure of Nastar.
 - Describe the Software architecture of Nastar.
 - Describe the Interface Protocols of Nastar.
 - Describe the Software Installation procedure of Nastar.
 - Describe the interworking data configuration in SGSN9810.
 - Describe the interworking data configuration in GGSN9811.
- CN Nastar Client Operation and Maintenance
 - Describe the method of customized service query.
 - Describe the method of customized service statistics.
 - Describe the method of network analysis.
 - Describe the method of real-time monitoring.
 - Describe the method of scheduled Report.
 - Describe the application case study.

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- Describe the method of fault query.

Duration

2 working days

Class Size

Min 6, Max 12

1.5.49 PS PRS Operation and Maintenance Training

Training Path

PS PRS Engineer Training		
OWW01	Lecture, Lab, Demo	2d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general mobile communication and data communication.
- Successful completion of the program GPRS/UMTS Principle Training.
- Successful completion of the program GGSN Routine Operation and Maintenance training.
- Successful completion of the program GGSN data configuration Training.

Objectives

On completion of this program, the participants will be able to:

- Describe function and system structure of PRS.
- Perform hardware deployment.
- Perform PRS operation and maintenance.

Training Content

OWW01 PS PRS Engineer Training

- PRS Overview
 - Describe PRS location in smartcare networking.
 - Describe the function and service feature of PRS product.
 - Describe the system principle and service procedure of PRS.
- PRS Network Analysis
 - Describe the function of location analysis.
 - Describe the function of APN analysis.
 - Describe the function of access network analysis.
- PRS Subscriber Analysis
 - Analysis the bandwidth of subscriber.
 - Analysis the package of subscriber.
 - Analysis the specific subscriber.
- PRS Service Analysis
 - Describe the function of Top N application analysis.
 - Describe the function of Top N website analysis.
 - Describe the function of Top N server analysis.
- PRS Terminal Analysis
 - Describe the function of Terminal's service application analysis.

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- PRS System Management
 - Describe the access information data configuration.
 - Describe the basic data configuration.
 - PRS Operation and maintenance
 - Describe hardware of PRS.
 - Describe the routine maintenance of PRS.
 - Describe the configuration and commissioning of PRS.

Duration

2 working days

Class Size

Min 6, Max 12

1.5.50 UGW9811(EPSN) Product Training

Training Path

UGW9811 (EPSN) Product Training		
OWW02	Lecture, Lab, Demo	5d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Successful completion of the program of GPRS fundamental Training.
- Successful completion of the program EPC Principle Training.

Objectives

On completion of this program, the participants will be able to:

- Perform hardware operation and maintenance.
- Perform the Routine Operation and Maintenance including authorization management, system information management, alarm management, trace management ,log management, license management ,patch management ,data backup and restore.
- Outline the EPSN network architecture.
- Outline the main features of the EPSN.
- Outline key features and specifications of the EPSN.
- Be familiar with the EPSN and its three service deployment modes.
- Understand EPSN access principles.
- Understand EPSN access configurations.
- Complete access data configuration on the EPSN.
- Understand EPSN charging feature.
- Grasp how to deploy EPSN PCC feature.

Training Content

OWW02 UGW9811 (EPSN) Product Training

- UGW9811 Hardware System(EPSN)
 - Describe background knowledge of UGW9811.
 - Describe system structure of UGW9811.
 - Describe cable connection of UGW9811.
 - Describe service flow of UGW9811.
- UGW9811 Software Installation(EPSN)
 - Describe basic concepts.
 - Describe software directory structure.
 - Describe LMT software management.

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- Describe host software management.
 - UGW9811 Hardware Operation and Maintenance(EPSN)
 - Describe power on and power off the UGW9811.
 - Describe hardware system status checking.
 - Perform board replacement.
 - Perform dust cleaning.
 - UGW9811 Software Operation and Maintenance(EPSN)
 - Describe authorization management.
 - Describe system information management.
 - Describe alarm management.
 - Describe trace management.
 - Describe log management.
 - Describe patch management.
 - Describe license management.
 - Describe data backup and restore.
 - EPSN System Overview (V9R10C0)
 - Describe EPSN Background Knowledge
 - Describe EPSN Functions
 - Describe EPSN Features and Specifications
 - UGW9811 EPSN Networking
 - Introduction to the EPSN
 - Describe EPSN Basic Networking Modes
 - Describe EPSN Networking Configuration
 - EPSN Access Principles and Configurations
 - Describe Service Deployment Modes
 - Introduction to EPSN Access
 - Describe EPSN Access Configuration
 - EPSN Policy and Charging Control
 - Describe EPSN Charging Overview
 - Describe EPSN PCC Feature Overview
 - Describe EPSN PCC Feature Scheme
 - Describe EPSN PCC Feature Deployment
 - Describe EPSN PCC Feature Commissioning
 - Describe EPSN PCC Feature Impact
 - UGW9811 Service Awareness Principle
 - Describe Service Awareness Principle of UGW9811.
 - UGW9811 Service Control Data Configuration
 - Describe Captive-Portal service.
 - Describe Web Proxy service.
 - UGW9811 Content-Based Charging Data Configuration
 - Describe UGW9811 content based charging principles.
 - Perform UGW9811 content based charging configuration.

Duration

5 working days

Class Size

Min 6, Max 12

1.5.51 UDN9813 Operation and Maintenance Training

Training Path

UDN9813 Operation and Maintenance Training		
OWW03	Lecture, Lab, Demo	0.5d

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.
- Get familiar with TCP/IP and GPRS Principle.
- Successful completion of the program GPRS/UMTS PS Fundamental Training.

Objectives

On completion of this program, the participants will be able to:

- Describe the principle of UDN9813 equipment and network.
- Describe the UDN9813 system hardware and software structure.
- Configure key maintenance parameters in CG server.
- Perform Routine Operation and Maintenance of CG server.

Training Content

OWW03 UDN9813 Operation and Maintenance Training

- UDN9813 System Overview
 - Understand UDN9813 System.
 - Understand the principle of UDN9813 network.
 - Understanding of typical UDN9813 networking solution.
- UDN9813 Hardware Overview
 - Understand UDN9813 hardware system.
 - Master UDN9813 system function.
- UDN9813 Software Overview
 - Describe UDN9813 software system.
 - Master UDN9813 software architecture.
 - Master UDN9813 software components.
- UDN9813 Routine Operation and Maintenance
 - Master UDN9813 Routine operation and maintenance methods.
- UDN9813 Data Configuration
 - Master UDN9813 basic data configuration.
 - Master UDN9813 the security management data configuration.
 - Master UDN9813 the commissioning data configuration.

Duration

0.5 working day

Class Size

Min 6, Max 12

1.5.52 SeMG9811 Product Engineer Training

Training Path

SeMG9811 Product Engineer Training		
OWW04	Lecture, Lab, Demo	3d

Target Audience

Field PS/EPC O

M engineer, Firewall and Network Security engineer

Prerequisites

- A general mobile communication and data communication knowledge.
- Successful completion of the program GPRS/UMTS/EPC Principle Training.

Objectives

On completion of this program, the participants will be able to:

- Describe SeMG9811 product hardware features
- Describe SeMG9811 software features
- Master SeMG9811 basic function and configuration method
- Master SeMG9811 policy and configuration method
- Master SeMG9811 Service Awareness feature and configuration method
- Master SeMG9811 QOS feature and configuration
- Master SeMG9811 hot spare feature and configuration

Training Content

OWW04 SeMG9811 Product Engineer Training

- SeMG9811 System Overview
 - Describe SeMG9811 Product orientation
 - Describe SeMG9811 product' s position in network
 - Describe SeMG9811 network structure and application
- SeMG9811 Hardware and Software Introduction
 - Describe SeMG9811 hardware structure
 - Describe SeMG9811 software structure and function
- SeMG9811 Basic Feature and Configuration
 - Introduce Basic signaling and process in Firewall
 - Describe Principle of CPU selection
- SeMG9811 Policy Feature
 - Introduce SeMG9811 Policy feature.
 - Describe SeMG9811 Policy feature data configuration
 - Describe SeMG9811 Policy feature maintenance method
- SeMG9811 SA Feature

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- Describe SeMG9811 SA feature introduction
 - Describe SeMG9811 SA feature data configuration
 - Describe SeMG9811 SA feature maintenance method
 - SeMG9811 QOS Feature
 - Describe SeMG9811 QOS feature introduction
 - Describe SeMG9811 QOS feature data configuration
 - Describe SeMG9811 QOS feature maintenance method

Duration

3 working days

Class Size

Min 6, Max 12

1.5.53 DT Feature Training

Training Path

DT Feature Training		
OWW05	Lecture, Lab, Demo	1d

Target Audience

PS Advance Engineer, PS Routine Maintenance Engineer

Prerequisites

- A general mobile communication and data communication.
- Successful completion of the program GPRS/UMTS Principle Training.
- Successful completion of the program SGSN Routine Operation and Maintenance training.
- Successful completion of the program SGSN data configuration Training.

Objectives

On completion of this program, the participants will be able to:

- Describe the principle of PS Direct Tunnel.
- Perform data configuration of PS Direct Tunnel.
- Perform Operation and Maintenance of PS Direct Tunnel.

Training Content

OWW05 DT Feature Training

- PS DIRECT TUNNEL Solution
 - Describe the principle of PS Direct Tunnel.
 - Describe the planning of PS Direct Tunnel.
- PS DIRECT TUNNEL Data Configuration
 - Describe the application scenarios of PS Direct Tunnel
 - Perform data configuration of PS Direct Tunnel.
- PS DIRECT TUNNEL KPI introduction
 - Introduce PS Direct Tunnel related KPI
- PS DIRECT TUNNEL Troubleshooting
 - List the common troubleshooting case of PS Direct Tunnel.
 - Perform PS DIRECT TUNNEL troubleshooting after analysis the signaling procedure.

Duration

1 working day

Class Size

Min 6, Max 12

1.5.54 Smartcare Service Quality Improvement Training

Training Path

Smartcare Service Quality Improvement Training		
OSE03	Lecture	3d

Target Audience

- PS network optimization engineers
- PS network performance monitoring engineers

Prerequisites

- At least two years experience of operation and maintenance of GPRS/UMTS/EPC telecommunication equipments
- A basic knowledge of SmartCare Platform
- Familiar with PS network KPI evaluation and optimization

Objectives

On completion of this program, the participants will be able to:

- Describe the theory of SmartCare KQI modeling of packet service
- Master PS KPI monitoring and analysis methods in SmartCare NPM
- Master PS KQI monitoring and analysis methods in SmartCare SQM
- Master VIP/VVIP/VAC/Roaming analysis methods in SmartCare CEM

Training Content

OSE03 Smartcare Service Quality Improvement Training

- SmartCare Service Quality Management
 - Describe the definition of CEM/SQM/NPM
 - Describe the application of CEM/SQM/NPM
- SmartCare SQx KQI Modeling Method (WEB)
 - WEB Service E2E signaling flow
 - WEB service modeling method
 - WEB KQI system
 - Relationship between the WEB KQI and each PI
- Smartcare NPM Tools Operation(PS)
 - NPM function overview
 - Describe NPM PS/EPC KPI Monitoring function
 - Describe NPM PS/EPC KPI Analysis function
 - Describe NPM PS xDR query function
 - Describe PS session trace function
 - Describe PS network traffic Analysis function
- Smartcare SQM Tools Operation(Web)

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- Web Service Quality Monitoring
 - Web Service Quality Analysis
 - Smartcare SQM Tools Operation(Streaming)
 - Streaming Service Quality Monitoring
 - Streaming Service Quality Analysis
 - Smartcare SQM Tools Operation(Email)
 - Email Service Quality Monitoring
 - Email Service Quality Analysis
 - Smartcare SQM Tools Operation(MMS)
 - MMS Service Quality Monitoring
 - MMS Service Quality Analysis
 - Smartcare CEM Tools Operation(PS)
 - CEM Overview
 - VVIP/VIP Group Monitoring
 - Customer/Customer Group Analysis
 - VAP Analysis
 - VAC Analysis
 - Device Analysis
 - Roaming Analysis
 - Compliant Handling

Duration

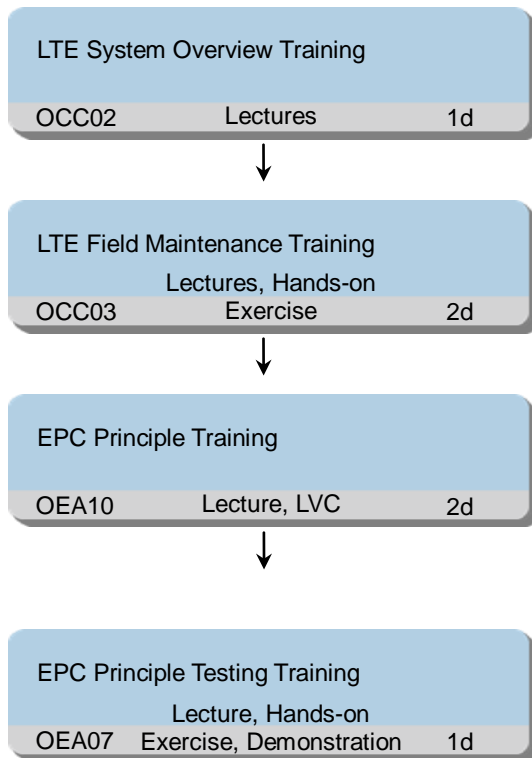
3 working days

Class Size

Min 6, Max 12

1.5.55 HCNA LTE HUAWEI Certification

Training Path



Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication.

Objectives

On completion of this program, the participants will be able to:

- Describe the radio interface techniques used in uplink and downlink.
- Describe the channel structure of the radio interface.
- Describe the time-domain structure in the radio interface in UL and DL for both FDD and TDD mode.
- Describe the Frequency-domain structure in the radio interface in UL and DL for both FDD and TDD mode.
- Have a good understanding of the OFDM principle, signal generation and processing.
- Detail the reference symbols in DL.
- Describe MIMO technology.
- Outline MBMS for LTE.
- Have a good understanding of the SC-FDMA principle, signal generation and processing.

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- Describe Huawei eNodeB Family.
 - Describe Huawei LTE products and application scenarios.
 - Describe Huawei LTE products Operation and Maintenance System.
 - Power up/down the eNodeB and connect up LMT to the node.
 - Find the alarm list of eNodeB.
 - Perform corrective and preventive maintenance on eNodeB.
 - Find faulty hardware units and replace them.
 - Describe EPC architecture
 - Describe function of each node in EPC
 - Describe PDN connection
 - Describe EPC bearers and TFT(s)
 - Describe tracking areas and tracking area lists
 - Describe concepts of ISR (Idle mode Signaling Reduction)
 - Describe identifiers and legacy IDs
 - Describe security mechanisms in EPC
 - Describe QoS in EPC
 - Describe the selection function in EPC
 - Describe the protocol used in EPC (GTP, PMIP, diameter, etc.)
 - Describe attach and detach procedure
 - Describe tracking area update procedure
 - Describe handover procedure
 - Describe bearer activation/modification/deactivation procedure
 - Describe SRVCC for voice service
 - Describe CSFB for voice service
 - Perform USN9810 signaling tracing method.
 - Perform UGW9811 signaling tracing method.
 - Perform EMM signaling flow and key parameters analysis.
 - Perform ESM signaling flow and key parameters analysis.

Training Content

OCC02 LTE System Overview Training

- LTE EPC System Overview
 - Network Architecture.
 - Evolution of Cellular Networks.
 - 3GPP Releases.
 - E-UTRAN Architecture.
 - E-UTRAN Interfaces and Protocols.
 - EPC Architecture.
 - EPC Interfaces and Protocols.
 - LTE Air Interface Principle.
 - Radio Interface Techniques.
 - Principles of OFDM.

- LTE Channel Structures.
- LTE Frame Structure.
- Downlink OFDMA.
- Uplink SC-FDMA.
- Multiple Input Multiple Output.
- Multimedia Broadcast Multicast Service.
- eNodeB Product Overview.
- The Huawei eNodeB family.
- Products and application scenarios.
- Operation and Maintenance.
- LTE EPC System Overview Student Book
 - LTE EPC System Overview Student Book

OCC03 LTE Field Maintenance Training

- eNodeB LTE FDD Product Description
 - eNodeB System Overview.
 - eNodeB System Structure.
 - eNodeB Auxiliary Devices.
 - eNodeB Typical Networking.
- eNodeB LTE Field Maintenance
 - Powering up/down the eNodeB and connect up LMT to the node.
 - Finding the alarm list of eNodeB.
 - Perform corrective and preventive maintenance on eNodeB.
 - Finding Faulty Hardware units and replace them.
- eNodeB LTE Local Commissioning
 - eNodeB Commissioning Overview.
 - eNodeB Local Commissioning through the USB Disk.
 - Procedure for the Local Commissioning through the USB Disk.
 - Download / Activate the Software and Data Configuration File.
 - eNodeB Local Commissioning on the LMT.
 - Prepare for the Local eNodeB Commissioning on the LMT.
 - Upgrade the eNodeB Software and Data Configuration File on the LMT.
 - Download the License on the LMT.
 - Query the Running Status.
 - Establish an O/M Link Between the M2000 and the eNodeB.

OEA10 EPC Principle Training

- EPC Network Principles(HCNA)
 - Describe EPC architecture
 - Describe function of each node in EPC
 - Describe PDN connection
 - Describe EPC bearers and TFT(s)
 - Describe tracking areas and tracking area lists
 - Describe concepts of ISR (Idle mode Signaling Reduction)

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- Describe identifiers and legacy IDs
 - Describe security mechanisms in EPC
 - Describe QoS in EPC
 - Describe the selection function in EPC
 - Describe the protocol used in EPC (GTP, PMIP, diameter, etc.)
 - Describe attach and detach procedure
 - Describe tracking area update procedure
 - Describe handover procedure
 - Describe bearer activation/modification/deactivation procedure
 - Describe SRVCC for voice service
 - Describe CSFB for voice service

OEA07 EPC Principle Testing Training

- EPC ATP Testing Practice Guide
 - Perform USN9810 signaling tracing method.
 - Perform UGW9811 signaling tracing method.
 - Perform EMM signaling flow and key parameters analysis.
 - Perform ESM signaling flow and key parameters analysis.

Duration

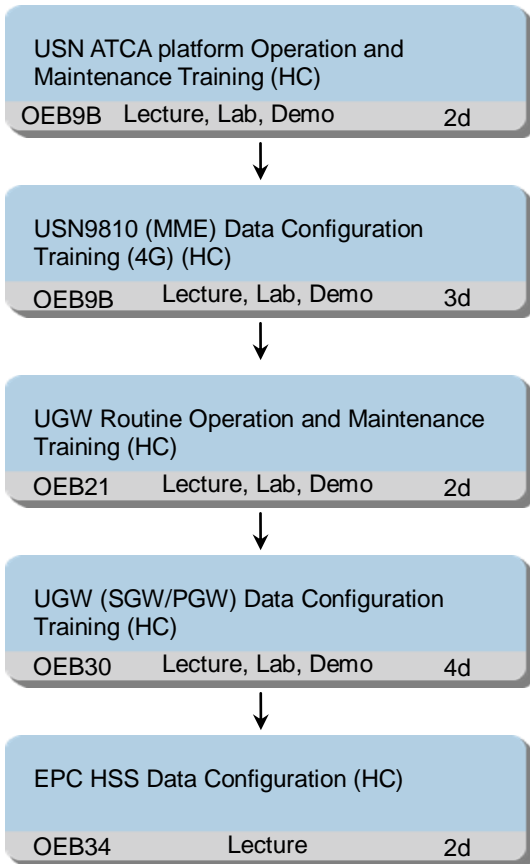
6 working days

Class Size

Min 6, Max 12

1.5.56 HCNP EPC HUAWEI Certification

Training Path



Target Audience

Operation and Maintenance Engineer; Technical Support Engineer

Prerequisites

- A general understanding of mobile communication and data communication.

Objectives

On completion of this program, the participants will be able to:

- Describe system structure and hardware structure of USN9810.
- Perform software related installation and upgrade procedure.
- Perform hardware operation and maintenance.
- Perform the Routine Operation and Maintenance including security management, system information management, alarm management, trace management, data management, license management, performance management.
- Describe the functions of protocol stacks of different interfaces.
- Perform configuration of USN hardware, System Information, interworking with eNodeB, HSS, MME, S-GW, DNS and NTP.
- Perform configuration of mobility management and session management.

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- Describe system structure and hardware structure of UGW9811.
 - Perform software related installation and upgrade procedure.
 - Perform hardware operation and maintenance.
 - Perform the Routine Operation and Maintenance including authorization management, system information management, alarm management, trace management ,log management, license management ,patch management ,data backup and restore.
 - Perform data configuration of S1-U/S11, S5/S8 and SGi interfaces Describe basic concept of VPN, APN and charging.
 - Perform configuration of VPN, APN and charging.
 - Describe the SA principles, content based charging principles and PCC concepts.
 - Perform configuration of the SA function, service control function and PCC.
 - Describe HSS9820V900R006 product function and application.
 - Describe HSS9820V900R006 interface protocol function.
 - Describe HSS9820V900R006 physical and logical structure.
 - Describe HSS9820V900R006 board function.
 - Describe HSS9820V900R006 signaling flow.
 - Describe HSS9820V900R006 software structure.
 - Describe HSS9820V900R006 IP planning.
 - Perform installation of operation PGW client.
 - Perform the method of adding or deleting subscriber.
 - Modify subscription according to customer requirement.
 - Perform configuration of subscription data.
 - Describe the steps of HSS9820 data configuration.
 - Perform hardware and system data configuration.
 - Perform interface data configuration.
 - Check the data configuration correctness and validity.
 - Perform basic debugging of EPC-HSS9820.
 - Describe Board configuration principle.
 - Describe data configuration principles and steps.
 - Perform Hardware Data Configuration of USCDB.
 - Perform Local Office Data Configuration of USCDB.
 - Perform Signaling Data Configuration of USCDB.

Training Content

OEB9B USN ATCA platform Operation and Maintenance Training (HC)

- USN9810(MME/SGSN) System Overview (HC)
 - Describe background knowledge of USN9810.
 - Describe functions of USN9810.
 - Describe feature and specification of USN9810.
- USN9810(MME/SGSN) Hardware System (HC)
 - Describe background knowledge of USN9810.
 - Describe system structure of USN9810.

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- Describe cable connection of USN9810.
 - Describe service flow of USN9810.
 - USN9810(MME/SGSN) LMT Introduction (HC)
 - Describe USN9810 LMT software.
 - USN9810 LMT Introduction.
 - USN9810(MME/SGSN) Software Installation (HC)
 - Describe USN9810 software structure.
 - Perform USN9810 LMT software Installation.
 - Perform USN9810 host software installation.
 - USN9810(MME/SGSN) Hardware Operation and Maintenance (HC)
 - Describe power on and power off the USN9810.
 - Describe hardware system status checking.
 - Perform board replacement.
 - Perform dust cleaning.
 - USN9810(MME/SGSN) Security Management (HC)
 - Perform LMT account management.
 - Perform FTP account management.
 - Perform log management.
 - USN9810(MME/SGSN) Trace Management (HC)
 - Perform trace management.
 - USN9810(MME/SGSN) Data Management (HC)
 - Describe basic knowledge.
 - Describe configuration data backup and restore.
 - Describe system data backup and restore.
 - USN9810(MME/SGSN) Patch management (HC)
 - Describe basic principle.
 - Describe patch management.
 - USN9810(MME/SGSN) License Management (HC)
 - Perform license checking.
 - Describe license related alarms.
 - Perform license applying.
 - Perform license installation.
 - USN9810(MME/SGSN) Alarm Management (HC)
 - Perform operation and maintenance of alarm system.
 - Describe basic alarm handling procedure.
 - USN9810(MME/SGSN) Performance Statistic (HC)
 - Describe working principle.
 - Perform performance task setting.
 - Perform performance result operation.
 - OEB9B USN9810 (MME) Data Configuration Training (4G) (HC)
 - USN9810(MME) Hardware Data Configuration (HC)
 - Describe basic hardware configuration and commissioning on the ATCA.

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- Describe process group configuration and commissioning on the ATCA.
 - Describe port configuration and commissioning on the ATCA.
 - Describe clock configuration and commissioning on the ATCA.
 - USN9810(MME) Local Office Data Configuration (HC)
 - Describe system information configuration.
 - Perform commissioning.
 - USN9810(MME) S1-MME Interface Data Configuration (HC)
 - Describe background knowledge about the S1-MME interface.
 - Describe configuration procedure.
 - Perform commissioning.
 - USN9810(MME) S6a Interface Data Configuration (HC)
 - Describe background knowledge about the S6a interface.
 - Describe configuration procedure.
 - Perform commissioning.
 - USN9810(MME) S10/S11 Interface Data Configuration (HC)
 - Describe background knowledge about the S10/S11 interface.
 - Describe configuration procedure.
 - Perform commissioning.
 - USN9810(MME) MM SM Data Configuration (HC)
 - Perform EMM mobility management parameter data configuration.
 - Perform ESM session management parameter data configuration.
 - USN9810(MME) IP Data Configuration (HC)
 - Describe multiple basic concepts of IP network.
 - Perform IP interface - related configuration and commissioning.
 - Configure and commission the static IP route and open shortest path first (OSPF) route.
 - USN9810(MME) DNS Data Configuration (HC)
 - Describe the DNS data configuration of the MME.
 - Complete simple DNS configuration of the MME.
 - USN9810(MME) NTP Data Configuration (HC)
 - Describe the NTP principle.
 - Perform the NTP configuration of the USN9810.
 - Perform the NTP commissioning of the USN9810.
 - OEB21 UGW Routine Operation and Maintenance Training (HC)
 - UGW9811 System Overview (HC)
 - Describe background knowledge of UGW9811.
 - Describe function of UGW9811.
 - Describe feature and specification of UGW9811.
 - UGW9811 Hardware System (HC)
 - Describe background knowledge of UGW9811.
 - Describe system structure of UGW9811.
 - Describe cable connection of UGW9811.

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- Describe service flow of UGW9811.
 - UGW9811 Software Installation (HC)
 - Describe basic concepts.
 - Describe software directory structure.
 - Describe LMT software management.
 - Describe host software management.
 - UGW9811 Hardware Operation and Maintenance (HC)
 - Describe power on and power off the UGW9811.
 - Describe hardware system status checking.
 - Perform board replacement.
 - Perform dust cleaning.
 - UGW9811 Software Operation and Maintenance (HC)
 - Describe authorization management.
 - Describe system information management.
 - Describe alarm management.
 - Describe trace management.
 - Describe log management.
 - Describe patch management.
 - Describe license management.
 - Describe data backup and restore.
 - OEB30 UGW (SGW/PGW) Data Configuration Training (HC)
 - UGW9811 System Information Configuration (HC)
 - Perform PLMN management.
 - Perform user attribute management.
 - Describe system time management.
 - Describe S-GW/SGSN access control.
 - UGW9811 Single IP Configuration (HC)
 - Describe the method and solution of Single IP function.
 - Perform the data configuration of all interfaces involved in Single IP solution.
 - UGW9811 SGi Interface Data Configuration (HC)
 - Describe background knowledge.
 - Perform interworking with AAA server.
 - Perform interworking with internet.
 - Perform interworking with enterprise network.
 - UGW9811 APN Data Configuration (HC)
 - Describe basic concept.
 - Perform APN configuration.
 - Perform virtual APN configuration.
 - Perform alias APN configuration.
 - UGW9811 VPN Data Configuration (HC)
 - Describe VPN concept.
 - Perform GRE VPN configuration.

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- Perform L2TP VPN configuration.
 - Perform IPsec VPN configuration.
 - UGW9811 Offline Charging Data Configuration (HC)
 - Describe basic concept.
 - Perform data configuration.
 - UGW9811 Online Charging Data Configuration (HC)
 - Describe basic concept.
 - Perform data configuration.
 - Perform commissioning.
 - UGW9811 PCC Data Configuration (HC)
 - Describe PCC concepts.
 - Perform PCC configuration.
 - UGW9811 Security Function Data Configuration (HC)
 - Overview of security support on the UGW9811.
 - Perform security configuration.
 - UGW9811 Bandwidth Management Configuration (HC)
 - Describe the BWM configuration.
 - OEB34 EPC HSS Data Configuration (HC)
 - HSS9820V900R006 System and Networking Overview (HC)
 - HSS9820V900R006 product function and application.
 - HSS9820V900R006 interface protocol function.
 - HSS9820V900R006 physical and logical structure.
 - HSS9820V900R006 board function.
 - HSS9820V900R006 signaling flow.
 - HSS9820V900R006 software structure.
 - HSS9820V900R006 IP planning.
 - HSS9820V900R006 Subscription Data Management (HC)
 - Installation of operation PGW client.
 - The method of adding or deleting subscriber.
 - Modify subscription according to customer requirement.
 - Configuration of subscription data.
 - HSS9820V900R006 Data Configuration (HC)
 - Procedure of HSS9820 data configuration.
 - Hardware and system data configuration.
 - Interface data configuration.
 - Check the data configuration correctness and validity.
 - Debugging operation of EPC-HSS9820.
 - USCDB Data Configuration (HC)
 - Board configuration principle.
 - Data configuration principles and steps.
 - Hardware Data Configuration of USCDB.
 - Local Office Data Configuration of USCDB.

- Signaling Data Configuration of USCDB.

Duration

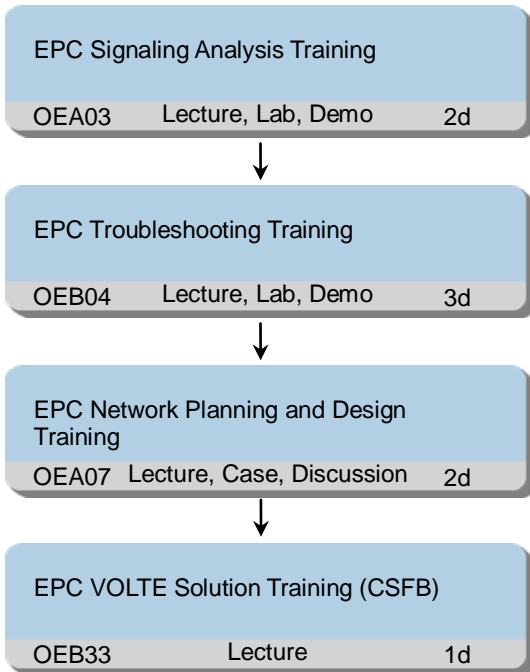
13 working days

Class Size

Min 6, Max 12

1.5.57 HCIE EPC HUAWEI Certification

Training Path



Target Audience

All Technical and non-Technical persons, PS Network Planning Engineer, System Design Engineer, Senior Engineer and Experts

Prerequisites

- A general understanding of mobile communication and data communication.

Objectives

On completion of this program, the participants will be able to:

- Perform USN9810 signaling tracing method.
- Perform UGW9811 signaling tracing method.
- Perform EMM signaling flow and key parameters analysis.
- Perform ESM signaling flow and key parameters analysis.
- Describe USN9810/UGW9811 EMM/ESM troubleshooting method.
- Common USN9810/UGW9811 EMM/ESM related troubleshooting case study.
- Perform USN9810/UGW9811 EMM/ESM related fault located with signaling analysis.
- Describe EPC planning and designing steps.
- Determine IP address, QoS, APN needs for different services.
- Determine capacity for different interfaces.
- Determine the internetworking for different interfaces.
- Describe network structure of CSFB.

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- Perform signaling analysis of CSFB.

Training Content

OEA03 EPC Signaling Analysis Training

- Attach Procedure Signaling Analysis
 - Analyze Attach procedure signaling flow and key parameters.
- Detach Procedure Signaling Analysis
 - Analyze Detach procedure signaling flow and key parameters.
- S1 release procedure Signaling Analysis
 - Analyze S1 release procedure signaling flow and key parameters.
- Service Request Procedure Signaling Analysis
 - Analyze Service request procedure signaling flow and key parameters.
- TAU Procedure Signaling Analysis
 - Analyze tracking area update procedure signaling flow and key parameters.
- X2-handover Procedure Signaling Analysis
 - Analyze X2 based handover procedure signaling flow and key parameters.
- S1-handover Procedure Signaling Analysis
 - Analyze S1 based handover procedure signaling flow and key parameters.
- Bearer Activation Procedures Signaling Analysis
 - Analyze bearer activation procedure signaling flow and key parameters.
- Bearer Modification Procedures Signaling Analysis
 - Analyze bearer modification procedure signaling flow and key parameters.
- Bearer Deactivation Procedures Signaling Analysis
 - Analyze bearer deactivation procedure signaling flow and key parameters.
- UE Requested PDN Connectivity Procedure Signaling Analysis
 - Analyze UE requested PDN connectivity procedure signaling flow and key parameters.
- PDN disconnection Procedures Signaling Analysis
 - Analyze PDN disconnection procedure signaling flow and key parameters.

OEB04 EPC Troubleshooting Training

- EPC Attach Procedure Troubleshooting
 - List the common troubleshooting case of attach procedure.
 - Describe the procedure of attach procedure troubleshooting.
 - Perform troubleshooting after analysis the signaling of attach procedure.
- EPC TAU Procedure Troubleshooting
 - List the common troubleshooting case of TAU procedure.
 - Describe the procedure of TAU procedure troubleshooting.
 - Perform troubleshooting after analysis the signaling of TAU procedure.
- EPC Session Management Procedure Troubleshooting
 - List the common troubleshooting case of session management procedure.
 - Describe the procedure of session management procedure troubleshooting.
 - Perform troubleshooting after analysis the signaling of session management

procedure.

- EPC Handover Procedure Troubleshooting
 - List the common troubleshooting case of handover procedure.
 - Describe the procedure of handover procedure troubleshooting.
 - Perform troubleshooting after analysis the signaling of handover procedure.

OEA07 EPC Network Planning and Design Training

- EPC Network Planning/Design
 - Introduce network planning principles.
 - Basic steps for network planning.
 - Architecture planning.
 - Nodes determination.
 - Deployment for MME.
 - Deployment for EPC-GW.
 - Deployment for other nodes in EPC network.
 - Security policy and firewall determination.
 - IP connectivity planning.
 - QoS planning.
 - MME pool planning.
 - Traffic model introduction.
 - Basic knowledge for bandwidth calculation.
 - Interface bandwidth calculation - control plane.
 - Interface bandwidth calculation - user plane.
 - Internetworking planning.
 - Perform IP planning for EPC network.

OEB33 EPC VOLTE Solution Training (CSFB)

- EPC Voice Solution Feature(CSFB)
 - Describe CSFB principle.
 - Describe CSFB key procedure.
 - Describe SGs interface and protocol.
 - Perform CSFB feature data configuration.
 - Perform CSFB network deployment.

Duration

8 working days

Class Size

Min 6, Max 12

1.5.58 GPRS Fundamental(WBT)

Training Path

GPRS Fundamental (WBT)		
OWA31	WBT	1h

Target Audience

All Technical and non-Technical persons

Prerequisites

- A general understanding of mobile communication and data communication.

Objectives

On completion of this program, the participants will be able to:

- Describe the UMTS PS Network Structure.
- Describe the PS Core Network interface and Protocol.
- Describe the PS Core Network Working Principle.

Training Content

OWA31 GPRS Fundamental (WBT)

- GPRS Fundamental(WBT)
 - Describe the UMTS PS Network Structure.
 - Describe the PS Core Network Interface and Protocol.
 - Describe the PS Core Network Working Principle.

Duration

1 hour

Class Size

No Limit

1.5.59 GPRS signaling Procedure (WBT)

Training Path

GPRS signaling Procedure (WBT)		
OWB00	WBT	1h

Target Audience

PS Engineer and Experts, PS Network Planning Engineer, System Design Engineer

Prerequisites

- A general understanding of mobile communication and data communication.

Objectives

On completion of this program, the participants will be able to:

- Analyze RANAP/MAP/Gx/Gy Protocol.
- Describe important procedures and parameters of RANAP/MAP/Gx/Gy protocol.

Training Content

OWB00 GPRS signaling Procedure (WBT)

- GPRS signaling Procedure(WBT)
 - Analyze GPRS and UMTS PS basic mobility management procedure.
 - Analyze GPRS and UMTS PS basic session management flow.

Duration

1 hour

Class Size

No Limit

1.5.60 GTP Protocol Analysis (WBT)

Training Path

GTP Protocol Analysis (WBT)		
OWB01	WBT	0.5h

Target Audience

Field Maintenance Engineers, First line Maintenance Engineers, Routine Maintenance Engineers

Prerequisites

- A general understanding of mobile communication and data communication.

Objectives

On completion of this program, the participants will be able to:

- Analyze GTP Protocol.
- Describe important procedures and parameters of GTP protocol.

Training Content

OWB01 GTP Protocol Analysis (WBT)

- GTP Protocol Analysis (WBT)
 - Analyze GTP Protocol.
 - Describe important parameter related to GTP protocol.
 - Describe GTP Troubleshooting Methods.
 - Introduce Common GTP troubleshooting case.

Duration

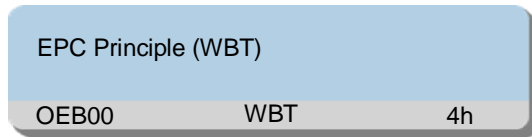
0.5 hour

Class Size

No Limit

1.5.61 EPC Principle(WBT)

Training Path



Target Audience

All Technical and non-Technical persons

Prerequisites

- A general understanding of mobile communication and data communication.

Objectives

On completion of this program, the participants will be able to:

- Describe the EPC Network Structure.
- Describe the EPC Network interface and Protocol.
- Describe the EPC Network Working Principle.

Training Content

OEB00 EPC Principle (WBT)

- EPC Principle(WBT)
 - Introduce EPC network structure.
 - Introduce interfaces in EPC.
 - Introduce mobility management concepts.
 - Introduce attach, detach, and TAU procedure.
 - Introduce security related procedures.
 - Introduce session management concepts.
 - Introduce bearer activation/modification/deactivation procedure.

Duration

4 hours

Class Size

No Limit

1.5.62 EPC Signaling Analysis (WBT)

Training Path

EPC Signaling Analysis (WBT)		
OEA00	Lecture	6h

Target Audience

EPC Engineers and Experts, PS Network Planning Engineers, System Design Engineers

Prerequisites

- A general understanding of mobile communication and data communication. Get familiar with TCP/IP.
- Successful completion of the program of EPC Data Configuration Training.
- Successful completion of the program of EPC Product Survey Training.

Objectives

On completion of this program, the participants will be able to:

- Perform signaling flow and key parameters analysis for EPC, including attach, detach, TAU, S1-release, handover, service-request and security procedures.

Training Content

OEA00 EPC Signaling Analysis (WBT)

- EPC Signaling Analysis -Attach Procedure
 - Describe signaling messages in attach procedure.
 - Describe the information elements in signaling messages, and their functions.
- EPC Signaling Analysis -Detach Procedure
 - Describe signaling messages in detach procedure.
 - Describe the information elements in signaling messages, and their functions.
- EPC Signaling Analysis -S1 Release Procedure
 - Describe signaling messages in S1 release procedure.
 - Describe the information elements in signaling messages, and their functions.
- EPC Signaling Analysis -Service Request Procedure
 - Describe signaling messages in service request procedure.
 - Describe the information elements in signaling messages, and their functions.
- EPC Signaling Analysis -TAU Procedure
 - Describe signaling messages in TAU procedure.
 - Describe the information elements in signaling messages, and their functions.
- EPC Signaling Analysis -Handover Procedure
 - Describe signaling messages in handover procedure.
 - Describe the information elements in signaling messages, and their functions.
- EPC Signaling Analysis -Security Procedure

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- Describe signaling messages in security procedure.
 - Describe the information elements in signaling messages, and their functions.

Duration

6 hours

Class Size

No Limit

1.5.63 EPC Product Survey(WBT)

Training Path

EPC Product Survey Training (WBT)		
OEB10	WBT	1.5h

Target Audience

Field Maintenance Engineers, First line Maintenance Engineers, Routine Maintenance Engineers

Prerequisites

- A general understanding of mobile communication and data communication.

Objectives

On completion of this program, the participants will be able to:

- Outline the main function, features and key specification of USN9810.
- Outline the main function, features and key specification of UGW9811.
- Outline the main function, features and key specification of SAE-HSS9820.

Training Content

OEB10 EPC Product Survey Training (WBT)

- EPC Product Survey Training (WBT)
 - Introduce the feature of USN9810.
 - Introduce the feature of UGW9811.
 - Introduce the feature of HSS9820.

Duration

1.5 hours

Class Size

No Limit

1.5.64 EPC Principle(LVC)

Training Path

EPC Principle (LVC)		
OEA10	LVC	2*1h

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication

Objectives

On completion of this program, the participants will be able to:

- Describe the EPC Network Structure.
- Describe the EPC Network interface and Protocol.
- Describe the EPC Network Working Principle.

Training Content

N/A EPC Principle (LVC)

- EPC Principle(LVC)
 - Describe the EPC network structure.
 - Describe the EPC Network interface and protocol.
 - Describe the EPC Network working procedures.

Duration

2 hours

Class Size

No Limit

1.5.65 EPC Product Overview(LVC)

Training Path

EPC Product Overview (LVC)		
OEB90	LVC	1*2h

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication
- Successful completion of the program of EPC Principle Training

Objectives

On completion of this program, the participants will be able to:

- Outline the main function, features and key specification of USN9810.
- Outline the main function, features and key specification of UGW9811.

Training Content

N/A EPC Product Overview (LVC)

- UGW9811 System Overview(LVC)
 - Outline the SAE network architecture.
 - Outline main functions of the UGW9811.
 - Outline key features and specifications of the UGW9811.
- USN9810(MME) System Overview (LVC)
 - Learn about the interfaces, services, and functions supported by the USN9810.
 - Learn about the key specifications of the USN9810.

Duration

2 hours

Class Size

No Limit

1.5.66 APN and international roaming(LVC)

Training Path

APN and international roaming (LVC)		
OEF01	LVC	2*1 h

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication
- Successful completion of the program of EPC Principle Training

Objectives

On completion of this program, the participants will be able to:

- Understand principle of international roaming.
- Master roaming data configuration of SGSN/GGSN/DNS/FW.
- Understand principle of APN rectify.
- Master data configurations of APN rectify.

Training Content

OEF01 APN and international roaming (LVC)

- APN and international roaming(LVC)
 - Understand principle of international roaming.
 - Master roaming data configuration of SGSN/GGSN/DNS/FW.
 - Understand principle of APN rectify.
 - Master data configurations of APN rectify.

Duration

2 hours

Class Size

No Limit

1.5.67 Gateway selection(LVC)

Training Path

Gateway selection (LVC)		
OEF02	LVC	1h

Target Audience

Field Maintenance Engineer, First line Maintenance Engineer, Routine Maintenance Engineer

Prerequisites

- A general understanding of mobile communication and data communication
- Successful completion of the program of EPC Principle Training

Objectives

On completion of this program, the participants will be able to:

- Understand principle of gateway selection.
- Master gateway selection data configuration of USN.

Training Content

OEF02 Gateway selection (LVC)

- Gateway selection (LVC)
 - Understand principle of gateway selection.
 - Master gateway selection data configuration of USN.

Duration

1 hour

Class Size

No Limit

