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trainers

Eiko Seidel
Nomor Research

Eiko Seidel is CTO at Nomor Research GmbH, a leading company in the research and development of future and emerging mobile communication systems, offering related consultancy and simulation services.

He has been working in mobile communication R&D for more than 20 years. Since 3GPP was founded in 1998, Eiko has been contributing actively to 3G and 4G standardisation. Besides numerous contributions to 3GPP, he published 20+ conference papers, submitted 100+ patent applications and contributed to various books. Eiko works as consultant, advisor, trainer and independent expert for different organisations.

Harald Ludwig
Arico Technologies

Harald Ludwig is the founder and managing director of Arico Technologies, a company offering consultancy, training and project management services for the professional mobile radio industry.

He has more than 20 years of experience in the professional mobile radio industry and with mission- and safety-critical systems. His expertise covers the fields of system and application design, test and integration, tender specifications writing and bid evaluation, training, international standardisation and interoperability testing and command and control systems.

Harald is chairman of the TCCA Technical Forum.

who should attend

This course has been designed to provide fundamental supplier independent knowledge about the LTE technology and its specific features in Mission Critical Communications systems for e.g. Public Safety, Rail or Utilities. Users, network operators, regulators, business development managers, decision makers, project managers, systems & solution architects, engineers and other interested parties will benefit from this training course.

Location

Brecherspitzstraße 8, D-81541 Munich, Germany

dates & time

10-12 September 2019

Tue 10:00-17:00, Wed 09:00-17:00, Thu 09:00-16:00

Other dates might be arranged based on demand.
This course is also available as an **on-site** course.
Please contact: training@nomor.de

Bookings

Please request the registration form via e-mail to training@nomor.de

Booking deadline is 8 Aug 2019

further information

For more information regarding the course organisation or the course content please contact one of the trainers:

- Harald Ludwig
  e: harald.ludwig@arico-tech.eu, p: +43 1 718 4567

- Eiko Seidel
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Training Courses on

Mission Critical LTE

10-12 September 2019
Munich, Germany

course content

- Requirements & Markets
  - Mission Critical Broadband Requirements
  - Mission Critical TETRA market, LTE Markets
- Standardisation & Organizations
  - 3GPP Standardisation Principles and Releases
  - 3GPP Working Group SA6 on Mission Critical Applications
  - Mission Critical related Work in ETSI and OMA
  - Other Organisations (TCCE, CCBG, PSCE) and Public Safety in North America
  - Supplier Organisations and Interoperability
- Frequency Bands & Spectrum
  - Current and Future Public Safety Spectrum
  - LTE Licenced and Unlicensed Spectrum
  - Shared Spectrum
- Introduction to LTE System Architecture & Interfaces
  - Evolved Packet Core Entities and Functions (HSS, MME, PCRF, S-GW, P-GW)
  - LTE Bearer Concept and Quality of Service Architecture
  - LTE Transport Layer with S1/X2 Interfaces
- Overview LTE Technology Radio Access
  - LTE Radio Access Principles
  - Downlink and Uplink Physical Layer, Channel and Frame Structures
  - Protocols and Procedures
- LTE-Advanced
  - Carrier Aggregation and Small Cells
  - Overview LTE/LTE-A UE Capabilities

course content (cont.)

- LTE Access Control (Access Classes and Barring)
- LTE Radio and Network Overload Control
- Existing LTE Public Warning Systems
- LTE Mission Critical Features
  - Overview
  - Group Call Service Enabler (GCSE)
  - Enhanced Multi-Media Broadcast Multicast Service
  - Proximity Based Services (ProSE)
    - Device to Device Communication (D2D)
    - D2D Relay, UE to Network Relay
  - Voice & Group Communication
    - Voice over LTE (VoLTE)
    - Mission Critical PTT over LTE (MCPTT)
  - Mission Critical Data and Video Services
  - Availability & Resilience
    - Isolated E-UTRAN Operation for PS (IOPS)
  - Security & Encryption, LTE Security
- LTE Deployment Scenarios and Implementation Aspects for Mission Critical applications
  - Overview and Scenario Details
  - Migration to Critical Communications LTE Networks
  - Deployment Examples of LTE Public Safety Networks
- LTE Network and Public Safety User Equipment
- Summary of Current Mission Critical LTE Features and Outlook to Future Standardisation, including 5G

pre-requisites

A basic knowledge of radio and mobile network fundamentals is required to fully benefit from this course.

language

The course and the material is in English.

material

Each participant will get a copy of the training material for his/her personal use.

number of participants

The maximum number of participants is 12.

fee

The course fee is EUR 2180,- and includes a three-day training course with two trainers, training material, lunch and refreshments in the coffee breaks.

TCCA Members receive a 5% discount.

The fee is payable after receipt of the invoice. VAT is added if applicable.

Participants are responsible for their own travel and accommodation arrangements (we are happy to assist).

cancellation

A substitute for a registered participant can be nominated at any time. Cancellation of an accepted registration up to 4 weeks prior to the start of the course is possible and free of charge. Later cancellations will be charged the full course fee.

We reserve the right to cancel the course up to three weeks before the course begins in case of low number of participants or for another significant reason. Any claims for damages are excluded.