FRMCS – The Future Railway Mobile Communication System

In the years to come, the Future Railway Mobile Communication System will replace the established GSM-R as communication standard for international railway networks. Based on the 5G standard it is being standardized but promises significant higher data rates and allows the realization of new applications.

This course describes the current state of the development, shows the railway-specific requirements and shows which new use cases will become viable. The 5G-standard will be explained as far as needed to understand FRMCS, as well as the Mission Critical Service (MCX) architecture, upon which FRMCS will be based.

Target group / Prerequisites

Technicians and engineers of railway companies as well as of mobile network providers, which want to learn about this new standard. The participants should already know about GSM-R and should have a technical background.

Course contents

Introduction

- GSM-R, the Status-Quo
- Why a new system?
- Time schedule for FRMCS

Railway-specific background

- ETCS
- ATO
- TOBA

Standardisation

- Organisations that are involved
- UIC, UNIFE, ERA
- ETSI, 3GPP, CEPT-ECC
- Projects, industry

Application scenarios for FRMCS

- Classic Scenarios: eMLPP, VGCS, VBS, Late Entry, Emergency Call
- Off Network communication
- Classification of use cases: critical, performance, business support
- Eaxmples: Virtual Coupling, ATC, ...

Properties of 5G

- Network architecture
- Frequency bands, FDD vs. TDD
- 5G resource grid, channels and signals
- Antenna technology, beamforming, MIMO
- Quality of Service

Duration:
2 days

Course ID:
NW1218

Prerequisites:
Knowledge of GSM-R, technical background

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- Procedures: Registration, Service Request
- Planning aspects
- Resilience and redundancy
- Secure communication

Mission Critical Services (MCX)

- MCX enabler: Group Communication System Enabler, Proximity Services
- MC- variants: MC-PTT, MC-Video, MC-Data
- Relevant standards
- MCX architecture on-network and off-network
- Signalling transport, media transport
- FRMCS-specific architecture
- Protocols and procedures

Outlook

- Time schedule of the standardization
- Projects
- Literature

Certification

Certificates are given to all participants at the end of the course about the successful completion.

Course Registration:

Please contact us via

- phone: +49 89 1894354-405
- email: training@tfk.de or
- via our website www.tfk.de/training

You will receive a confirmation of your registration. We can also advice you concerning the best combination of course contents.

For clients with special requirements the optimal training concept can be customized. Modules from our training portfolio can be combined to meet your company-specific needs.