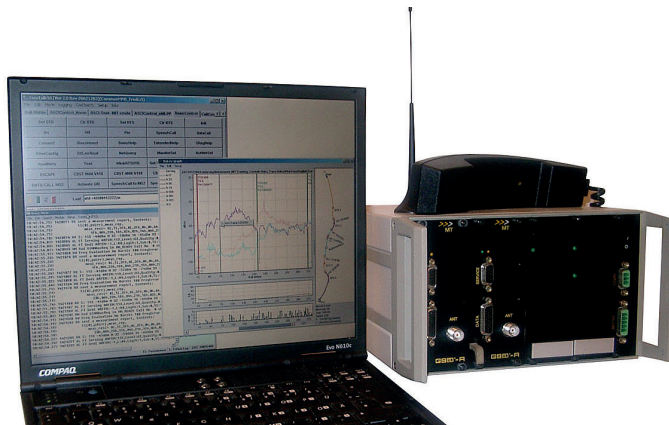


Test Environment Quality of Service

TEQoS2



To ensure high quality GSM-R coverage along railway tracks Funkwerk Systems GmbH has developed a test environment for Quality of Service Tests.

TEQoS2 is used during the start-up phase of a new GSM-R network, as well as in the ordinary operation and optimisation process, wherever measurements need to be performed to guarantee the quality of the GSM-R subsystem.

The GSM-R Test Cabinet is designed as a robust housing for up to two GSM-R Mobile Terminations (GSM-R MT2) which can also be easily carried. It contains a built in DC power supply that allows operation from different DC power sources (nominal 12-110 V).

The 8 Watt GSM-R Mobile Termination 2 (GSM-R MT2) is the heart of TEQoS2 and represents the interface between any railway application utilizing the GSM-R network and the fixed line infrastructure.

GPS-Receiver (not part of product delivery): The possibility to use a GPS receiver, to correlate measured values and positions exactly, makes TEQoS2 a unique test environment.

Notebook (not part of product delivery).

SOFTWARE

Trace2 Software: PC terminal application connected to the service interface of the GSM-R MT2. It operates in a client-server architecture with the Trace report module running on MT2, Trace terminal running on PC. MT2 and PC are communicating via a RS232 interface.

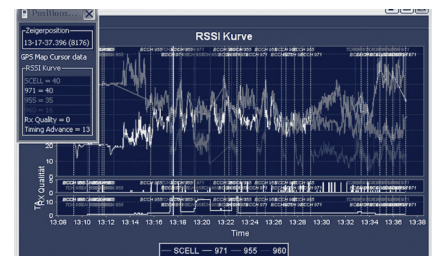
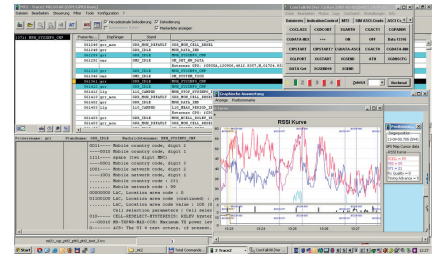
Comtalk II Software: Generic terminal program for control and data communication with the GSM-R MT2. It is used to control the GSM-R Mobile Termination unit via AT commands. Commands can be entered in the command line and buttons for AT commands can be easily defined. Received characters and information are displayed in a separate communication buffer. Complete test procedures can be programmed with a built in script language on customer request by Funkwerk.

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FEATURES

- » Trace of GSM Layer-2 and Layer-3 including ASCII and AT command messages
- » Full decoding of messages based on 3gpp specifications.
- » Additional short decoding of GSM Layer-3 message contents
- » Realtime trace analysis possible
- » Post processing and replay of existing trace data
- » Searching in trace data and decoded message contents
- » Filtering of trace messages
- » Book marking and color highlighting of trace messages
- » Integrated terminal program (Comtalk II) with user definable buttons, test scripting capabilities and support for downloading software into mobile terminations
- » Synchronization of trace message selection across all presented views (RSSI chart, GPS map, Trace Data Table, Bookmarks)
- » RSSI chart: graphical presentation of quality, timing advance and field strength
- » GPS map: graphical presentation of related GPS data
- » Standard geographical maps (such as shapefiles .shp) can be integrated by the user as layers for GPS data presentation
- » Integration of Openstreetmap geographical data via internet connection.
- » Based on a special mode of the mobile termination the Trace2 can be used as a GSM-R frequency scanner to analyze network problems such as blocking and interference
- » Scanning chart: graphical presentation of GSM-R frequency scanning results



Optional Features

- » Trace of GPRS Layer-2 and Layer-3 (GPRS is not activated per default in the mobile termination. To activate this feature a GPRS activation key is needed. For further information please contact the sales department of Funkwerk)
- » Short decoding of trace messages can be customized on request
- » QoS-Test Scripts according O-2475 available (additional license)
- » Additional test scripts for QoS measurements are available on request
- » User defined post processing of trace data possible on request (based on service agreement)