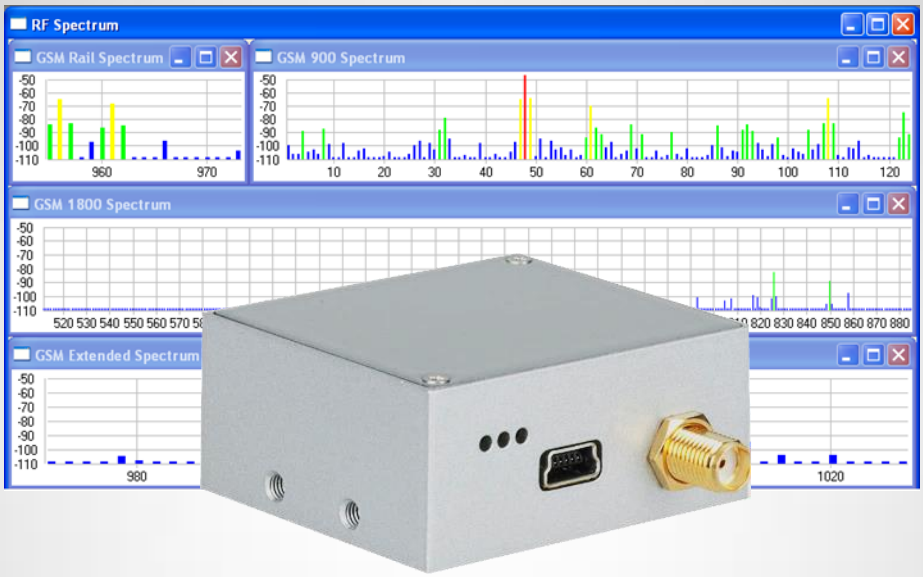
GSM-R test modem



TTS-TRM-5T USB

Compact 2 Watt GSM-R test device for network measurements and monitoring with best in class receiver performance

Extended GSM-R

GSM-R technology for railways

Datasheet

TTS-TRM-5T USB

The TTS-TRM-5T USB is the right network probe for GSM-R in-depth testing and monitoring. The test system provides first hand interferer detection. The new extended frequency band of EGSM-R is supported.

Technical data

Dimensions	45 x 40 x 20 mm [LxWxH]
Weight	70 g
Supply voltage	via USB
Current consumption	
Idle mode	50 mA
Speech mode	160 mA [average]
GPRS (cl. 10)	400 mA [average]
Inrush current	910 mA
Temperature range	-20°C to +55°C

Interfaces

USB mini B	[Support of Windows XP/7/8/10 and Linux ≥ 2.6.0 with USB CDC-ACM driver; Digital audio, power supply]
Antenna connector	Type SMA
Display	3 status LEDs
Card reader	Mini-SIM

ASCI / EIRENE

VGCS, VBS, UUS1, eMLPP

FN, PFN, REC

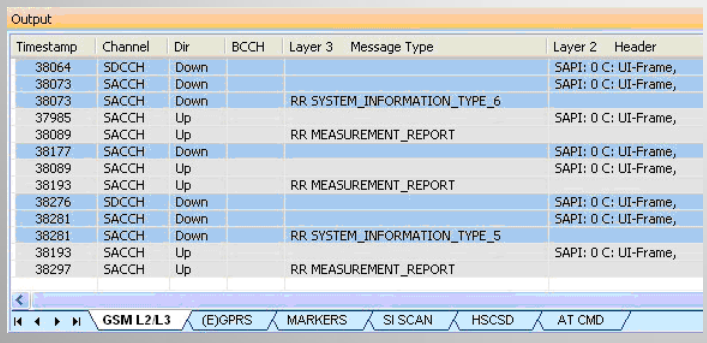
ETCS L2

QoS / subset of values defined in the ERTMS/GSM-R QoS test Specification [QoS working group, v1.2.i, 06-07-2006]

Transfer delay of user data frames

Round trip delay evaluation [optional loopback terminal required]

Data transmission interference and data throughput



Part no.

TTS-TRM-5T USB	4151

System / Standards

Frequency bands	EGSM-R/GSM-R/EGSM900/GSM1800
RF output power	Class 4 [2 W] for GSM-R/EGSM-R/EGSM900 Class 1 [1 W] for GSM1800
Professional Mobile Standard	ETSI TS 102 933 V 2.1.0
ER-GSM Frequencies	ETSI TS 102 932 V 1.1.1
GSM Phase 2 and 2+,	Mobile station class B
Audio	Triple-rate codec for HR, FR and EFR AMR for non ASCI apps supported
AT commands	via USB CDC ACM interface

Data services

GPRS class 10 with up to 85.6 kbps [DL] and 42.8 kbps [UL]

PBCCH supported; Coding scheme CS 1-4

CSD with up to 14.4 kbps [Transparent and non transparent mode]

Fax group 3, class 2

TCP/IP stack access via AT commands

Protocols: TCP, UDP, HTTP, FTP, SMTP and POP3

SMS via GSM-R and GPRS [MO, MT, CB, text and PDU mode]

Test system

Layer 1		Serving/neighbor cell BCCH, ARFCN, Cell ID, RX LEVEL, Timing Advance, Power Level
Radio Resources		ARFCN, channel type, speech codec, time slot, network and base station color code
Messaging		GSM Layer 2/3, GPRS RLC/MAC, GMM/SM
GPRS		RLC/MAC, LLC, GMM, SM/SNDCP, TBF, RLC mode, CS, NCO
Mobility Management		Cell ID, LA, MCC/MNC, TMSI, Ciphering
QoS	GSM:	FER, Handover, Call setup
	GPRS:	Data rates of LLC and RLC/MAC
Forcing		BCCH, Handover, Channel, Band, Power class, GPRS, Time slot, TCH, ASCI
Scanning		Single ARFCN, Set of frequencies, Band, System information

TrioTrace2 PC application

TrioTrace2 SW to visualize all measured data in customizable windows

Detection of GSM-R interferer

Trace log recording; replay for post analyzing

Export of stored trace files in different formats

triorail

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