

TETRA Base Station Test

R8-TETRA_BST1

FREEDOM
Communication Technologies



modern engineering & design

Edition 08/2020

rfe-global GmbH

Marie-Curie-Str. 1

26129 Oldenburg (Oldb)

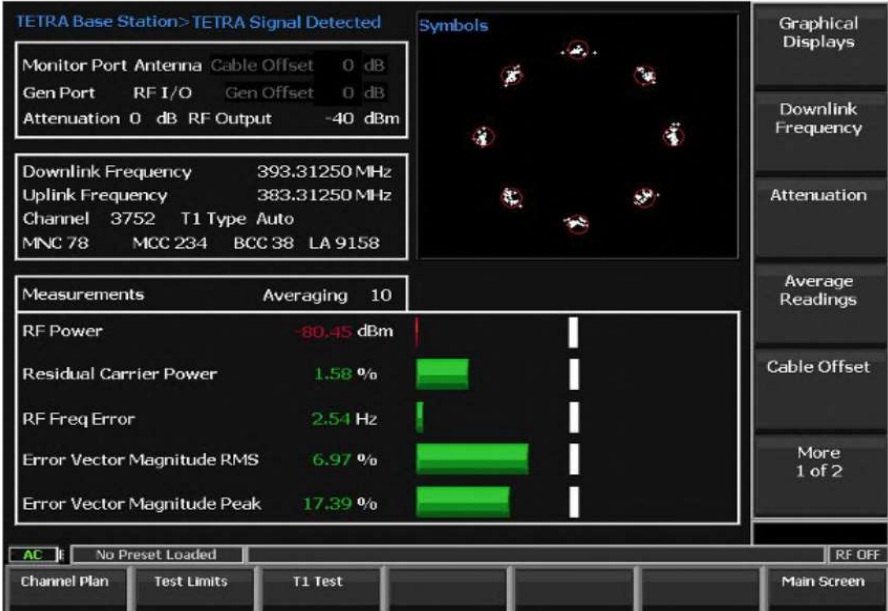
Tel: +49 441 94911 655

Fax: +49 441 94911 659

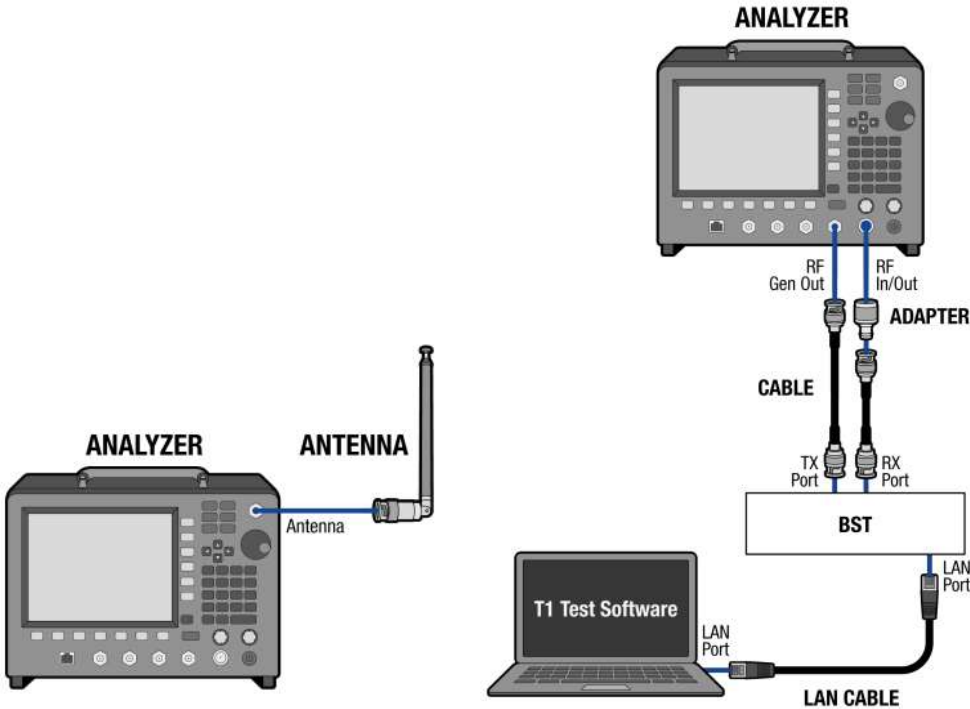
E-Mail: info@rfe-global.com

rfe-global
radio frequency equipment

The optional R8200/R8100/R8000C/R8600 TETRA Base Station Test Package option (R8-TETRA_BST1) enables testing of Base Stations compliant with the ETSI Terrestrial Trunked Radio (TETRA) radio transmission protocol per ETSI specification TS 100 392 and EN 300 392.

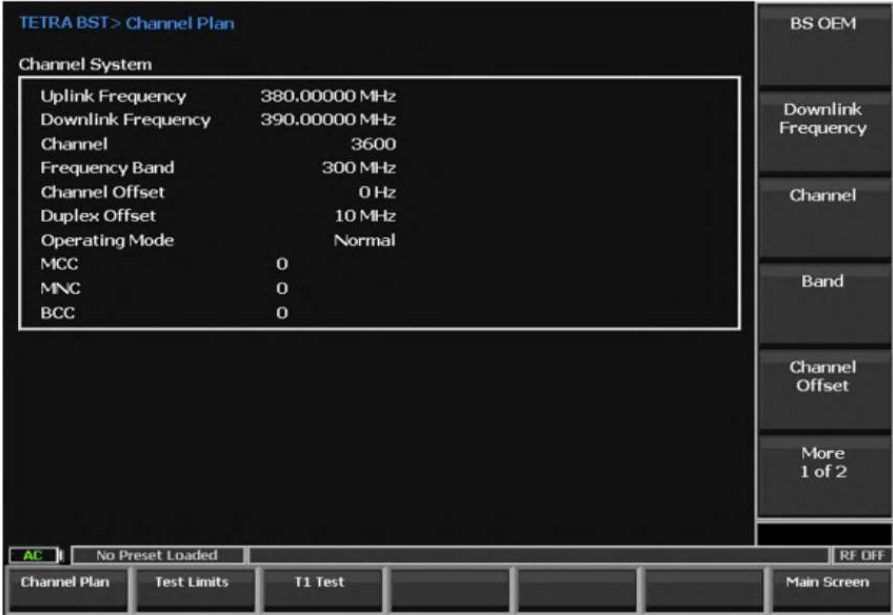


The Option enables both over the air monitoring of a live traffic mode signal and TETRA T1 tests (BER testing) of the Transmitter and Receiver using a direct connection to the base station's RF network.



Channel Plan Settings

The Channel Plan Table displays the current T1 Test Mode Base Station configuration.



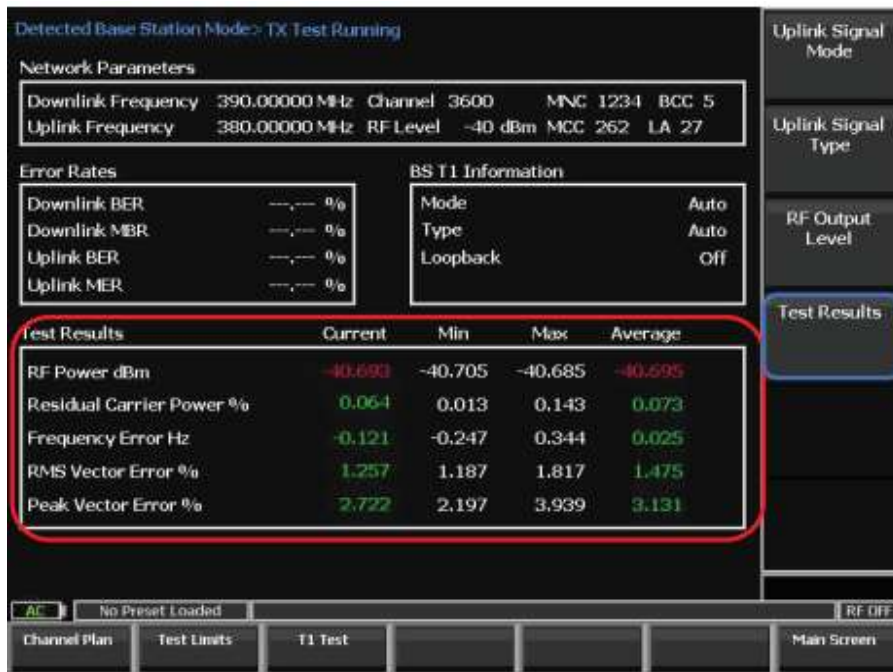
Automatic Transmitter Test

TETRA Base Station T1 Mode contains additional parameter controls for the TETRA Base Station Channel Plan and the T1 Test Table for offline or OTA transceiver performance verification using the manufacturer Test Mode Software.

T1 Test Mode will provide the correct Uplink response to the Downlink T1 and Network settings.

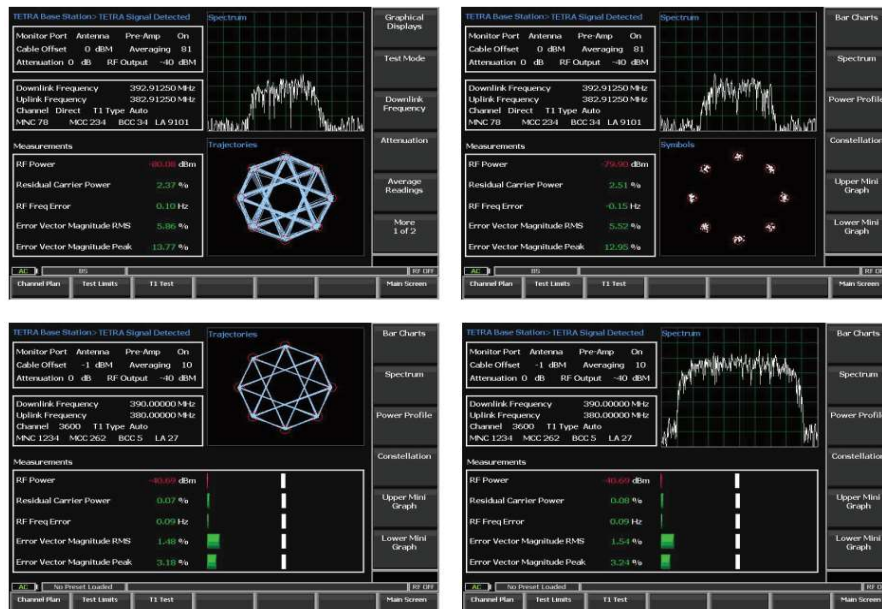
Preconfigured Channel Plans are available for Cassidian TB3, Motorola Dimetra, MTS4, and MTS1, and Rohill Base Station assets.

After automatically synchronization with the Base Station via GPS standard, the TETRA Base Station T1 Mode enables the R8200 to decode and display the base station Mobile Country Code (MCC), Mobile Network Code (MNC), Base Station Color Code (BCC) and Local Area Code (Larea) as well as and provide T1 signal pattern type (typically, TCH 7.2) and BER/MER measurement results.



Graphical Displays

The Graphical Displays key provides access to full screen displays and selection of Upper and Lower Mini Graphs for: Bar Charts, Spectrum, Power Profile and Constellations.



Bar Charts

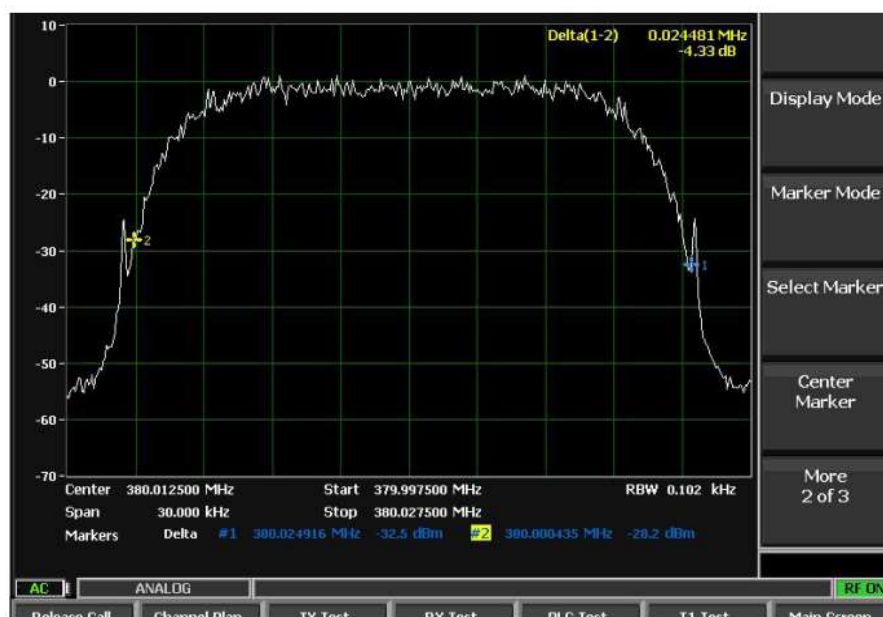
Bar charts provide a graphical representation of measured parameters.



- Colour coded pass/fail. The White markers indicate the limit of each parameter.
- Individual Limits may be adjusted by the operator

Spectrum Analyser

The Spectrum Analyser is the same as the main Spectrum Analyser from the standard display.

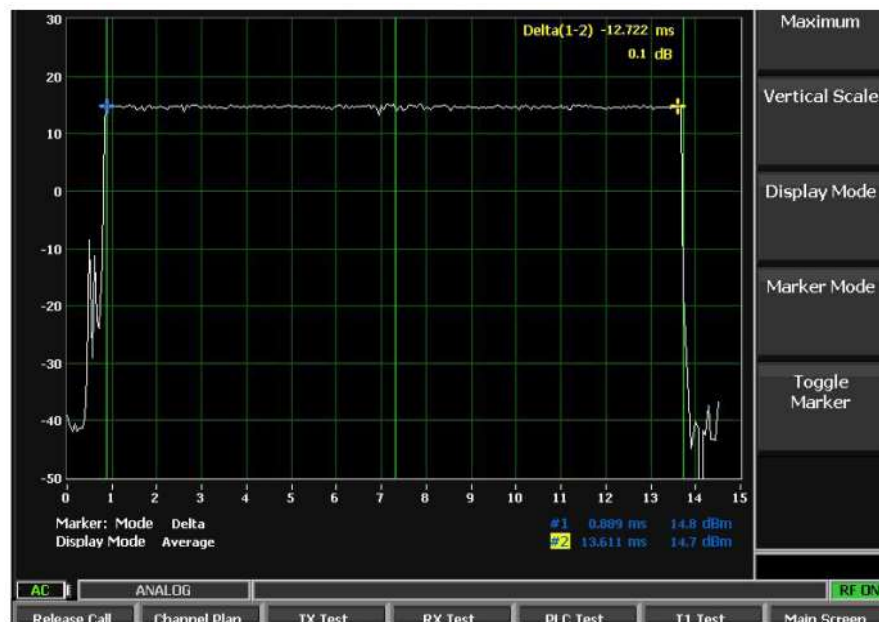


Features included:

- Start/Stop Frequency
- Display Mode (Max Hold is useful for capturing the TDMA Bursts)
- Markers
- Marker Modes (Delta Mode is useful to measure channel bandwidth)
- Adjustable Span

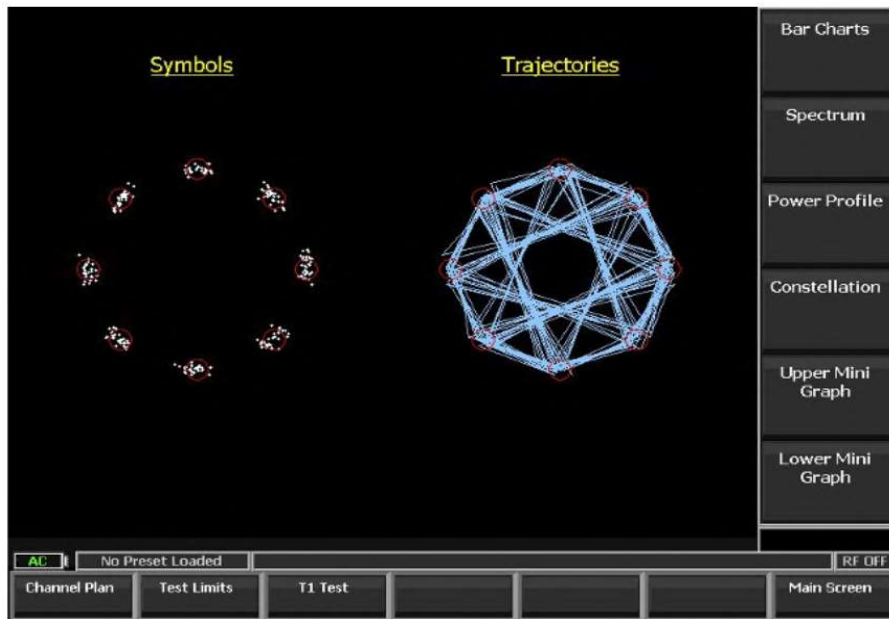
Power Profile

- TDMA slot view
- 2 Markers for timing analysis
- Markers toggle for Mkr1 or Mkr2 adjustment



Constellation Display

- Industry standard QPSK Constellations
- Graphical representation of:
 - Phase errors
 - Amplitude Errors
 - I/Q Imbalance



Test Limits

On the Test Limits menu, you can configure the PASS/FAIL boundaries for every measurement in the Measurements Display. These limits are mirrored in the Bar Charts display. Limits Default returns all limit settings to the ETSI standard values.

Test Limits	Lower	Upper
RF Power Level	28 dB	32 dB
Unwanted Power		-36 dB
Residual Carrier Power	0 %	5 %
Frequency Error	-100 Hz	100 Hz
RMS Vector Error	0 %	10 %
Peak Vector Error	0 %	30 %
Frame Alignment Symbols	-0.250 sym	0.250 sym
RX Sensitivity	-114 dBm	
MS T1 BER		3.000 %
MS T1 MER		3.000 %

More
2 of 3

AC ANALOG RF ON

Release Call Channel Plan TX Test RX Test PLC Test T1 Test Main Screen

Test Results and Save to File

TETRA BST > Test Results				
Radio Test Results				
Operator ID	KK			
Test Date	12/10/2018			
Test Time	3:32:33 AM			
Frequency	300.00000 MHz			
Network	262/1234			
		Last	Min	Max
IX Test:				
RF Power	-40.6982	-40.7049	-40.6851	-40.6953 (FAIL)
Residual Carrier Power	0.0806	0.0110	0.1437	0.0744 (PASS)
RF Frequency Error	0.3312	-0.2466	0.3016	0.0160 (PASS)
Error Vector Magnitude RMS	1.7085	1.1873	1.8174	1.4653 (PASS)
Error Vector Magnitude Peak	3.2769	2.1968	3.9387	3.1055 (PASS)
T1 Test:				
Uplink BER	0%			
Uplink MER	0%			
Downlink BER	0%			
Downlink MBR	0%			

TETRA Base Station Test Specifications

Name	Description
Analyzer Requirements	
Series	Compatible with R8000/R8100/8200/8600
Option key	R8-TETRA_BST1
Test results	
Export	Test results and log Files can be exported to a USB drive
Export File type	CSV