

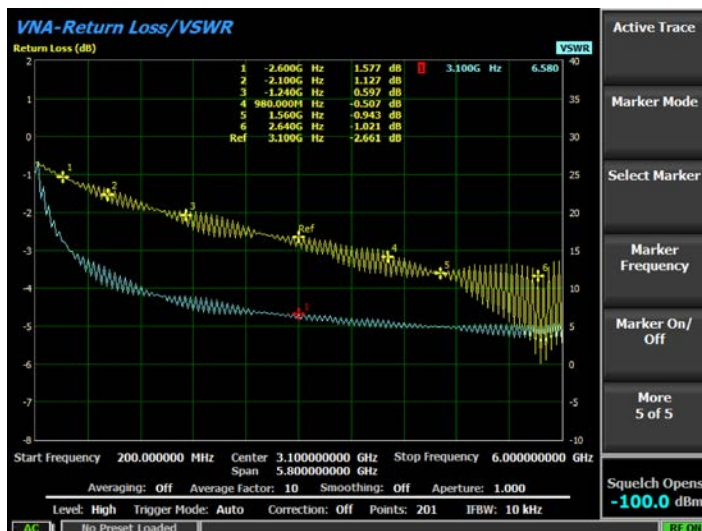
Freedom R8200

Vector Network Analyzer

The Freedom R8200 incorporates a single-port Vector Network Analyzer (VNA) with a frequency range up to 6 GHz. Maximum measurement accuracy is achieved with the included Open/Short/Load calibration kit. This VNA enables near-instantaneous measurements of cable/antenna Return Loss (RL) and Voltage Standing Wave Ratio (VSWR). The Distance-To-Fault (DTF) function is a Frequency Domain Reflectometer (FDR). It sweeps and profiles discontinuities in the transmission line to accurately pinpoint the faulty components and significantly reduce the time to locate and repair. Verifying your communications infrastructure performance and rapidly locating impairments has never been easier.

Return Loss / VSWR

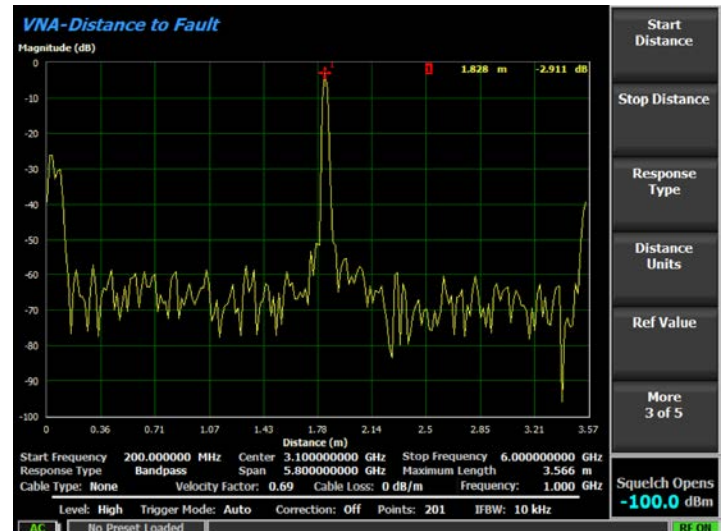
The Return Loss and VSWR application allows a user to view the quality of matching of a transmission system versus frequency. Both Return Loss and VSWR are conveniently displayed on a single screen to allow a user to quickly assess system performance in the domain of choice. Multiple markers may be placed and measured against a reference marker to determine relative match performance across frequency.



Distance to Fault

The Distance To Fault application allows the Freedom R8200 to sweep the response of a system versus frequency, and via transform domain analysis, determine locations of mismatches along a transmission line. The necessary transmission line parameters such as velocity factor and frequency dependent loss values can be entered manually or recalled from a library of standard cable types.

The user can zoom into segments of the transmission line of interest. Also, sweep settings may be adjusted to coincide with a frequency range of interest. Multiple markers may be placed on the trace to accurately identify location of anomalies and their magnitudes.



R8200 VNA Detailed Specifications

Performance

- VNA Type: Single-Port
- Connector: TNC-Female port w/N-Type adapter (SMA-Female port optional)
- Frequency Range: 1 MHz - 6 GHz
- Frequency Resolution: 20 Hz
- Frequency Accuracy:
 - » Aging: ± 0.1 ppm / year
 - » Temp.: ± 0.01 ppm
- Measurement Bandwidths: 10 Hz to 100 kHz (1-3-10 sequence)
- Temperature Stability: 0,015 dB/°C
- Output Power: - 3 dBm (High), -30 dBm (Low)
- Accuracy of reflection measurement:
 - » -15 dB to 0 dB, ± 0.4 dB / ± 3 deg
 - » -25 dB to -15 dB, ± 1.0 dB / ± 6 deg
 - » -35 dB to -25 dB, ± 3 dB / ± 20 deg
- Trace Noise Magnitude (IFBW 1 kHz): 0.005 dB rms
- Corrected Directivity: 46 dB
- Maximum Input
 - » Voltage: 48 VDC
 - » RF: +23 dBm
- RF Immunity: 17 dB

Return Loss/ VSWR

- Display: Dual trace (Return Loss left axis, VSWR right axis)
- Frequency: Start/Stop, Center/Span
- Measurement Speed: 100 μ s/data point
- Measurement Points: 101 to 10001
- Averaging: On/Off with averaging factor of 1 to 999

- Smoothing Aperture: 1% to 20%
- Return Loss Measurement Scale: 0 to -100 dB
- Return Loss Measurement Resolution: .001 dB
- VSWR Measurement Scale: 1 to 100
- Number of Markers: 6 per trace
- Marker Mode: Off, Absolute, Delta
- Marker Functions: Max Peak, Min Valley, Peak Left, Peak Right, Valley Left, Valley Right

Distance to Fault

- Frequency: Start/Stop, Center/Span
- Measurement Speed: 100 μ s/data point
- Measurement Points: 101 to 10001
- Response Type: Bandpass, Lowpass Impulse, Lowpass Step
- Distance: Start. Stop
- Distance Units: meters, feet
- Scale: 0.001 dB/div to 200 dB/ div, Auto
- Number of Markers: 6
- Marker Mode: Off, Absolute, Delta
- Marker Functions: Max Peak, Min Valley, Peak Left, Peak Right, Valley Left, Valley Right

Cable Parametrics

- Manual Entry
 - » Velocity Factor: 0.01 to 1.00
 - » (x3) Cable Loss: 0 dB to 2.00 dB/m @ Loss Frequency: 0 MHz to 10 GHz
- Selection from Cable List

Calibration

- Type: Open/Short/Load
- Calibration Standard Parameters: Inductance, Capacitance, Offset Delay

For other R8200 specifications see FCT-2040



Complies With
UL 61010-1
CSA C22.2 No. 61010-1

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