RB10

Wideband HF & V/UHF Bit Error Rate Tester – 120 kbps

DATASHEET



Data Modem BERT: Features & Benefits

Serial Data BERT:

- Bit error rate testing for NATO STANAGS, Narrow Band and Wideband Military Standards (MIL-STDs) including Mil-Std 188-110C (WBHF) and S4691 (UHF)
- DTE Interface: RS-422 or RS-232
- Synchronous: 50 bps to 120 kbps
- Asynchronous: 50 bps to 230.4 kbps
- Clock Source: Internal or External
- EIA-530 Standard Compliance

Packet Data BERT:

- Packet error rate testing for STANAG 4538 (HF ARCS) – LDL & HDL
- Ethernet Interface: 10/100 Mbits
- Protocol: RAP1/RAW over TCP/IP, UDP

Test Patterns: Standard PRBS 63, 511 & 2047 bit, custom text or User Defined PRBS

Reliable Results: Dedicated Hardware

Statistics: Recorded & Displayed

- BER, bit errors, bit slips
- Sync loss
- Probability of Link
- Packet throughput
- Packet retry rate

Installation: Rack mount or Standalone

Special Features:

Ethernet Interface: Control via RAP1

Remote Control: Via PC GUI

Time Measurement: End-to-End & Round-Trip Time (RTT)

Bit Error Rate: Insertion of bit errors

Product Overview

The *RapidM RB10 Wideband Bit Error Rate Tester (BERT) is a* standalone unit designed for the testing of serial and packet H/V/UHF data modem communications equipment and communications links. The *RB10 BERT* is used to measure the number of errors (bit or packet) in a data transmission system.

For serial testing the *RB10 BERT* generates a test data stream that is passed through the data transmission system. The received data stream is compared against a reference data stream to detect any errors introduced by the system under test. The *RB10 BERT* can detect bits in error and missed bits (also called bit slips).

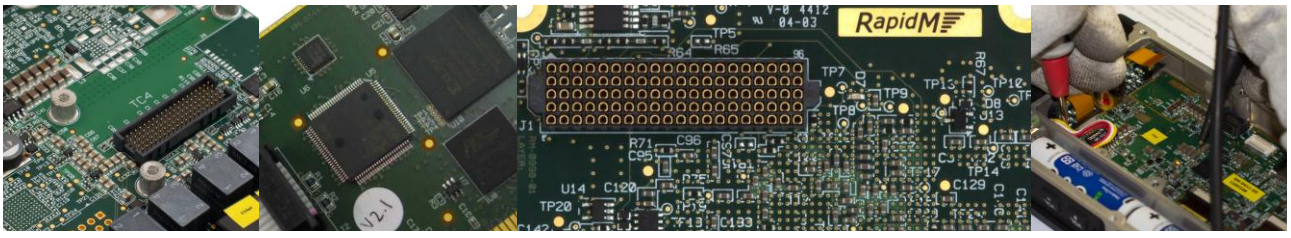
For packet data and link setup testing the *RB10 BERT* requests the modem to establish links and send varying packets of data through the transmission system. Indications received from the modem are used to determine link probability as well as packet throughput and packet retry rate.

Test Patterns

The *RapidM RB10 BERT* generates a pseudo-random binary sequence (PRBS) based on standard test patterns. The RB10 generates these data streams at data rates from 50 bps to 120 kbps in synchronous and 50 bps to 230k4 bps in asynchronous DTE modes. The *RB10 BERT* Is capable of generating and checking user defined patterns from 8 to 128 bits in length. A custom text sequence is also supported.

For serial data testing the 63, 511, and 2047 bit PRBS patterns are standard with continuous and burst transmission modes also supported.

The *RB10 BERT* has an intuitive graphical user interface on the front panel that displays basic error statistics and allows the user to control the operation of the BERT hardware. The *RB10 BERT* can also be controlled locally or remotely using the BERT GUI PC S/W which provides more detailed error statistics and test results.



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RB10 Hardware				
Physical Characteristics				
Size, Weight & Color	Width: 212.2 mm Depth: 225.6 mm	Height: 41.1 mm (excl. front panel) Height: 44.1 mm (incl. front panel)	Weight: 2.2 kg	Color: Black Grey (RAL 7021), Saddlewood Powder (VX 7517)
Environmental Specifications	Climatic	○ Storage/Operation: -30 ˚C to +70 ˚C (MIL-STD-810F) ○ Humidity: 90% non-condensing at 30 ˚C (MIL-STD-810F)		
	Mechanical	○ Vibration: Surface Ship, Marine Vehicles, Aircraft, Min. Integrity (MIL-STD-810F) ○ Shock: 40 G, 11 ms (MIL-STD-810F)		
	EMC	○ MIL-STD-461E (RE101, RE102, CE102, CS101, CS114, RS101, RS103)		
	Safety/CE Marking	○ CE Marking - Directives 2006/95/EC as amended ○ SANS 60950-1:2010 / IEC 60950-1:2012	○ LVD - Low Voltage Directive 2014/35/UE ○ EMC - Electromagnetic Compatibility Directive 2014/30/UE ○ EDD – Eco-Design Directive 2009/125/EC	
	MTBF	○ > 40,000 hours		
Installation	Compact design: The unit occupies a width less than ½ of an 1U 19” rack slot, *RapidM* 19" rack-mountable tray available.			
Presets	Factory and Custom Presets			

Interfaces	Use	Details
Remote Control (DE9M)	Configuration and Control	Remote Control Pins: RS-422 balanced or RS-232 Protocol: Control Protocol (RAP1 + RIPC, ASCII S5066 Annex E)
Ethernet CTRL Port (RJ45)	Configuration and Control	Remote Control: 10/100 Base T (IEEE 802.3U compatible), embedded TCP/IP Stack Protocol: Control Protocol (RAP1 + RIPC)
Ethernet Data Port (RJ45)	Packet Data Transfer	IP Packet Data: 10/100 Base T (IEEE 802.3U compatible), embedded TCP/IP Stack Protocol: Protocol: RAP1/RAW over TCP/IP, UDP.
Local Control	Configuration and Control	Local control via 32x202 pixel graphical LCD display and 16-key keypad. 3 bi-colour LED indicators. Alphanumeric and digit keypad for fast data entry, 4-way navigation button
DTE (DB25F)	Modem Data Communication	RS-422 balanced, RS-232 unbalanced., MIL-STD-188-114 (interoperable), EIA 530A compliant. Split Half Duplex operation, Synchronous, Standard and High-speed Async modes
Radio Control (DB25M)	Modem Status Indications	Radio Control Pins (2 channels): RS-232, up to 115200 bps, 1/2 stop bits, 7/8 bit data Protocol: Control Protocol (RAP1 + RIPC)

Bit Error Rate Tester	
Tests	A number of tests can be run from the RB10 including: • Serial Data BERT ○ Bit error rate testing ○ Mil-Std 188-110B, Mil-Std 188-110B-F, STANAG 4539 (HF) ○ Mil-Std 188-110C (WBHF) ○ S4691 (UHF) • Packet Data BERT ○ Packet error rate testing ○ STANAG 4538 (HF ARCS) – LDL & HDL
Test Patterns	Depending on the test being performed and the required rate, different test patterns can be used: • Standard 63, 511 & 2047 bit pseudo-random binary sequence (PRBS) test patterns • User-defined custom text • User defined PRBS (8 – 128 bits)
Serial Statistics	By comparing the return data stream to the known test sequence various metrics can be measured, including the following: • Bit Error Rate (BER) • Frame Error Rate • Packet Error Rate • Bit Slips • Synchronisation Loss
Packet Statistics	By monitoring modem indications various linking and packet metrics can be measured, including the following: • Packet data throughput • Packet retry rate
User Interface	The Front Panel Display provides a quick and convenient method to control the RB10 and view basic test results. A PC based GUI can be connected to control the RB10 remotely as well as view more detailed test result reports.

Ordering Information	Stock Number	Description
RB10 Wideband Bit Error Rate Tester	RME-B0-RA-BAV01	BERT: RB10 BER Tester, 120kbps V01

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