Agilent Technologies E1852A Bluetooth Test Set

Data Sheet

- A low-cost, stand-alone solution
- Prove the performance of Bluetooth™ devices
- Establish a link using standard Bluetooth protocol
- Maximize throughput in manufacturing environments
- PC-based user interface
- Qualified by the Bluetooth SIG as a Bluetooth development tool

Bluetooth

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Functionality

Test Mode with or without frequency hopping

Ability to act as a Bluetooth Master and establish a PAGED connection in test mode [Bluetooth Specification 1.1] with a Bluetooth device.

DUT mode: Transmitter mode or Loopback mode, with or without frequency hopping

Transmitter measurements: Provide the following results:

- Average Power
- Peak Power
- Frequency Offset
- Frequency Drift
- Frequency Drift Rate
- Frequency Deviation [0F calibrated]
- Graphical results showing frequency vs. time, power vs. time, power vs. channel number

Receiver measurement:

- Number of test bits settable, up to 1.6 million
- Bit Error Rate
- Packet Error Rate

Measurement summary screen:

- All Transmitter and Receiver measurements shown, with bar graphs using pass/fail limits
- Link Status window

Results averaging: 1 to 200

Poll period: 1-255

Packet types: DH1, DH3, DH5, HV3, AUX1

Packet length: Variable, according to the Bluetooth specifications for each packet type supported

Packet payload: 00000000, 11111111, 01010101, 00001111, Pseudo-random (PN9)

Power control: Instruct DUT (Device Under Test) to increase/decrease RF output power

Normal Mode

Ability to act as a Bluetooth Master, and establish a PAGED connection [Bluetooth Specification 1.1] with a Bluetooth device.

Transmitter measurements:

- Power & Frequency measurement results based on the use of a zero length payload
- Graphical results showing frequency vs. time, power vs. time, power vs. channel number

Receiver measurements:

- Packet Error Rate

Measurement summary screen:

- All Transmitter and Receiver measurements shown, with bar graphs using pass/fail limits
- Link Status window

Results averaging: 1 to 200

Poll period: 1

Packet payload: No payload is present in this mode

Power control: Instruct DUT (Device Under Test) to increase/decrease RF output power.

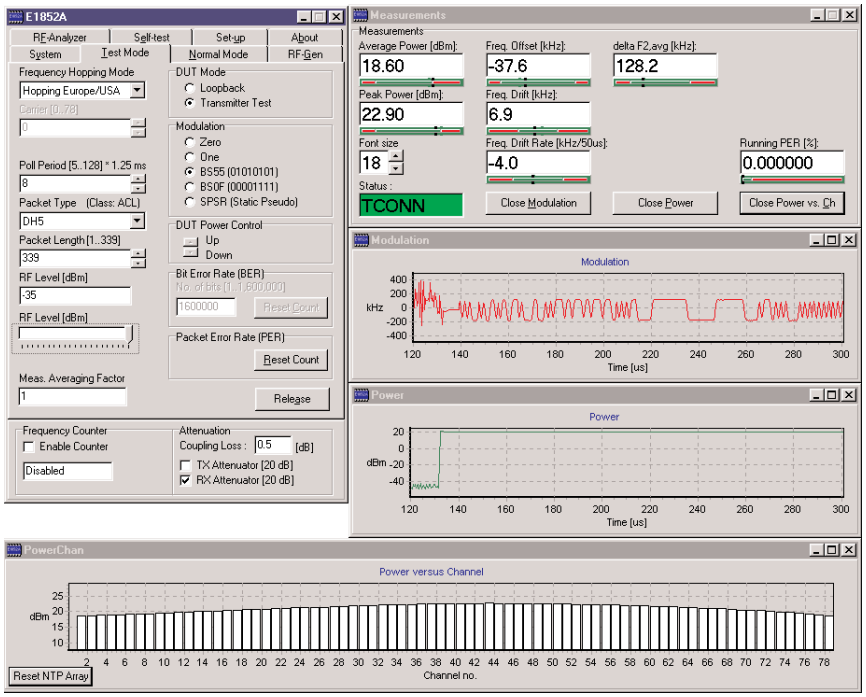
RF-Analyzer

Transmitter measurements as described in Test Mode, but for use when no link is established. (DH1, DH3 or DH5 packets and 01010101, 00110011 or 00001111 payloads only).

RF-Generator

Burst or continuous signal on any channel, with selectable power output and frequency offset. 01010101, 00110011, and 00001111 payloads supported.

The PC-based user interface is easy to learn and use.



Performance

The test set will meet its specification after 2 hours of storage within the stated operating range, 60 minutes after turn on.

RF-Generator

Frequency:	
Range	2402MHz - 2480MHz, 79 channels at 1 MHz spacing
Modulation	In accordance with Bluetooth Radio Specification Version 1.1
Offset	±300 kHz in 100 kHz increments
Output Power:	
Range	-95dBm to -35dBm
Resolution	0.1dB
Level Accuracy[1] at -70 dBm	±0.9 dB at 25 °C ±3 °C (±1.4 dB over full operating temperature)
Level Accuracy[1] at 2442 MHz over the output range -85 to -35 dBm	±1.4 dB at 25 °C ±3 °C (±1.9 dB over full operating temperature)

RF-Analyzer

Frequency:	
Range	2402MHz - 2480MHz 79 channels at 1 MHz spacing
Demodulation	±400 kHz maximum
Error	±(Timebase error + 5 kHz) (nominal)
Power Measurement:	
Range	-55 dBm to +23 dBm
Resolution	0.1 dB
Accuracy[2] at 0 dBm	±0.7 dB at 25 °C ±3 °C (±1.3 dB over full operating temperature)
Accuracy[2] at 2442 MHz over the input range -30 to +22 dBm	±0.9 dB at 25 °C ±3 °C (±1.3 dB over full operating temperature)

Frequency Counter Input

Range	10 kHz to 15 MHz
Frequency Error	±(Timebase error + 5 kHz) (nominal)
Resolution	1 Hz
Sensitivity	0.5V RMS (nominal)

Frequency Reference

Internal Timebase:	
Drift due to temperature	±2.0 ppm
Aging	±1.0 ppm / year
Frequency Reference input:	
Frequency	10 MHz (nominal)
Sensitivity	150 mV into 50 Ω (nominal)

General Specifications

Input/output connectors

RF In/Out N(f), 50 Ω (nominal)
Counter In BNC(f), high impedance
Parallel Port 25-pin D-sub(m)
Serial Port [RS-232] 9-pin D-sub(f) used for firmware downloads
Frequency reference input, BNC(f), 50 Ω nominal
Analog Outputs, BNC(f), 50 Ω nominal

- Bluetooth Slot Clock (625µs interval)
- Received Data
- Receive Slot Sync
- Power Envelope

Environmental conditions

Operating Temperature	+15°C to +45°C
Operating Humidity	Up to 95% relative humidity to 40°C (non-condensing)

Power consumption

Supply Voltage	100-120VAC, 200-240VAC 50-60Hz, 30VA maximum

Mechanical

Dimensions	92mm(H) x 280mm(D) x 484mm(W) Designed for rack-mounting
Weight	3.5kg

Computer requirements

The test set requires the use of a PC (not supplied), minimum requirement:

- Pentium® Processor or higher, 32MB RAM or more, 200MB available on hard drive
- Windows® 95, Windows® 98, Windows® 2000, Windows NT® 4.0(SP 3)
- Dedicated bi-directional parallel port
- 1024 x 768 resolution color monitor
- Microsoft Internet Explorer version 4.0 or higher/Netscape Communicator Version 4.0 or higher and internet connection required to download software/firmware upgrades

[1] A measurement uncertainty of 0.4 dB is included in these limits
[2] A measurement uncertainty of 0.35 dB is included in these limits
These uncertainty values are calculated using ISO TAG4, in line with the 'Guide to the Expression of Uncertainty in Measurement' and are based on a standard uncertainty multiplied by a coverage factor of k = 2, providing a level of confidence of approximately 95%.

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Phone or Fax
United States:
(tel) 1 800 452 4844

Canada:
(tel) 1 877 894 4414
(fax) (905) 282-6495

Europe:
(tel) (31 20) 547 2323
(fax) (31 20) 547 2390

Japan:
(tel) (81) 426 56 7832
(fax) (81) 426 56 7840

Latin America:
(tel) (305) 269 7500
(fax) (305) 269 7599

Australia:
(tel) 1 800 629 485
(fax) (61 3) 9210 5947

New Zealand:
(tel) 0 800 738 378
(fax) 64 4 495 8950

Asia Pacific:
(tel) (852) 3197 7777
(fax) (852) 2506 9284

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