

ROHDE & SCHWARZ

CBT

The Rohde & Schwarz CBT is a highly versatile Bluetooth tester designed for fast, accurate RF measurements in both development and production. It supports Bluetooth Basic Rate (BR), Enhanced Data Rate (EDR), and Bluetooth Low Energy (LE) test features, offering comprehensive transmitter, receiver, and audio measurement capabilities in a single integrated instrument.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488.2), LAN (10/100 Base-T), USB 2.0 Host (front and rear), RS-232, VGA output
Display	8.4" TFT color display (640 × 480 pixels, VGA resolution)
Warm-Up Time	Approx. 30 min

Physical

Power Supply	100 V to 240 V AC (nominal), 50 Hz to 60 Hz / 400 Hz, power consumption approx. 120 W
Operating Temperature	5 °C to 45 °C °C
Dimensions (W×H×D)	435 mm × 192 mm × 426 mm (with feet) mm
Weight	11 kg kg

RF Transmitter Measurements

Nominal Power Measurement Accuracy	< 0.5 dB (typical < 0.3 dB)
Peak Power Measurement Range	-50 dBm to +30 dBm
Carrier Frequency Drift Measurement	Supported
Initial Carrier Frequency Tolerance (ICFT)	Supported
Maximum Drift Rate	Supported
Frequency Deviation Avg (F1)	Supported
Frequency Deviation Max (F2)	Supported
Modulation Characteristics (GFSK)	Supported
Adjacent Channel Power (ACP) Measurement	Supported
EDR Relative Power Measurement	Supported (with Option CBT-K55)
EDR Differential Phase Encoding	Supported (with Option CBT-K55)
RMS DEVM (EDR Modulation Accuracy)	Supported (with Option CBT-K55)
Peak DEVM (EDR Modulation Accuracy)	Supported (with Option CBT-K55)
99% DEVM (EDR Modulation Accuracy)	Supported (with Option CBT-K55)
LE Transmit Power Measurement	Supported (with Option CBT-K57)
LE Carrier Frequency Offset and Drift	Supported (with Option CBT-K57)
LE Modulation Characteristics	Supported (with Option CBT-K57)
EDR In-Band Spurious Emissions	Supported (with Option CBT-K55)

RF Receiver Measurements

Bit Error Rate (BER) Measurement Range	0% to 100%
Packet Error Rate (PER) Measurement Range	0% to 100%
Receiver Sensitivity Search	Automatic level sweep capability
Single-Slot Receiver Sensitivity	Supported
Multi-Slot Receiver Sensitivity	Supported
Maximum Input Level Performance	Supported
LE Receiver Sensitivity (PER)	Supported (with Option CBT-K57)
Dirty Transmitter Emulation	Supported (programmable frequency drift and modulation index)

Supported Bluetooth Standards & Test Modes

Bluetooth Core Version Compatibility	v1.1, v1.2, v2.0, v2.1, v3.0, v4.0 (with options)
Bluetooth Low Energy (LE) Support	Supported (with Option CBT-K57)
Bluetooth Basic Rate (BR) Support	Standard
Bluetooth Enhanced Data Rate (EDR) Support	Supported (with Option CBT-K55)
Supported BR Packet Types	DH1, DH3, DH5, DM1, DM3, DM5, AUX1, HV1, HV2, HV3, DV, EV3, EV4, EV5
Supported EDR Packet Types	2-DH1, 2-DH3, 2-DH5, 3-DH1, 3-DH3, 3-DH5, 2-EV3, 2-EV5, 3-EV3, 3-EV5
Bluetooth Loopback Test Mode	Supported
Transmitter Test Mode	Supported
Receiver Test Mode	Supported
Direct Test Mode (DTM)	Supported (for Bluetooth LE)
Connection States Supported	Inquiry, Page, Connection

RF Signal Generator (Source) Specifications

RF Output Frequency Range	2400 MHz to 2485 MHz
RF Output Level Range (RF COM)	-120 dBm to 0 dBm
RF Output Level Range (RF OUT)	-120 dBm to +13 dBm
Level Resolution	0.1 dB
Level Uncertainty	< 0.5 dB (at 0 dBm)
RF Signal Modulation Formats	GFSK, pi/4-DQPSK, 8DPSK

RF Analyzer (Receiver) Specifications

RF Input Frequency Range	2400 MHz to 2485 MHz
RF Input Level Range (RF COM)	-50 dBm to +30 dBm
Maximum Safe Input Level (RF COM)	+30 dBm (continuous), +33 dBm (peak)
Input VSWR (RF COM)	< 1.2
Absolute Amplitude Accuracy	< 0.5 dB

Reference Frequency & Timebase

Internal Reference Frequency	10 MHz
Aging per Year (Standard TCXO)	< 1×10^{-6}
Temperature Stability (Standard TCXO)	< 1×10^{-6}
External Reference Input Frequency	10 MHz
External Reference Output Frequency	10 MHz
High-Stability OCXO Option (CBT-B1) Aging per Year	< 1×10^{-7}
High-Stability OCXO Option (CBT-B1) Temperature Stability	< 5×10^{-9}

Instrument Connectivity & Ports

RF Input/Output Connector (RF COM)	N-type (female), 50 Ohm
RF Output Connector (RF OUT)	N-type (female), 50 Ohm
External Trigger Input Connector	BNC (female)
External Trigger Output Connector	BNC (female)
Reference Frequency Input Port	BNC (female), 10 MHz
Reference Frequency Output Port	BNC (female), 10 MHz
External Monitor Output Port	D-Sub 15-pin (VGA)

Automation, Software & Control

Remote Control Command Set	SCPI (Standard Commands for Programmable Instruments)
Supported Automation Drivers	VISA, LabVIEW, LabWindows/CVI
Software Update Capability	Via USB or LAN

Physical, Power & Environmental

Storage Temperature Range	-40 °C to +70 °C
Recommended Calibration Cycle	12 months

Options & Accessories

Option R&S CBT-K55	Bluetooth EDR RF Test Option
Option R&S CBT-K57	Bluetooth Low Energy RF Test Option
Option R&S CBT-B1	High-Stability OCXO Reference Oscillator Option

RF Ports

RF Port Impedance	50 Ω (nominal)
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Options

Option R&S CBT-B55	Audio Board (adds analog audio generator and analyzer inputs/ outputs)
Option R&S CBT-K50	Audio Testing (adds software support for basic audio measurements and codec testing)

Power Supply

Mains Supply Frequency Range	50 Hz to 60 Hz / 400 Hz
Power Consumption	Approx. 120 W (fully equipped)

Options & Ordering

Option R&S CBT-B20	GPIO (IEEE-488) Interface
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Option R&S CBT-B41 (Audio)

Supported Audio Profiles	HFP, HSP, A2DP
Supported Audio Codecs	CVSD, A-law, μ -law, SBC
Audio Generator Frequency Range	10 Hz to 20 kHz
Audio Generator Frequency Resolution	0.1 Hz
Audio Analyzer Frequency Range	20 Hz to 20 kHz
Audio Analyzer Measurement Functions	Level, frequency, THD, THD+N, SINAD

Frequency

RF Output Frequency Resolution	1 kHz
RF Input Frequency Resolution	1 kHz

TECHNOLOGY

Bluetooth Test Technology

APPLICATIONS

RF transmitter, receiver, and audio testing of Bluetooth devices in manufacturing and development

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.