KEYSIGHT TECHNOLOGIES (AGILENT HP)

8703B

The Keysight 8703B (formerly Agilent) is a high-performance Lightwave Component Analyzer (LCA) designed for the precise characterization of high-speed electro-optical, opto-electrical, and optical components operating up to 20 GHz. It integrates a fast RF/microwave vector network analyzer with high-stability optical sources and receivers.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE 488.2), Parallel (Centronics), RS-232C, VGA Out, External Trigger (BNC)
Display	7.5-inch color active-matrix LCD
Floppy Disk Drive	3.5-inch, DOS and LIF formats
Laser Safety Class	Class 1 (IEC 60825-1)
Option 005	Adds a 70 dB step attenuator
Option 012	Deletes the internal laser source
Warm-up Time	1 hour

Physical

Power Supply	90 to 132 V AC / 198 to 264 V AC, 47 to 66 Hz
Operating Temperature	0 to 55 °C °C
Dimensions (W×H×D)	425 mm × 267 mm × 502 mm mm
Weight	34 kg kg

System Performance & Measurement Modes

Measurement Configurations	E/O (Electro-Optical), O/E (Opto-Electrical), O/O (Optical-to-Optical), E/E (Electrical-to-Electrical)
Modulation Frequency Range	50 MHz to 20 GHz
Modulation Frequency Resolution	1 Hz
Operating Wavelength Range	1290 nm to 1330 nm (nominal 1310 nm), 1530 nm to 1570 nm (nominal 1550 nm)

Optical Transmitter Specifications

Internal Laser Source Wavelengths	1310 nm (Option 100), 1550 nm (Option 200), 1310 nm & 1550 nm (Option 300)
Average Optical Output Power	> +3 dBm (typical)
Optical Transmitter Return Loss	> 35 dB
Optical Transmitter Connector Type	HMS-10 (standard), FC/APC, FC/PC, SC, ST via interchangeable adapters

Optical Receiver Specifications

Optical Receiver Return Loss	> 33 dB
Optical Receiver Connector Type	HMS-10 (standard), FC/APC, FC/PC, SC, ST via interchangeable adapters

RF/Microwave Core Specifications

RF Source Frequency Range	50 MHz to 20 GHz
RF Source Frequency Resolution	1 Hz
RF Test Port Impedance	50 Ω nominal
RF Test Port Connector Type	3.5 mm (male)

Sweep & Display Characteristics

Sweep Types	Linear, Logarithmic, List
Display Formats	Log Magnitude, Linear Magnitude, Phase, Group Delay, SWR, Smith Chart, Polar

Connectivity, Interfaces & Control

Reference Clock Input / Output	10 MHz (BNC female)

Configuration & Ordering Options

Option 100	1310 nm internal optical source
Option 200	1550 nm internal optical source
Option 300	1310 nm and 1550 nm internal optical sources
Option 1D5	High-stability frequency reference

Performance

E/O Dynamic Range	73 dB (at 20 GHz, 10 Hz IF BW)
O/E Dynamic Range	68 dB (at 20 GHz, 10 Hz IF BW)
O/O Dynamic Range	34 dB (at 20 GHz, 10 Hz IF BW)
E/E Dynamic Range	100 dB (50 MHz to 20 GHz, 10 Hz IF BW)
RF Power Output Range	-15 to +5 dBm (extendable to -85 dBm with Option 005)
RF Power Level Resolution	0.05 dB

Optical Receiver

Maximum Safe Optical Input Power	+10 dBm (average)
Maximum Damage Optical Input Power	+16 dBm (peak)

Rear Panel Connections

Reference Output	10 MHz
Reference Input	1, 2, 5, or 10 MHz (automatic selection)

Measurement Features

Number of Measurement Channels	2
Sweep Points	3, 11, 26, 51, 101, 201, 401, 801, 1601
Group Delay Aperture	Selectable from 0.25% to 20% of frequency span

RF Source

RF Source Frequency Accuracy	±10 ppm

Reference and Timebase

Reference Timebase Frequency	10 MHz

Power Requirements

Power Consumption	350 VA (maximum)

TECHNOLOGY

Lightwave Component Analysis

APPLICATIONS

Electro-optical, opto-electrical, and optical component characterization