

KEYSIGHT TECHNOLOGIES (AGILENT HP)

86140B

The Agilent 86140B is a high-performance, benchtop optical spectrum analyzer (OSA) designed for S, C, and L wavelength band applications. Engineered for standard-performance demands at a value price point, the 86140B enables rapid and precise characterization of 50 GHz and wider WDM systems, optical sources, and broadband components. It features a fast dual-sweep method, comprehensive built-in test applications, and a user-friendly interface.

SPECIFICATIONS

General

Interfaces	Dual GPIB (System and Controller), RS-232, Centronics Parallel, PS/2 Keyboard/Mouse, VGA Output
Display	10.4-inch active-matrix color LCD, 640 x 480 VGA resolution

Physical

Operating Temperature	0 to 55 °C
Dimensions (W×H×D)	425 x 222 x 450 mm
Weight	16.5 kg

Wavelength

Wavelength Range	600 nm to 1700 nm
Wavelength Accuracy	±0.5 nm
Wavelength Repeatability	±0.002 nm
Wavelength Temperature Coefficient	±10 pm/°C
Minimum Wavelength Resolution (FWHM)	0.06 nm
Wavelength Resolution Bandwidth Settings	0.06 nm, 0.1 nm, 0.2 nm, 0.5 nm, 1 nm, 2 nm, 5 nm, 10 nm
Wavelength Display Resolution	0.001 nm
Wavelength Span Range	0 nm, and 0.2 nm to 1100 nm

Amplitude

Power Measurement Range	-80 dBm to +10 dBm (1250 to 1610 nm)
Maximum Safe Input Power	+20 dBm (100 mW)
Minimum Noise Floor / Sensitivity	-80 dBm (1250 to 1610 nm)
Amplitude Accuracy	±0.5 dB (at 1310 nm and 1550 nm, -30 dBm input)
Amplitude Flatness	±0.2 dB (1525 to 1570 nm)
Amplitude Linearity	±0.05 dB (0 to -50 dBm)
Polarization Dependence	±0.15 dB (1250 to 1610 nm)
Optical Rejection Ratio (at 0.5 nm Offset)	-50 dB
Optical Rejection Ratio (at 1.0 nm Offset)	-55 dB
Display Scale Range	0.1 to 20 dB/div, and Linear

Sweep & Measurement

Sweep Modes	Single, Continuous, Repeat
Sweep Points	101 to 10001 (user-selectable)
Sweep Cycle Time	<180 ms (50 nm span, auto zero off)
External Trigger Modes	TTL level, Edge selectable

Analysis & Applications

Built-in Applications	WDM Channel Analysis, DFB Laser Test, FP Laser Test, LED Test, Passive Component Test, EDFA Noise Figure
WDM Channel Analysis	OSNR, Channel Spacing, Channel Power, Peak Wavelength
DFB Laser Characterization	SMSR, Bandwidth, Peak Wavelength, Stop Band, Side Mode Wavelength
FP Laser Characterization	Center Wavelength, FWHM, Mode Spacing, Total Power
LED and Broadband Source Analysis	FWHM, Mean Wavelength, Peak Wavelength, Total Power
Optical Filter and Passive Component Analysis	Bandwidth (3 dB, 20 dB, etc.), Center Wavelength, Insertion Loss
Optical Power Meter Mode	Built-in photodiode power meter function

Connectivity

Optical Input Connector Type	User-interchangeable HMS-10 (FC, SC, ST, etc. options)
Compatible Fiber Types	9/125 µm single-mode fiber
External Trigger Input Port	BNC connector (TTL level)
Analog Output Port	BNC connector, 0 to 2 V into high impedance
Keyboard Port	PS/2 (6-pin mini-DIN)
Mouse Port	PS/2 (6-pin mini-DIN)
GPIO Compatibility	IEEE 488.1 and 488.2
Remote Programming Language	SCPI

Storage & Interface

Internal Storage Capacity	Saves up to 100 traces internally
Removable Storage Device	3.5-inch 1.44 MB floppy disk drive
File Formats Supported	CSV (data), BMP (screen copy), Binary (trace data)

Physical & Environmental

Storage Temperature Range	-40°C to +72°C
Maximum Operating Humidity	95% R.H. non-condensing (at up to 40°C)
Maximum Operating Altitude	4,600 m (15,000 ft)
Warm-up Time	40 minutes

Hardware Options

Option 001 (Current Source)	Provides adjustable current output
Option 003 (Built-in Printer)	Built-in thermal printer
Option 004 (Internal White Light Source)	Provides broadband white light source (900 to 1700 nm)

Optical Design

Monochromator Design	Single-pass
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Optical Performance

Optical Return Loss	> 35 dB
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Power Requirements

Power Consumption	150 VA maximum
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Display & Measurement

Trace Capacity	3 traces (A, B, and C)
Amplitude Display Units	dBm, dB, mW, uW, nW, pW, fW

Interfaces

External Display Output	VGA, 15-pin D-sub
Parallel Port	25-pin D-sub (Centronics compatible)
Serial Port	9-pin D-sub (RS-232 compatible)

Electrical

Mains Frequency Range	44 Hz to 440 Hz
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Environmental

Vibration Resistance	0.3 g (5 Hz to 500 Hz), operating
Shock Resistance	30 g (half-sine, 11 ms duration), non-operating

Safety & Compliance

Laser Safety	Class 1 (when internal sources installed)
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TECHNOLOGY

Optical Spectrum Analysis

APPLICATIONS

WDM System Test, Laser Source Characterization, Passive Component Testing

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