HP 8164A

NEW

- Mode-hop free tuning at continuous power
- Built-in wavelength control loop
- Output power up to +8 dBm
- Ultra low source spontaneous emission output

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The HP 8164A—A New Platform for the Test of Fiber Optic Components

The HP 8164A Lightwave Measurement System supports a whole range of tunable laser modules and all modules of the HP 8153A and HP 8163A Lightwave Multimeter series. The HP 8164A mainframe features connectivity to a wide range of controlling equipment through GPIB, RS-232C and PC Card interface. Configurable hardware input and output trigger ports complete the HP 8164A's ability to operate in an automated test environment. A 3.5" floppy drive, VGA port, keyboard connector and parallel printer port are included.

- Tunable lasers for all gain bands
- The HP 81680A and 81682A modules operate in the 1550 nm band whereas the HP 81640A covers the wavelength range from 1500 nm to 1640 nm.
- Optimum tuning precision for the test of critical dense-WDM devices

The HP 81640A, 81680A and 81682A Tunable Laser modules with their built-in wavelength control loop push today's performance limits. As they are all mode-hop free tunable with continuous output power, they qualify for the test of the most critical DWDM components. All three modules fit into the bottom slot of the HP 8164A mainframe.

Polarization Maintaining Fiber for the Test of Integrated Optical Devices

The HP 81640A, 81680A and 81682A modules are ideally constructed to characterize integrated optical devices. Their Panda PMF output ports provide a well-defined state of polarization to ensure constant measurement conditions on waveguide devices. A PMF cable easily connects an external optical modulator.

Low Spontaneous Emission for Maximum Measurement Range

The HP 81640A and 81680A tunable laser modules are equipped with two optical outputs. One output port delivers a signal with ultra-low source spontaneous emission (SSE). It enables accurate crosstalk measurement of dense-WDM system components with many channels at narrow spacing. A power meter module alone is sufficient to characterize steep notch filters such as Fiber Bragg Gratings.

The second output port provides increased optical power and allows adjustment by more than 60 dB through a built-in optical attenuator.

Test of Optical Amplifiers and Passive Components

The HP 81682A Tunable Laser module provides the high stimulus power needed to test today's optical amplifiers. An optional, built-in optical attenuator allows an output power dynamic of more than 60 dB. Its excellent wavelength precision makes it a multi-purpose instrument for all kinds of component test.

Compact Module for Multichannel Test

A variable amount of the compact, yet fully remote controlled HP 81689A Tunable Laser modules, in combination with the HP 81682A high power Tunable Laser, is the ideal solution to characterize optical amplifiers for use in dense-WDM applications. Furthermore the HP 81689A allows a realistic multi-channel test bed for dense WDM transmission systems to be set up.

Its continuous, mode-hop free tuning makes it quick and easy to set even the most complex configurations to the target wavelengths and power levels, just by dialing or using the vernier keys. The HP 81689A is available with both standard single-mode fiber and Panda-type PMF.

Each HP 8164A mainframe can host up to four units of the HP 81689A in its upper slots. The HP 8166A Lightwave Multichannel System mainframe, however, allows you to combine up to 17 of the compact tunable laser modules in a single frame.

Smart Tunable Loss Test Set

Inserted into the HP 8163A Lightwave Multimeter mainframe, together with a power meter module the HP 81689A compact tunable laser forms a smart, portable loss test set. Its tunability allows devices and links at all wavelengths in the DWDM window to be checked.

Specifications

Specifications describe the instrument's warranted performance. They are measured at the end of a 2 m long patchcord and are valid for the output power and wavelength ranges as stated below. Supplementary performance characteristics provide information about non-warranted instrument performance in the form of nominal values, and are printed in italic typeface.

	HP 81680A	HP 81640A	HP 81682A	HP 81689A
Primary Application	To-the-limits-test of critical DWDM components	Test of critical components in both DWDM bands	Test of critical amplifiers and passive components	Multiple channel test of optical amplifiers and transmission systems, compact form factor
Wavelength Range	1460 to 1580 nm	1500 to 1640 nm	1460 to 1580 nm	1525 to 1575 nm
Absolute Wavelength Accuracy	± 0.01 nm	± 0.015 nm	± 0.01 nm	± 0.3 nm, typical
Relative Wavelength Accuracy	± 5 pm (± 2 pm, typical)	± 7 pm (± 3 pm, typical)	± 5 pm (± 2 pm, typical)	± 0.3 nm
Wavelength Resolution	0.1 pm	0.1 pm	0.1 pm	10 pm
Signal to Source Spontaneous Emission Ratio	63 dB/ nm (output 1) 45 dB/ nm (output 2)	60 dB/ nm (output 1) 45 dB/ nm (output 2)	45 dB/ nm	40 dB/ nm, typical
Signal to Total Source Spontaneous Emission Ratio	60 dB (output 1) 30 dB (output 2, typical)	55 dB (output 1) 27 dB (output 2, typical)	30 dB, typical	–
Maximum Output Power	–6 dBm (output 1) +5 dBm (output 2) (1520–1570 nm)	–7 dBm (output 1) +2 dBm (output 2) (1530–1610 nm)	+6 dBm (1520–1570 nm)	+6 dBm (1525–1575 nm)
Maximum Output Power (Peak, Typical)	–4 dBm (output 1) +6 dBm (output 2)	–5 dBm (output 1) +4 dBm (output 2)	+8 dBm	–

For further details, please contact your HP representative and ask for literature number 5968-0063E (technical specifications).

Ordering Information

HP 8164A Lightwave Measurement System (mainframe)
HP 8166A Lightwave Multichannel System (mainframe)
HP 81640A Tunable Laser Module, ±3 pm, Low SSE, 1600 nm[a]
HP 81645A Filler Module
HP 81680A Tunable Laser Module, ± 2 pm, Low SSE, 1550 nm[b]
HP 81682A Tunable Laser Module, +8 dBm, 1550 nm[a]
- **Option 003** Built-in Optical Attenuator with 60 dB attenuation range (available with HP 81682A only, reduces max. output by 1.5 dB)

HP 81689A Compact Tunable Laser Module, +6 dBm, 1550 nm[a]
Tunable laser must be ordered with one connector option:
- **Option 021** Single mode fiber, straight contact connector (available with HP 81689A)
- **Option 022** Single mode fiber, angled contact connector (available with HP 81689A)
- **Option 071** Polarization Maintaining Fiber, straight contact connector
- **Option 072** Polarization Maintaining Fiber, angled contact connector

[a] one HP Series 81000xI Connector Interface is required; see page 454
[b] two HP Series 81000xI Connector Interfaces are required; see page 454

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