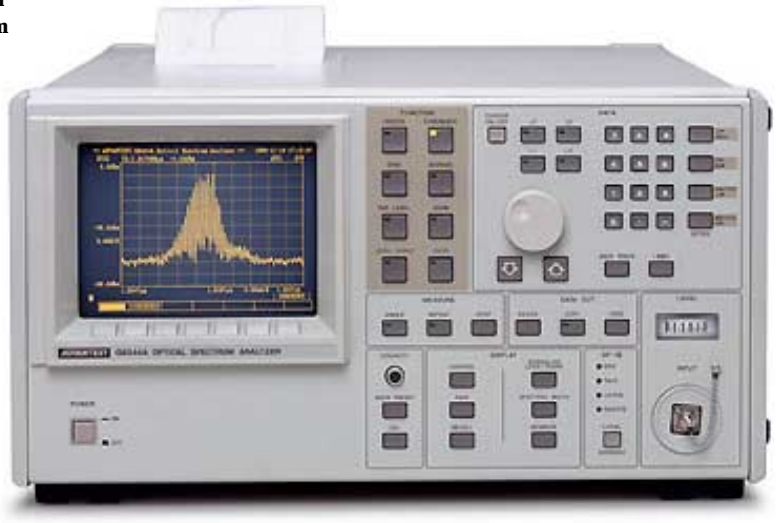
Optical Measuring Instruments and Optical Device Test Systems

Optical Spectrum Analyzer Capable of Coherence Measurement

Q8344A

- **Coherence Measurement**
- **High-Speed Measurement with 1.5 Seconds/Sweep**
- **Wide Wavelength Range from 0.35 to 1.75 μm**
- **Wavelength Measurement Accuracy of 0.1 nm**



Q8344A
Optical Spectrum Analyzer

Q8344A is an optical spectrum analyzer with a wide wavelength range from 0.35 to 1.75 μm.
The usage of a Fourier spectrum system using a Michelson interferometer makes it possible to analyze coherence that cannot be obtained by the dispersing spectrum systems using monochromators. It exhibits its capabilities for evaluation of laser diodes for CDs and video disks.
The built-in He-Ne laser used as the reference wavelength realizes a wavelength accuracy of ± 0.1 nm (1.3 μm), ensuring a long-term measurement stability even without wavelength calibration.
The Q8344A provides a maximum wavelength resolution of 0.05 nm (at 0.85 μm), accommodating measurements of laser diodes with narrow mode intervals. The measurement speed is approx. 1.5 seconds (at 0.4 to 1.05 μm and 0.8 to 1.75 μm) regardless of the analysis span, allowing it to be used as a system component.
With the versatile display, analysis and processing functions, the Q8344A can be used for characteristic measurement applications for diverse components ranging from photoemitting elements such as laser diodes and LEDs to optical components such as optical fibers and filters.

■ Coherence Measurement

Since the Q8344A uses a Michelson interferometer, it can be used for coherence measurement. This ability allows easy evaluation of performance of the noise suppression caused by the returned light of laser diodes for video disks.
The analysis range is approximately ±10 mm, allowing measurement of coherence length of SLDs (super luminescence diodes) used for optical fiber gyros.

■ High-Speed Measurement with 1.5 Seconds/Sweep Well-Suited for Production Use

The Q8344A employs a Fourier spectrum system and therefore can make measurement in 1.5 seconds regardless of the measurement span and sensitivity (provided that the starting wavelength is 0.4 μm or longer and the measurement does not cover both the short and long wavelengths). Therefore, the analyzer is useful for measurements on laser diodes and LEDs at the production lines. Also for evaluation of the transmission and loss characteristics of optical fibers and filters.
When used as a system component, the analyzer requires only 1.5 seconds to perform triggering, measurement and data output; dramatically improving the system throughput.

■ Wavelength Measurement Accuracy of ± 0.1 nm

With the built-in He-Ne laser as the reference light source, measurements can be made with a high wavelength accuracy of ± 0.1 nm (at 1.3 μm wavelength). This makes it possible for accurate wavelength measurement without wavelength calibration.

■ Maximum Wavelength Range of 0.05 nm

The Q8344A provides a maximum resolution of 0.05 nm at short wavelength (0.85 μm), making it possible to measure CD and visible light laser diodes by fully resolving the oscillation mode one by one.

■ Large-Caliber Fiber Input (Option)

A 200 μm large-caliber input can be used as an option. When analyzing a device whose wavelength is larger than the standard fiber caliber (GI 50 μm), this option is needed. For laser diode analysis, the standard 50 μm specifications are recommended and for LED analysis, this optional specification is recommended.

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Specifications

Wavelength	Measurement range	0.35 to 1.75 µm
	Max. resolution *1	Approx. 0.05 nm (at 0.85 µm) Approx. 0.1 nm (at 1.31 µm)
	Accuracy	±0.1 nm (The wavelength indicated is the value in vacuum.)
	Span	0.1 to 140 nm/DIV
Level	Measurement range (input sensitivity)	-70 to +10 dBm (0.7 to 1.6 µm) -60 to +10 dBm (0.45 to 1.7 µm) -45 to +10 dBm (0.35 to 1.75 µm) (Min. level at a span of 50 nm with 16 averages.)
	Accuracy	±2.0 dB or less (at a wavelength of 0.85 µm or 1.31 µm)
	Linearity *2	±1.0 dB/25 dB or less ±0.5 dB/10 dB or less
	Scale	0.2, 0.5, 1.0, 2.0, 5.0, 10.0 dB/DIV and LINEAR
Processing Functions	Measurement time *3	1.5 seconds or less (SINGLE mode, AVG: 1, Trigger to data output)
	Memory function	32 pages (measured data) 10 pages (measurement conditions) } With battery backup
	Display	Overlay display, split screen (top and bottom), 3-dimensional display, and cursor function
	Calculation/analysis	Coherence analysis (±10.4 mm) Normalization (LOSS/TRANS) Averaging Automatic peak search Half-value width measurement Automatic setting of the optimum measurement conditions
I/O	Input connector	FC type *4 Internal fiber. Standard: GI 50 µm Option 10: SI 200 µm
	Data output	GPIB equipped as standard Direct plotter output *5 Built-in printer (Option 01)

*1 Resolution is the wavelength difference between the Nth data and the (N+1) th data point
*2 With input at 0 dBm or less
*3 The start wavelength is 0.4 µm or less and measurement does not cover the short and long wavelengths.
*4 For the other connectors (SMA (2.5), ST, and DIN), contact ADVANTEST.
*5 Compatible plotters connectable: R9833 and TR9832 (ADVANTEST) 7475A, 7440A and 7470A (Hewlett Packard)

Standard Accessories

Product name	Model	Remarks
Power cable	A01402	1
Printer paper	A09075	5 rolls (included in option 01)

Options

Option 01 Built-in printer (Option 01)
Prints a hard copy of all the data displayed on the CRT
Printing system: Thermal printing line dot system
Printing speed: 8 seconds or less
Specified recording paper: A09075 (5 rolls)
Paper width: 114 mm

Option 10 200 µm fiber input (Specified at the time of ordering.)
Used for fiber with a core diameters of up to 200 µϕ, NA 0.4, e.g., for LED measurements.

Accessories (Optional)

OPCL-5G-100/FC Fiber collimator (GI 50/125µm, 1m FC connector)
OPCL-20H-100/FC Fiber collimator (SI 200/125µm, 1m FC connector)
OCS-F2SFW-2 Optical fiber cable (GI 50/125µm, 2m FC connector)
OCS-F2SPS-2 Optical fiber cable (SM 10/125µm, 2m PC connector)
A02712 Rack mount set (EIA, with handles)
A02713 Rack mount set (JIS, with handles)
A02722 Rack mount set (EIA, without handles)
A02723 Rack mount set (JIS, without handles)

General Specifications

Operating environment
Temperature: +10 to +40˚C, Humidity: 85%RH or less (without condensation)
Storage environment
Temperature: -10 to +50˚C, Humidity: 90%RH or less (without condensation)
Power requirements: 90 to 132 (standard)/198 to 250 VAC (option 40)
48 to 66 Hz, 180 VA or less (Power requirements modifications are specified at time of ordering.)
Dimensions: Approx. 424 (W) × 221 (H) × 500 (D) mm
Mass: 27 kg maximum (including the printer option)