Specifications

Measurement Functions

Sweep channels:	2 channels (reflection characteristics, transmission characteristics)
Reflection characteristics (S_{11}):	Amplitude, Group delay, Chromatic dispersion, Chromatic dispersion slope
Transmission characteristics (S_{21}):	Amplitude, Group delay, Chromatic dispersion, Chromatic dispersion slope, Polarization mode dispersion (OPTQ7760+15, OPTQ7760+15A)

Optical Signal Source Characteristics[*1)]

Measurement range:	1525 to 1635nm
Absolute wavelength accuracy[*2)]:	±25 pm (standard) ±2 ppm ±1 pm (when used with Q8326)
Wavelength setting resolution:	1 pm
Sweep wavelength range:	Settable from 0.1 to 110 nm (settable from 12.5 GHz to 13.2 THz in optical frequency domain)
Sweep repeatability[*3)]:	Set span x (±0.3%) ±30 MHz or less
Sweep time (measurement time)[*4)]:	Approx. 6.7 ms (per measurement point) Approx. 4 s (per sweep span)
Optical output power level[*5)]:	-15 dBm or more
Optical monitor output power level[*5)]:	-20 dBm or more

Amplitude Characteristics

Scale:	Logarithmic table (0.2, 0.5, 1.0, 2.0, 5.0, 10.0 dB/div) and also linear
Modulation frequency range:	40 MHz to 3 GHz
Dynamic range[*6)]:	Transmission characteristics; 35 dB (typ. 40 dB) Reflection characteristics; 33 dB (typ. 38 dB)
Linearity[*7)]:	±0.10 dB (relative level 0 to -25 dB) ±0.25 dB (relative level -25 to -30 dB)
Polarization dependency:	Transmission characteristics (test port 2); ±0.10 dB Reflection characteristics (test port 1); ±0.15 dB
Repeatability at connector insertion[*8)]:	±0.1 dB

Group Delay Characteristics

Modulation frequency range (fm):	40 MHz to 3 GHz
Max. measurement range:	7.5 µs
Group delay resolution:	1.0 fs

Relative group delay accuracy[*7)]:

Relative level (dB)	Accuracy (s)	for fm=3 GHz
0 to -5 dB	±0.015%/fm	±0.05 ps
-5 to -10 dB	±0.048%/fm	±0.16 ps
-10 to -15 dB	±0.15%/fm	±0.5 ps
-15 to -20 dB	±0.48%/fm	±1.6 ps
-20 to -25 dB	±1.5%/fm	±5 ps

Chromatic Dispersion

Measurement units:	Wavelength range (ps/nm), Optical frequency range(ps/GHz), Chromatic dispersion slope (ps/nm^2), Displays in ps/nm/km, ps/GHz/km, ps/nm^2/km, and ps/GHz^2/km are also possible by inputting the length of optical fiber under test
Measurement range:	0.1 ps/nm to 1 µs/nm
Measurement resolution:	0.01 ps/nm

Fiber Chromatic Dispersion Measurement[*9)]

Repeatability of dispersion coefficient measurement:	0.025 ps/nm, 0.003 ps/nm/km
Repeatability of zero dispersion wavelength measurement:	0.030 nm
Repeatability of dispersion slope measurement at zero dispersion wavelength:	0.025 ps/nm^2, 0.002 ps/nm^2/km
Accuracy of zero CD wavelength:	±0.080 nm ±0.035 nm (when used with Q8326)
Waveform fitting functions:	Linear fit, Quadratic fit, Three-term sellmeier fit, Five-term sellmeier fit

Fiber Length Measurement

Range of measurements:	0.2 m to 10,000 km
Resolution:	0.02 mm or 0.01% of the measured length, whichever is greater
Range of inputs for refraction index:	1.000000 to 2.000000

Polarization Mode Dispersion
(OPTQ7760+15, OPTQ7760+15A)

Measurement units:	ps Displays in ps/$\sqrt{}$km are also possible by inputting the length of optical fiber under test
Maximum measurement range:	333 ps
Measurement resolution:	1.0 fs

Measurement accuracy[*7)]:

Relative level (dB)	Accuracy (s)	for fm=3 GHz
0 to -5 dB	±0.030%/fm	±0.1 ps
-5 to -10 dB	±0.063%/fm	±0.2 ps
-10 to -15 dB	±0.17%/fm	±0.6 ps
-15 to -20 dB	±0.50%/fm	±1.7 ps
-20 to -25 dB	±1.6%/fm	+5.3 ps

Polarization Control Function
(OPTQ7760+15, OPTQ7760+15A)

Polarization extinction ratio:	30 dB or more
Angle setting resolution:	0.1 degree

Processing Functions

Memory function:	Save measurement data to back-up memory and/or to a floppy disk
Display:	Optical frequency display, Overlay, Dividing into two parts, Cursor function
Computing/analysis:	Averaging, Normalization, Smoothing, Expansion show function, Limit line, Partial waveform fitting functions, Waveform fitting functions (Linear fit, Quadratic fit, Three-term Sellmeier fit, Five-term sellmeier fit)

Optical Input/Output

Optical connector type[*9)]:	FC type connector (standard) Changeable to SC and ST type by using adapters available separately

Input/Output Interfaces

GPIB:	IEEE488-1978
Floppy disk drive:	3.5 inch, MS-DOS format
Printer:	D-SUB 25 pin ESC/P, ESC/P-R, PCL
Keyboard:	Conforms to IBM PC-AT
Display:	15 pin, D-SUB connector (VGA)

General Specifications

Operating environment:	**Ambient temperature; 15 to 35°C** **Relative humidity;** **85% or less (no condensation)**
Storage environment:	**Ambient temperature; -10 to 45°C** **Relative humidity;** **90% or less (no condensation)**
Power:	**Display unit; AC 100 to 120 V,** **AC 220 to 240 V, 50/60 Hz , 300 VA or less** **Optical network analyzer unit;** **AC 100 to 120V, AC 220 to 240V, 50/60Hz,** **310 VA or less**
Dimensions:	**Display unit;** **approx. 424 (W) x 220 (H) x 400 (D) mm** **Optical network analyzer unit;** **approx. 424 (W) x 220 (H) x 500 (D) mm**
Mass:	**Display unit; 17 kg or less** **Optical network analyzer unit; 28 kg or less**

Options (OPTQ7760+15, OPTQ7760+15A)

Polarization mode dispersion measurement
(Polarization control function is included)

At time of order:	**OPTQ7760+15**
Retrofit option:	**OPTQ7760+15A**

Accessories (sold separately)
Optical connector adapters

FC connector adapter:	**A08694**
SC connector adapter:	**A08695**
ST connector adapter:	**A08696**

**1) Warm-up time: 2 hrs.*
**2) At initial sweep wavelength and at stable temperature.*
**3) At stable temperature.*
**4) Excluding internal setting time when set span = 60 GHz*
**5) At average power. This instrument is a class 1 laser product.*
**6) Difference between amplitude level and noise level (average value) during direct measurement. At sensitivity = High.*
**7) Relative level with amplitude level at through measurement as standard. No group delay variation under the test sample. At sensitivity = High.*
**8) Value measured with 10 connector insertions using SMF fiber with FC connector.*
**9) Under a specific temperature.*
When 11 km dispersion shift fiber was measured for 20 times.
With zero dispersion wavelength as the center wavelength, measured wavelength span =10 nm, stepped sweep measurement = 11 points (1 point/1 nm).
By approximation derived from second order polynomial.
Dispersion slope = 0.074 ps/nm^2/km.
No external wavemeter was used, unless otherwise noted.
**10) Exchangeable by user.*

Please be sure to read the product manual thoroughly before using the products.
Specifications may change without notification.