ADVANTEST

Q8331
Multi Wavelength Meter

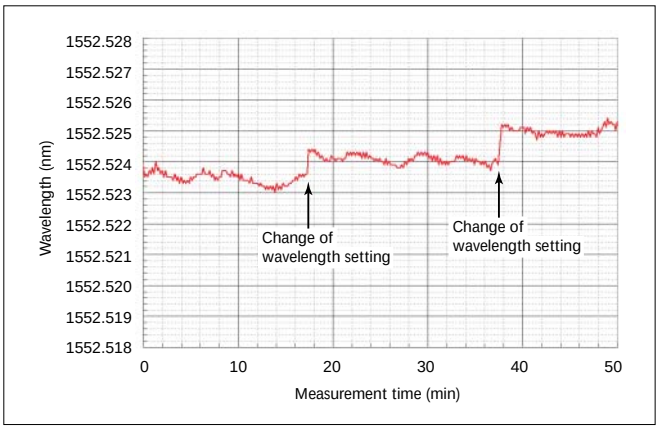
For precision high speed measurements of DWDM Multi-Wavelength Optical Signals

- High wavelength accuracy: ±1 ppm (1.5 pm at 1550 nm)
- High speed sampling of 2 times per second
- Simultaneous measurement of up to 300 channels
- Simultaneous display of spectrum and list display

Q8331

In recent years, WDM communication systems have been growing bandwidths with shrinking wavelength spacings and increasing numbers of wavelengths. Accordingly, high accuracy measurements of wavelengths and power levels of multiplexed optical signals are required. In addition, demand exists in telecommunication systems for an instrument that can measure modulated as well as unmodulated CW (Continuous Wave) optical signals.

The Q8331 Multi Wavelength Meter satisfies all of these requirements with high speed, and high accuracy measurements.



Sample of Light Source Stability

Features

High wavelength accuracy

Use of a He-Ne laser as wavelength reference enables high accuracy measurements of up to ±1 ppm (±1.5 pm at 1550 nm). In addition, since the He-Ne laser oscillates with very high stability, ±1 ppm measurement accuracy is guaranteed over a long time period without recalibration.

High speed sampling

The Q8331 can measure wavelengths at a sampling speed of 2 measurements per second so that wavelength fluctuations caused by temperature variations can be captured precisely.

High resolution

The Michelson interference method allows for measurements with high resolution of up to 0.1 pm/10 MHz.

Simultaneous measurement of up to 300 channels

The Q8331 can measure multi-channel WDM signals, and separate individual channels spaced as closely as 10 GHz.

Wavelength (frequency) correction function

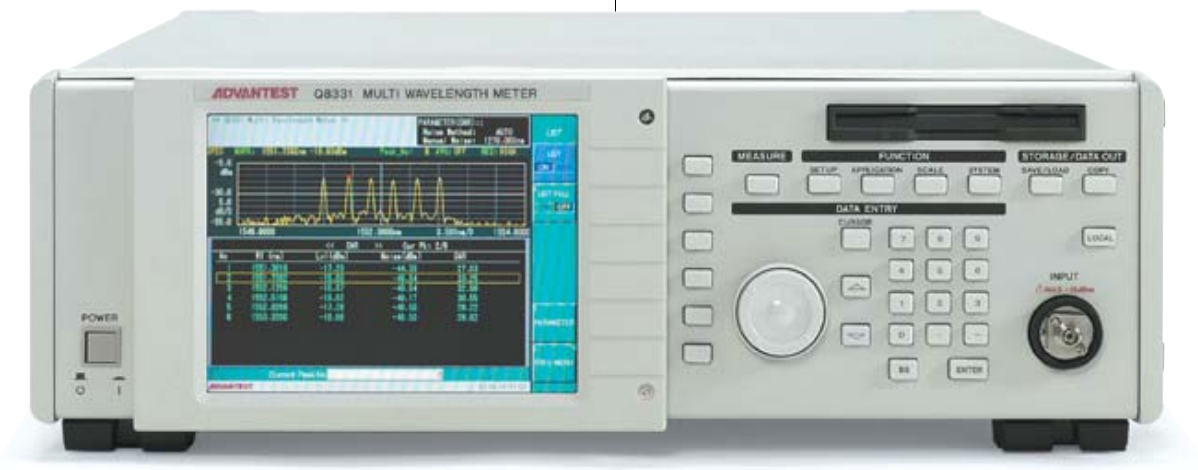
The Q8331 includes a temperature and atmospheric pressure sensor, that allow it to automatically adjust measurements to changes in temperature and atmospheric pressure.

Frequency and deviation displays

The Q8331 can be switched to display optical frequency or wavelength. This is convenient for adjusting input wavelengths to the ITU-T grid. Since the deviation is displayed with reference to the keyed user entry, wavelength fluctuations of the input optical signals caused by temperature variations can be viewed with high resolution and high precision.

Trend display and recording function

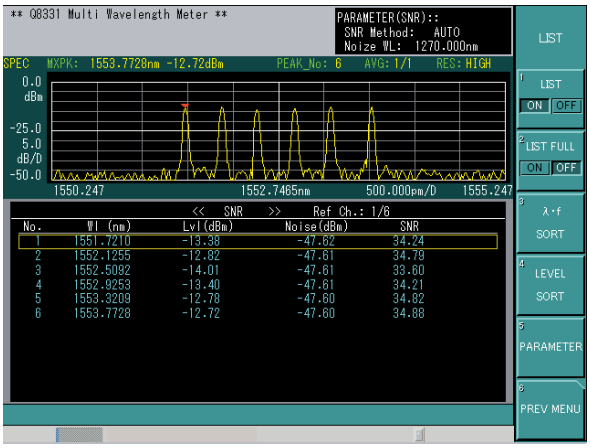
Peak wavelengths and power levels of multiple channels can be displayed and saved over time at selectable time intervals. This allows the monitoring and recording of drifts in these data.



Basic Display

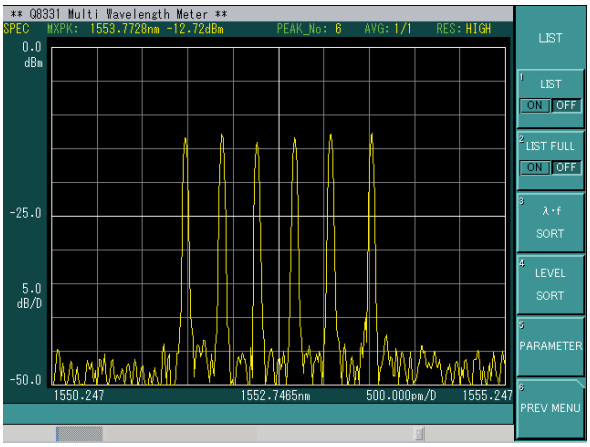
Spectrum and List display

It is possible to have a spectrum display in the upper part of the screen, and a list display in the lower part of the screen. Alternatively, the display can show a full screen spectrum or a list of 24 channels.



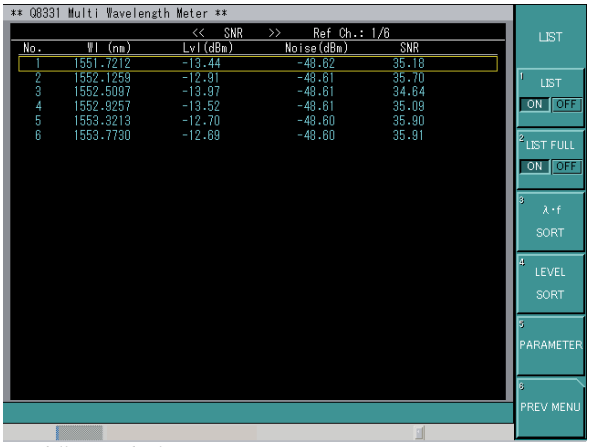
Spectrum and list display

Spectrum full-screen display



Spectrum full-screen display

List full-screen display

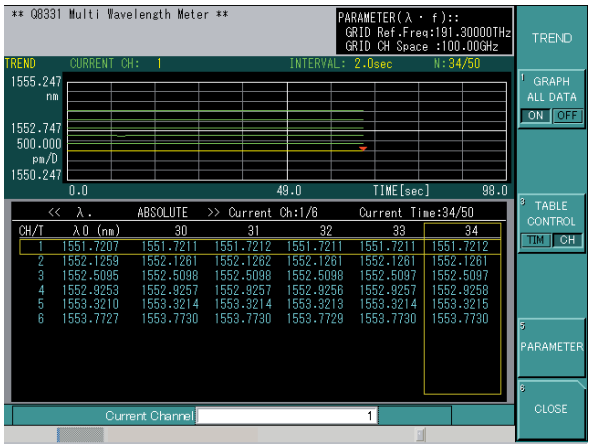


List full-screen display

Trend Display (Multi Mode)

Wavelength

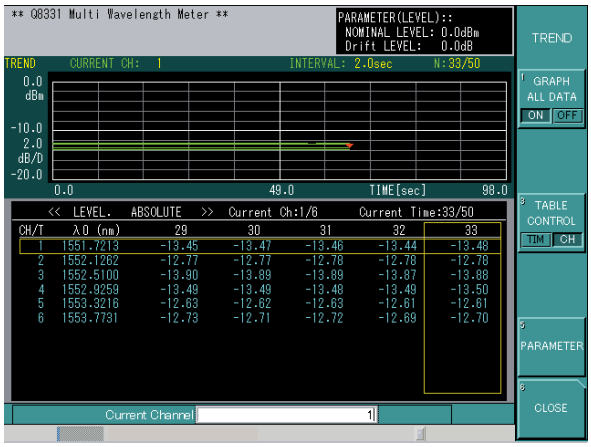
Changes of a wavelength over time can be displayed graphically and numerically.



Trend display (wavelength)

Level

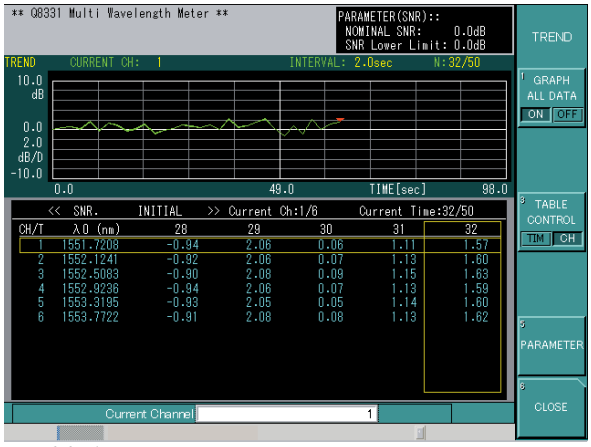
Changes of a power level over time can be displayed graphically and numerically.



Trend display (power level)

SNR

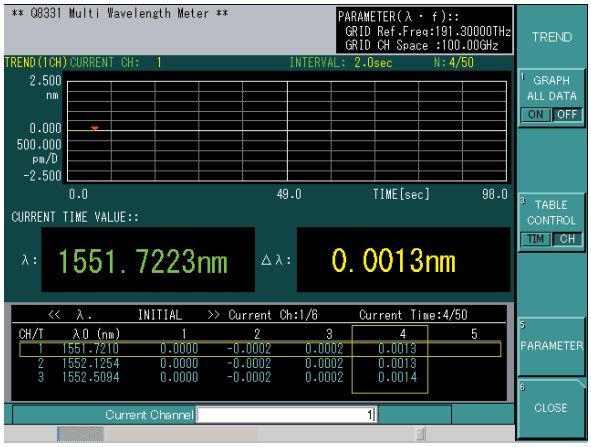
Changes of the selected channel over time can be displayed graphically, and changes of all measurement channels over time can be displayed numerically.

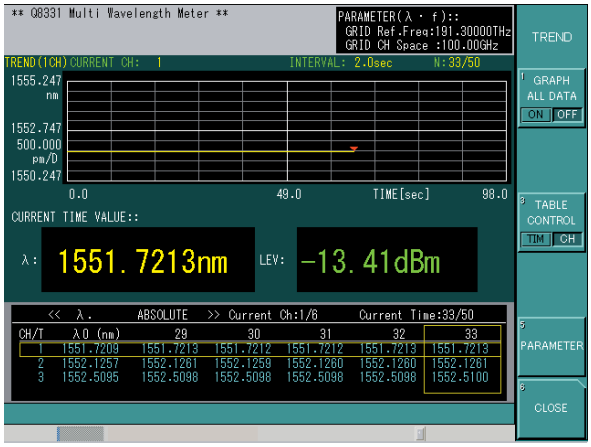


Trend display (SNR)

TREND Display (Single Mode)

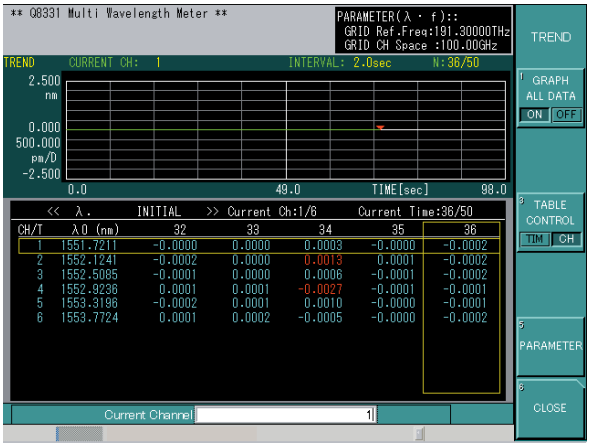
Wavelength changes of the selected channel can be displayed graphically and numerically. This is convenient for adjusting input wavelengths to the ITU-GRID.

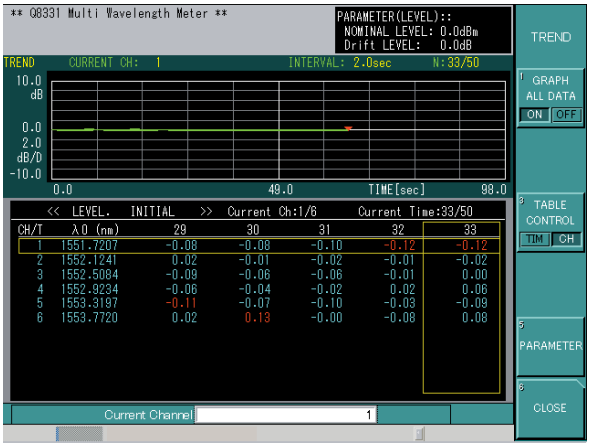




Pass/Fail Display

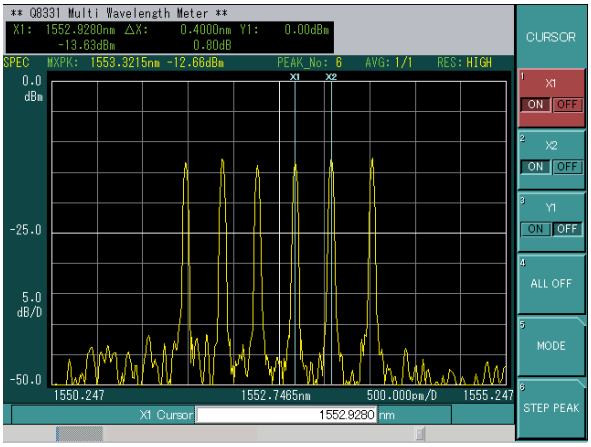
Measurement results are evaluated according to the specified limit value to determine whether they pass or fail. In addition, the following items involving wavelengths and power levels can be evaluated: (1) absolute value, (2) difference from the ITU-GRID wavelength, and (3) difference from the power level of a setting value.





Cursor Functions

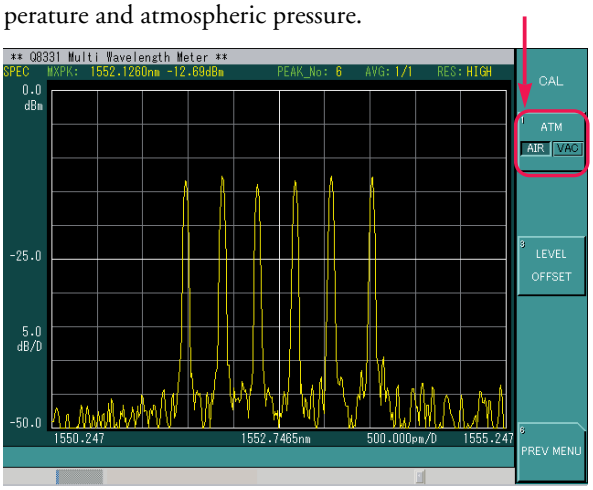
The cursor can be set to read measurement values.
(up to 3 cursor)



Cursor functions

Temperature and atmospheric pressure correction function

Built-in temperature and pressure sensors enable the Q8331 to automatically adjust measurements to changes in temperature and atmospheric pressure.



Temperature and atmospheric pressure correction function

Data format

As shown below, data can be saved to floppy disk.
The measurement data can also download to a spreadsheet or other statistical analysis tool.

	A	B	C	D	E	F	G
1	1.5524847E-06	8.93278E-06					
2	1.5524992E-06	6.04813E-05					
3	1.5525137E-06	1.54883E-04					
4	1.5525282E-06	1.83654E-04					
5	1.5525428E-06	1.01885E-04					
6	1.5525573E-06	2.34541E-05					
7	1.5525718E-06	3.84448E-06					
8	1.5525863E-06	4.21782E-06					
9	1.5526009E-06	3.01185E-06					
10	1.5526154E-06	1.09789E-06					
11	1.5526299E-06	5.30985E-07					
12	1.5526444E-06	4.23086E-07					
13	1.5526590E-06	2.17316E-07					

▲ *Wavelength* ▲ *Power level*

Specifications

Wavelength

Measurement range:	1270 to 1680 nm
Accuracy:	±1 ppm (1.5 pm at 1550 nm)
Resolvable separation:	10 GHz (High resolution mode) 20 GHz (Normal resolution mode)
Display resolution:	0.1 pm
Display unit:	nm (vac/air), THz

Power level

Accuracy:	±0.5 dB (1310 nm, 1550nm)
Linearity:	±0.3 dB (-30 dBm or more, 1550 nm)
Flatness:	±0.2 dB (1520 to 1600 nm)
Sensibility:	-40 dBm (1270 to 1600 nm) -30 dBm (1600 to 1680 nm)
Maximum input power:	+10 dBm (Total input lines)
Polarization dependency:	±0.3 dB (1270 to 1600 nm)
Display resolution:	0.01 dB
Display unit:	Log, Linear

Number of input lines:	Max. 300
Measurement time:	0.5 sec (Normal resolution mode) 1 sec (High resolution mode)
S/N ratio	35 dB

Functions

Memory function:	Internal floppy DISK 3.5 inch 2HD, and internal hard disk Save measurement data, screen images and settings
Display:	LIST display, TREND display, waveform display, cursor display
Other functions:	Temperature and atmosphere auto correction

Optical input

Applicable fiber:	9.5/125 µm SM fiber
Reflective attenuation:	35 dB
Connector:	FC (Std.), ST, SC (accessories sold separately) user replaceable

I/O Interface

GPIB:	In accordance with the IEEE488.2
Mouse:	PS/2
VGA output:	D-SUB 15 pin
Printer port:	D-SUB 25 pin
Ethernet:	10BASE-T

Display unit	6.5 inch color LCD display (640 x 480 dots)

General Specifications

Operating environment	
Ambient temperature:	+10 to +40°C
Relative humidity:	85% max. (no condensation)
Storage environment	
Ambient temperature:	-10 to +50°C
Relative humidity:	90% max. (no condensation)
Power supply:	AC100–120 V, AC220–240 V, 50/60 Hz, 120 VA or less
Dimensions:	Approx. 132 (H) x 424 (W) x 500 (D) mm (Approx. 5.2 (H) x 16.7 (W) x 19.7 (D) in.)
Mass:	13 kg (28.7 lbs.) or less

Separately Sold Accessories

FC connector adapter	A08161
SC connector adapter	A08162A
ST connector adapter	A08163
Rack mount kit	
EIA, with Front handle	A02708
JIS, with Front handle	A02709
EIA, without Front handle	A02718
JIS, without Front handle	A02719

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

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