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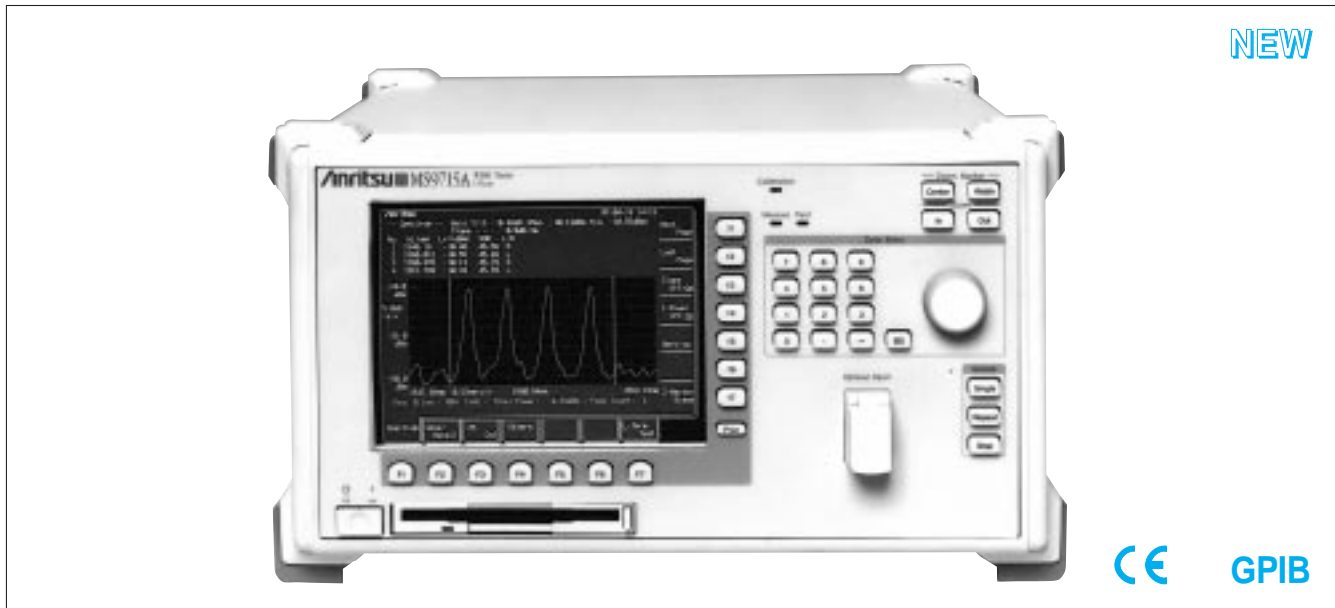
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WDM TESTER
MS9715A
1.527 to 1.567 μm

1



Optical communications are getting into full swing. Great things are expected of WDM optical communications in answer to the recent social demand for dramatic increases in transmission volume. In WDM communications, multiple optical elements are used in an optical amplifier and various characteristics are precisely controlled to maintain system performance. In system manufacture, construction, and maintenance, careful measurement and observation is required. The MS9715A is a measuring instrument for use in system manufacture, construction and maintenance. One instrument combines accurate measurement of necessary items over long periods, and satisfies conditions of simplicity of use in construction and maintenance operations, lightness and compactness, and superior environmental performance with respect to vibration and shock. In addition, since the LabVIEW driver is fitted as standard, programming by remote control is simple. A windows compatible floppy disk drive is also fitted as standard.

Feature

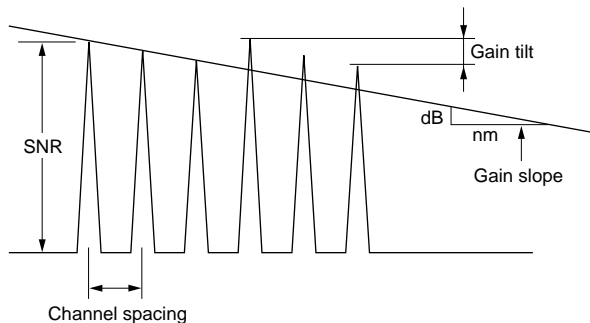
- For WDM optical communication

Performance and functions

• Measurement items

Maximum, minimum and average values over a long period for wavelength, level, SNR*1, channel spacing*2, gain tilt*3, gain slope*4, total power, and spectrum measurement.

*1: Signal to Noise Ratio (dB). Noise resolution level of 0.1 nm. Of the signal's 2 extremes, that with the greater level (smaller SNR) is automatically selected.



*2: Wavelength difference between spectra for individual signal (nm, GHz)

*3: Difference between maximum and minimum peak values for total signal spectrum

*4: Slope of least mean square regression line of total signal spectrum peaks (dB/nm)

• Superior basic functions

The MS9715A provides the high performance required for the performance testing and evaluation of WDM equipment. Wavelength measurement has ± 50 pm wavelength accuracy, ± 5 pm wavelength stability, and ± 20 pm wavelength linearity. High performance level measurement has a dynamic range of 53 dB (0.5 nm from peak), ± 0.4 dB level accuracy, ± 0.02 dB level stability, and ± 0.05 dB level linearity*5.

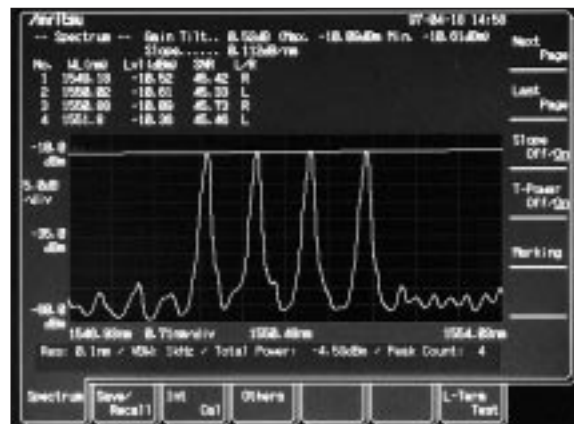
*5: 5 performances at 0.1 nm resolution

• Calculation functions

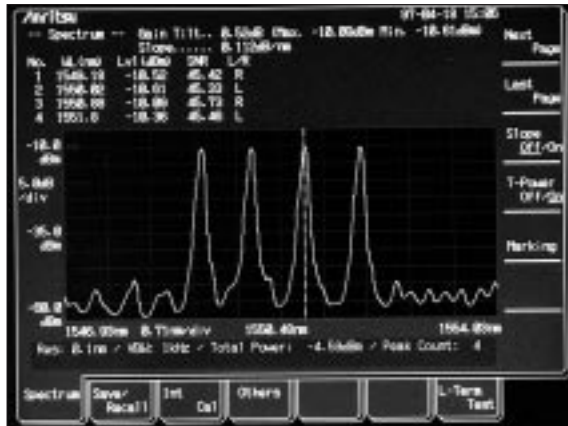
Measurement calculation functions for SNR, gain tilt, total power, gain slope, channel spacing, etc. are provided.

• 2 measurement modes

Spectrum measurement mode and long-time measurement mode are provided. As shown on the screen below, in spectrum measurement mode, the results calculated are displayed. (Spectrum expanded or contracted using the zoom marker).



Example of gain tilt and gain slope display



Example of specific spectrum emphasis display



Wavelength table

• Ease of operation

Measured wavelength settings can be freely expanded or contracted using the zoom marker. The guide spectrum for a specific spectrum can be found at a glance while freely setting the marker. In addition, the level axis is automatically set by detection of maximum and minimum. Wavelength calibration is performed fully automatically using an internal standard light source.

• Long-time mode

The long-time mode displays measurement results for wavelength, level, SNR in tables. As well as average value, maximum value, minimum value, and maximum – minimum value for the time interval set by the user (sampling period), the table displays the difference between the current value and that at start time (initial long time measurement). In particular, the wavelength tables also display channel spacing. The complete table value display for each sampling period is treated as one set, and a maximum of 1000 sets are recorded on floppy disk. The behavior of the measured system can be analyzed over a long time period. During the long-time measurement, wavelength calibration is performed fully automatically using the internal wavelength standard; consequently, even if ambient conditions change during the measurement, securing high wavelength measurement accuracy is secured.



Level table

Specifications

Wavelength	Range: 1.527 to 1.567 μm (integrate power: 1.52 to 1.58 μm) Accuracy: ± 0.05 nm Stability: ± 5 pm (1 min), ± 10 pm (constant temperature: 60 min) Linearity: ± 20 pm Resolution: 0.1 nm Resolution accuracy: $\pm 10\%$ (actual display resolution)
Level	Range: -65 to $+20$ dBm Accuracy: ± 0.4 dB Stability: ± 0.02 dB (-23 dBm, 1 min, constant temperature) Linearity: ± 0.05 dB (0 to -50 dBm) Flatness: ± 0.15 dB
Polarization dependency	± 0.25 dB
Dynamic range	58 dB (± 1 nm), 53 dB (± 0.5 nm)
Measurement signal	Max. 32 waves
Return loss	≥ 35 dB
Wavelength reference	Acetylene (1.52 μm)
Display	6.4", color TFT-LCD
Measurement item	Maximum, minimum and average values over a long period for wavelength, level, SNR, channel spacing, gain tilt, gain slope, total power, and spectrum
Memory	3.5" FD (for Windows)
Interface	RS-232C, GPIB
Environmental condition	Operating temperature: $+5^\circ$ to $+50^\circ\text{C}$ Storage temperature: -20° to $+60^\circ\text{C}$ Relative humidity: $\leq 90\%$
Power	AC 85 to 132/170 to 250 V, 47.5 to 63 Hz, ≤ 150 VA
Dimensions and mass	320 (W) x 177 (H) x 350 (D) mm, ≤ 16.5 kg

Ordering information

Please specify model/order number, name and quantity when ordering.

Model/order No.	Name	Quantity
MS9715A	Mainframe WDM Tester	
J0017	Standard accessories Power cord, 2.5 m:	1 pc
F0010	Fuse, 1.6 A:	2 pcs
F0012	Fuse, 3.15 A:	2 pcs
B0329G	Front cover (3/4MW4U):	1 pc
MX971501S	LabVIEW® driver (RS-232C):	1
MX971501G	LabVIEW® driver (GPIB):	1
W1234AE	MS9715A operation manual:	1 copy
W1235AE	MS9715A remote control operation manual:	1 copy
MS9715A-27	Options E-2000 (Diamond) connector	
MS9715A-31	EC (Radial) connector	
MS9715A-37	FC connector	
MS9715A-38	ST connector	
MS9715A-39	DIN connector	
MS9715A-40	SC connector	
MS9715A-43	HMS-10/A (Diamond) connector	
J0654A	Optional accessories Serial interface cable (IBM-PC/AT, for J-310)	
J0655A	Serial interface cable (9/25-pin)	
J0007	GPIB cable, 1 m:	2 pcs
J0617B	Replaceable optical connector (FC)	
J0618D	Replaceable optical connector (ST)	
J0618E	Replaceable optical connector (DIN)	
J0618F	Replaceable optical connector (HMS-10/A)	
J0619B	Replaceable optical connector (SC)	
J0575	Optical fiber cord (FC-PC connector, for SM), 2 m	
Z0282	Ferrule cleaner	
Z0283	Tape for Ferrule cleaner (6 pcs/set, for Z0282)	
Z0284	Adapter cleaner (200 pcs/set)	



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