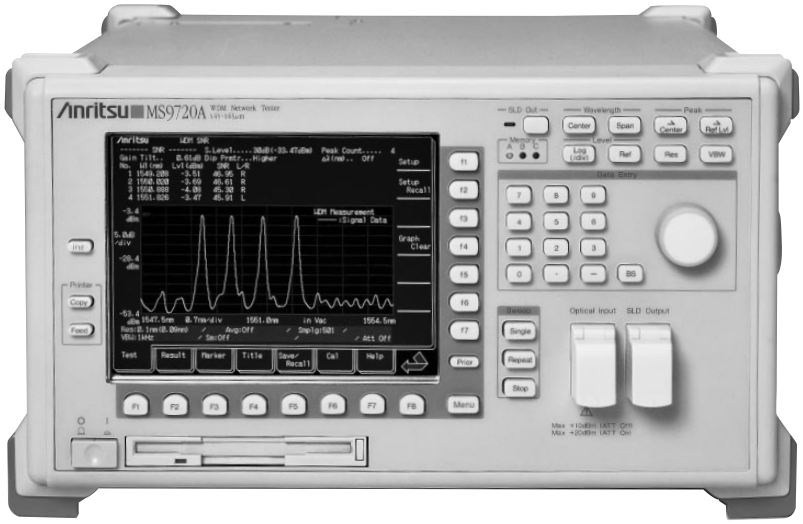
WDM NETWORK TESTER

MS9720A



NEW

CE GPIB

The MS9720A is an optical spectrum analyzer with a diffraction grating that is used to measure and analyze optical spectra in the 1450 to 1650 nm band for WDM communications systems. In addition to having excellent basic performance, such as high wavelength accuracy, wide dynamic range, and good optical reception sensitivity ideally suited to measurement and analysis of the optical spectra used in WDM communications, it has a full line-up of functions matching a wide range of needs ranging from manufacturing of WDM communications devices to installation and maintenance.

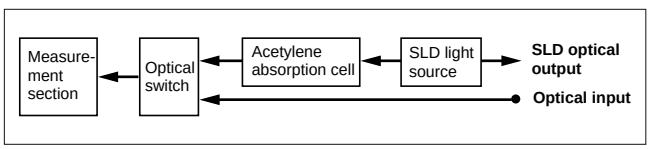
Features

- ±20 pm wavelength accuracy (reference optical source built-in)
- 58 dB dynamic range (1 nm from signal wavelength)
- –87 dBm optical reception sensitivity
- Three memories, three traces, split screen
- Full line-up of functions and applications
- VGA output connector

Performance and functions

• ±20 pm wavelength accuracy with built-in light source

A wavelength accuracy of ±20 pm is achieved over a range of 1530 to 1570 nm by performing calibration using the built-in wavelength reference light source. Wavelength calibration is performed automatically just by pressing the Cal key, permitting accurate measurement of the absolute wavelength value required in evaluation of WDM systems. Calibration of the absolute wavelength value uses the absorption spectrum of acetylene. The block diagram of the calibration light source is shown below. In addition, the output of the built-in SLD light source can be used for evaluating the transmission characteristics of passive elements.

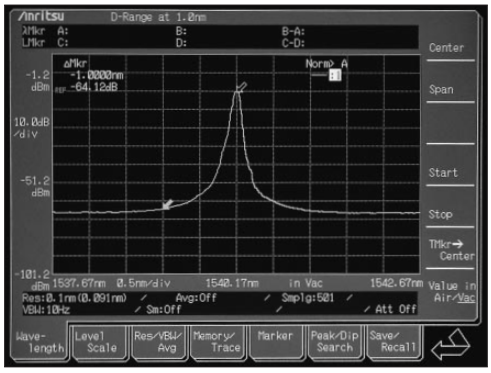


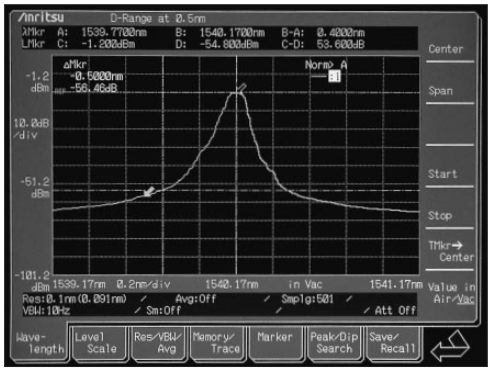
Block diagram of calibration light source

• 58 dB dynamic range

The measurement dynamic range at the wavelength 1 nm from the peak is 58 dB demonstrating the tester's power when measuring the SNR of light sources in WDM systems and when evaluating filters, etc. The following screens show the dynamic range at 1 and 0.5 nm from the peak.

Dynamic range	58 dB (1 nm from peak)
	53 dB (0.5 nm from peak)



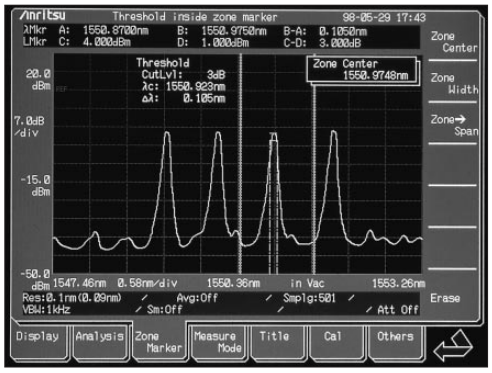


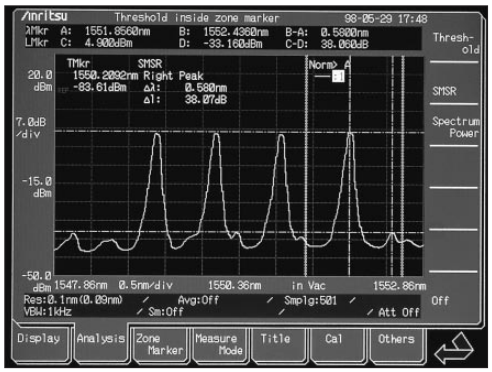
• Full line-up of functions and applications

In addition to its excellent basic performance, the MS9720A has a full line-up of useful functions. The basic waveform analysis functions offer applications for evaluating every important item in WDM systems.

Waveform analysis	Threshold analysis, SMSR analysis, spectrum power (integrated power calculation)
Applicable measurement	Insertion loss, isolation, directivity, return loss, polarization mode dispersion (PMD), fiber amplifier noise figure (NF), WDM wavelength analysis, long-term measurement

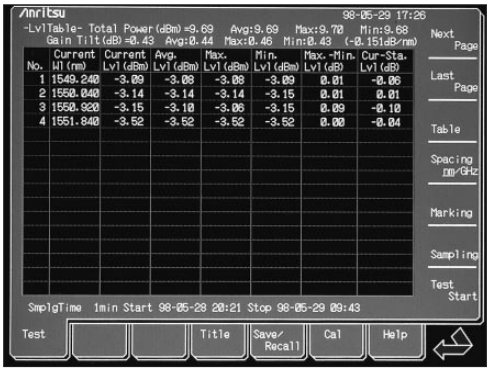
The following screens show threshold and SNR analysis of a WDM signal waveform. The effective analysis range is set using the Zone Marker even for WDM signals, enabling independent analysis of the waveform of each channel.





• Long-term measurement

The MS9720A has a long-term measurement function for displaying the wavelength, level, and SNR, etc., as a table, and saving the average, maximum, and minimum value of each measurement to floppy disk as a text file at a set measurement interval. The wavelength is calibrated every 6 hours and the level is calibrated every 1 hour in long-term measurement.



Specifications

Applicable fiber	10/125 µm SM fiber (ITU-T G.652)
Optical connector	User replaceable (FC, SC, ST, DIN, HMS-10/A), Factory option (E2000, FC-APC, SC-APC, HRL-10)
Wavelength	Range: 1450 to 1650 nm Accuracy: ±20 pm (1550 ±20 nm, room temperature), ±50 pm (1520 to 1600 nm), ±0.3 nm (all range) ⋆After wavelength calibration Stability: ±5 pm (smoothing: 11 pt, 1 minute, at half-width of center wavelength) Linearity: ±20 pm (1550 ±20 nm) Read resolution: 5 pm (display resolution: 1 pm) Setting resolution: 0.1, 0.2, 0.5, 1.0 nm (filter: 3 dB bandwidth) Resolution accuracy: ≤±10% (1550 ±20 nm, 0˚ to 30˚C), ≤±30% (1550 ±100 nm, 0˚ to 30˚C)
Level	Measurement level ranges: –87 to +10 dBm (1450 to 1600 nm, 0˚ to 30˚C), –72 to +10 dBm (1600 to 1650 nm, 0˚ to 30˚C), –82 to +10 dBm (1450 to 1600 nm, 30˚ to 50˚C), –67 to +10 dBm (1600 to 1650 nm, 30˚ to 50˚C), –68 to +23 dBm (1450 to 1600 nm, 0˚ to 30˚C, internal optical attenuator: on) Accuracy: ±0.4 dB (1550 nm, –23 dBm) Stability: ±0.02 dB (1550 nm, –23 dBm, 1 minute, constant temperature, no polarization fluctuation) Linearity: ±0.05 dB (1550 nm, –50 to 0 dBm) Flatness: ±0.1 dB (1550 ±20 nm), ±0.3 dB (1520 to 1600 nm)
Polarization dependency	±0.15 dB
Dynamic range	58 dB (at point 1 nm from peak), 53 dB (at point 0.5 nm from peak)
Optical return loss	35 dB (1550 nm)
SLD output	>–40 dBm/nm (at 1550 nm)
Display	6.4 inch color TFT-LCD
Memory trace	Three measurement memories and three trace displays

Continued on the next page

Printer	Internal (thermal type)
Interface	GPIB, RS-232C, monitor output (VGA compatible)
Data save/output	3.5 inch floppy disk drive
EMC	EN55011: 1991, Group 1, Class A EN50082-1: 1992 Harmonic current emissions: EN61000-3-2 (1995)
Safety	EN61010-1: 1993 (Installation Category Ⅱ, Pollution Degree Ⅱ)
Ambient conditions	Operating temperature: 0˚ to +50˚C (however, 5˚ to 50˚C for FDD) Storage temperature: –20˚ to +60˚C Relative humidity: ≤90% (no condensation, 20% to 80% for FDD)
Power	85 to 132/172 to 250 Vac, 47.5 to 63 Hz, 150 VA (max.)
Dimensions and mass	320 (W) x 177 (H) x 350 (D) mm (excluding projections), ≤16.5 kg

Note: Warm-up to the MS9720A for about 5 minutes to ensure stable operation. The above specifications are obtained at 2 hours after power-on.

Ordering information

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

Model/order No.	Name	
	Main frame	
MS9720A	WDM Network Tester	
	Standard accessories	
	Optical connector adapter*1:	1 pc
F0012	Fuse, 3.15 A (for 100 Vac):	2 pcs
F0010	Fuse, 1.6 A (for 200 Vac):	2 pcs
W1343AE	MS9720A operation manual:	1 copy
W1344AE	MS9720A remote control operation manual:	1 copy
J0017	Power cord, 2.6 m:	1 pc
B0329G	Front cover (3/4MW4U):	1 pc
Z0312	Printer paper:	2 rolls
MX972001S	LabVIEW® Driver (RS-232C):	1 pc
MX972001G	LabVIEW® Driver (GPIB):	1 pc
B0330C	Tilt bail:	1 pc
	Options	
MS9720A-27	E2000 (DIAMOND) connector	
MS9720A-31	EC (RADIAL) connector	
MS9720A-37	FC connector	
MS9720A-38	ST connector	
MS9720A-39	DIN connector	
MS9720A-40	SC connector	
MS9720A-43	HMS-10/A (DIAMOND) connector	
MS9720A-47	HRL-10 connector (factory option)	
	Application parts	
MN9604C	Optical Directional Coupler	
J0654A	Serial interface cable (IBM-PC/AT, J-310, remote control)	
J0655A	Serial interface cable (9P-25P)	
J0007	GPIB cable, 1 m	
J0617A	Replaceable connector (FC)	
J0618D	Replaceable connector (ST)	
J0618E	Replaceable connector (DIN)	
J0618F	Replaceable connector (HMS-10/A)	
J0619B	Replaceable connector (SC)	
J0575	Optical fiber cord (FC • PC-FC • FC-2M-SM), 2 m	
J0441	Total internal reflection fiber cord	
Z0282	Replacement reel for ferrule cleaner (Kuretop A type)	
Z0283	Ferrule cleaner spare tape (for Z0282, 6 pcs/set)	
Z0284	Adapter cleaner (stick type, 200 pcs/set)	
B0336C	Hard carrying case	
G0084A	Polarization rotation module	

*1: Specify the connector to be supplied as the standard connector when ordering the above options.
If the connector is not specified, the FC connector (MS9720A-37) is supplied as standard.