Anritsu

MG9541A

Tunable Laser Source

1510 to 1640 nm

For Evaluating Characteristics of WDM Transmission Systems and Optical Components

The MG9541A covers the wavelength band from 1510 to 1640 nm with three outputs—a variable optical level output, a high power output and a high signal-to-noise ratio output. The MG9541A supports a wide variety of applications including optical amplifier evaluation systems and evaluation of characteristics of optical components used in WDM transmission systems.

Full Coverage of C and L Bands

The wavelength range is 1510 to 1640 nm, offering ideal support for the C-band (1530 to 1565 nm) and L-band (1565 to 1625 nm) wavelengths used in WDM communications, and for evaluating the performance of optical components and transmission systems.

Variable Level of –30 to 0 dBm (1st port)

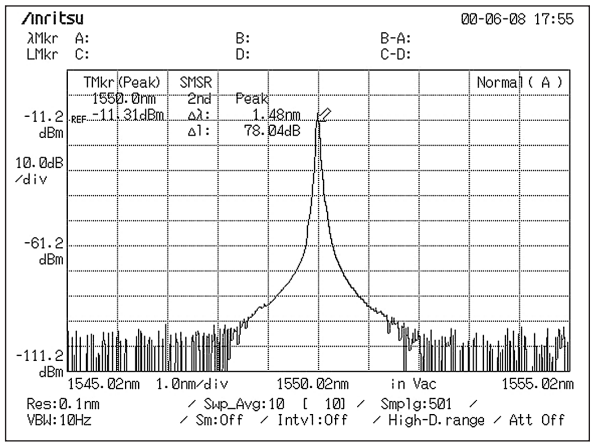
An internal optical attenuator provides a high-stability optical output over a variable level range of –30 to 0 dBm, offering an effective solution for evaluation of component performance versus input level, such as optical amplifiers.

High Power (+7 dBm) Output (2nd port)

The optical power is better than +7 dBm in the wavelength range from 1530 to 1580 nm, and better than +6 dBm in the C to L bands. In addition to use as an optical saturation signal for optical amplifier systems, this output also supports saturation tests of optical amplifiers and WDM transmission systems.

High Signal-to-Noise Ratio (approx. 70 dB) Optical Output (3rd port)

This port has a signal-to-noise ratio of approx. 70 dB. As shown in the spectrum waveform, the source spontaneous emission (SSE) generated by the MG9541A itself is lower than the detection limit of the measuring instrument. When combined with a high-sensitivity power meter, it can be used to measure the performance of passive optical components, such as optical filters, optical isolators, optical couplers, etc.



Example of high signal-to-noise ratio spectrum

ITU-T Grid Wavelength Setting Functions

The grid wavelength used in WDM communications (ITU-T SG15) is easy to set, and a user grid wavelength can also be set because any wavelength can be registered.

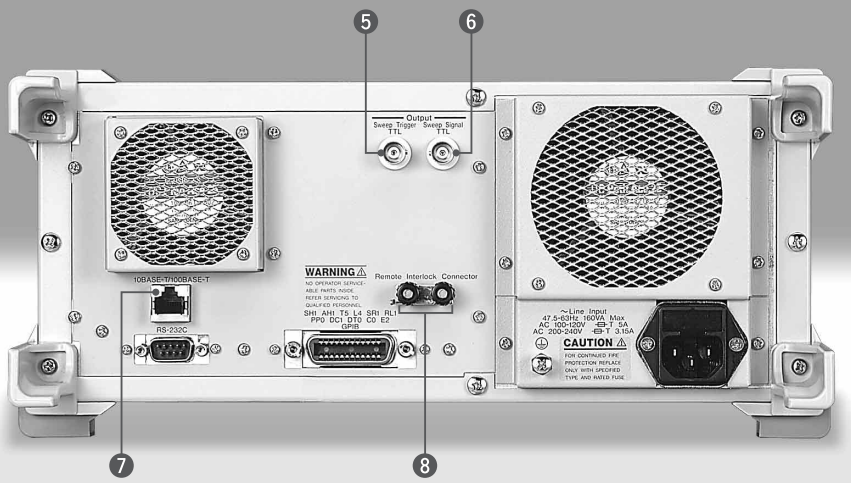
External Control via Built-in Ethernet

In addition to built-in support for GPIB and RS-232C, an Ethernet interface (10BASE-T/100BASE-TX) is provided as standard equipment, offering external control via a network.

Specifications

Optical output port *1	1st output (variable level over wide range)	2nd output (high-power)	3rd output (high signal-to-noise ratio)
Wavelength range	1510 to 1640 nm (>130 nm)		
Wavelength setting resolution	1 pm		
Absolute wavelength accuracy	±55 pm (valid for 10 h after wavelength calibration and at constant temperature)		
Relative wavelength accuracy	±45 pm (constant temperature)		
Wavelength repeatability	±35 pm (constant temperature)		
Wavelength stability	±8 pm (approx. 1000 MHz, 0 to 10 min after changed the parameter, constant temperature) ±0.8 pm (approx. 100 MHz, 10 min to 1 h after changed the parameter, constant temperature)		
Maximum output power	≥+1 dBm (1530 to 1580 nm) ≥0 dBm (1530 to 1625 nm) ≥–2 dBm (1510 to 1640 nm)	≥+7 dBm (1530 to 1580 nm) ≥+6 dBm (1530 to 1625 nm) ≥+4 dBm (1510 to 1640 nm)	≥–15 dBm (1530 to 1625 nm) ≥–20 dBm (1510 to 1640 nm)
Minimum output power	≤–30 dBm (1510 to 1640 nm)	2 dB down from the maximum output power (1510 to 1640 nm)	≤–30 dBm (1510 to 1640 nm)
Power linearity	±0.30 dB (constant temperature)	±0.60 dB (constant temperature)	±0.3 dB (constant temperature)
Power repeatability	±0.02 dB (≥–20 dBm, constant temperature) ±0.04 dB (<–20 dBm, constant temperature)	±0.22 dB (constant temperature)	±0.02 dB (≥–20 dBm, constant temperature) ±0.04 dB (<–20 dBm, constant temperature)
Power stability	±0.01dB (≥–20 dBm, 1 h, constant temperature)*2 ±0.02 dB (<–20 dBm, 1 h, constant temperature)*2	±0.20 dB (0 to 10 min after changing setting,constant temperature) ±0.05 dB (10 min. to 1 h after changing setting, constant temperature)	±0.01 dB (≥–20 dBm, 1 h, constant temperature)*2 ±0.02 dB (<–20 dBm, 1 h, constant temperature)*2
Level flatness	±0.30 dB (constant temperature)	±0.60 dB (1530 to 1580 nm, 1570 to 1625 nm, constant temperature)	±0.30 dB (constant temperature)
Signal-to-noise ratio	≥47 dB/0.1 nm (1530 to 1620 nm) ≥40 dB/0.1 nm (1520 to 1620 nm) ≥37 dB/0.1 nm (typical, 1510 to 1640 nm)	≥47 dB/0.1 nm (1530 to 1620 nm) ≥40 dB/0.1 nm (1520 to 1620 nm) ≥37 dB/0.1 nm (typical, 1510 to 1640 nm) *At maximum output	≥69 dB/0.1 nm (1520 to 1620 nm) ≥66 dB/0.1 nm (typical, 1510 to 1640 nm)
Spectrum line width	Coherence control off: ≤800 kHz (typical), Coherence control on: ≥10 MHz (typical)		
Polarization extinction ratio	≥15 dB (typical, when FC-PANDA or SC connector is used and Anritsu specified polarization-maintaining optical fiber is used.		
Tuning speed	<2200 ms/100 nm, <1200 ms /10 nm, <1200 ms /1 nm		
Power	85 to 132 Vac/170 to 250 Vac, 47.5 to 63 Hz, <190 VA		
Warming-up time	<1 h (power on at room temperature)		
Temperature range	+10° to +35°C (operating), –20° to +60°C (storage)		
Dimensions and mass	320 (W) x 133 (H) x 451 (D) mm, ≤16.5 kg		
EMC	EN61326：1997/A1: 1998 (Class A), EN61000-3-2: 1995/A2: 1998 (Class A), EN61326: 1997/A1: 1998 (Annex A)		
LVD	EN61010-1:1993/A2: 1995 (Installation category II, Pollution degree 2)		
Laser safety	IEC-60825-1: Class 3B, FDA (21CFR1040.10): Class Ⅲ b		

*1: The specifications for 3 kinds of optical output ports are applied for the selected one port.
*2: When the supplied terminator is connected to the 2nd output.



❶ **Display:** Uses high visibility fluorescent display tube indicating wavelength, optical output, function keys, etc.
❷ **Measurement items and numeric input keys:** For selecting measurement items and inputting numeric values, such as wavelength, optical output, etc.
❸ **Direct measurement keys:** Selects commonly used functions directly as keys to simplify basic operations
❹ **Three output types:** Variable level from –30 to 0 dBm, high power of +7 dBm and high signal-to-noise ratio of approx. 70 dB
❺ **Sweep Trigger Output:** Outputs TTL level trigger signal at each wavelength steps during sweeping or each trigger steps
❻ **Sweep Signal Output:** During sweeping, sets start wavelength to 0 V and stop wavelength to 5 V and outputs voltage proportional to sweep wavelength at each wavelength step
❼ **Ethernet:** 10BASE-T/100BASE-T Ethernet connector
❽ **Remote Interlock Terminal:** Sets optical output ON/OFF through interlock with external switch

Ordering Information

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

Model/Order No.	Item	
	Main frame	
MG9541A	Tunable Laser Source	
	Standard accessories	
	Power cord, 2.6 m :	1 pc
	Optical connector *1:	3 pcs
F0013	Fuse, 5 A:	2 pcs
W1814AE	MG9541A operation manual:	1 pc
W1815AE	MG9541A remote control operation manual:	1 pc
S0003	Optical output control key:	2 pcs
B0329	Front cover (3/4MW3U):	1 pc
J1076	Terminator:	1 pc
	Peripheral instruments	
MS9710B	Optical Spectrum Analyzer	
MS9710C	Optical Spectrum Analyzer	
	Application parts	
Z0282	Ferrule cleaner	
Z0283	Replacement reel for ferrule cleaner (6 pcs/set, for Z0282)	
Z0284	Cleaner for optical adapter (stick type, 200 pcs/set)	
J1082	FC·PC-FC·PC-1M-PM13 (FC·PC polarization-maintaining optical fiber cord, 1 m)	
J1083	FC·PC-SC·PC-1M-PM13 (FC·PC-SC·PC conversion polarization-maintaining optical fiber cord, 1 m)	
J1084	SC·PC-SC·PC-1M-PM13 (SC·PC polarization-maintaining optical fiber cord, 1 m)	
J0575	FC·PC-FC·PC-2M-SM (FC·PC optical fiber cord, SM, 2 m)	
J0006	GPIB cable, 0.5 m	
J0007	GPIB cable, 1 m	
J0008	GPIB cable, 2 m	
J0009	GPIB cable, 4 m	
J0654A	Serial interface cable	
J0655A	Serial interface cable	

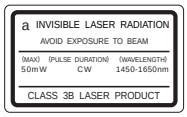
Model/Order No.	Item
J0739G	Replaceable optical connector (FC-PANDA)
J0618D	Replaceable optical connector (ST)
J0618E	Replaceable optical connector (DIN)
J0618F	Replaceable optical connector (HMS-10/A)
J0619B	Replaceable optical connector (SC)
B0498	Rack mount kit
	Options
MG9541A-29	Tunable laser source (with FC-PANDA connector) *1
MG9541A-38	Tunable laser source (with ST connector) *1
MG9541A-39	Tunable laser source (with DIN connector) *1
MG9541A-40	Tunable laser source (with SC connector) *1
MG9541A-43	Tunable laser source (with HMS-10/A connector) *1

*1: When ordering, the option-specified connector is supplied as standard. Specify the option number after the model name. If a connector is not specified, a FC-PANDA connector (Option 29) is supplied as standard.

Safety measures for laser products

MG9541A complies with optical safety standards of the IEC pub. 6082 5-1 and the FDA (21CFR1040.10, USA). The following descriptive labels are affixed to the product.

21CFR1040-10, label



IEE-60825-1, label

Anritsu

Specifications are subject to change without notice.

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