

KEYSIGHT TECHNOLOGIES (AGILENT HP)

81613A

The Keysight (Agilent) 81613A is a high-performance optical return loss (ORL) module designed for the Keysight 816x Lightwave Multimeter series mainframes. It features integrated Fabry-Perot laser sources at 1310 nm and 1550 nm, providing accurate and stable return loss measurements for single-mode fiber components and networks.

SPECIFICATIONS

General

Interfaces	Mainframe-dependent (GPIB, USB, LAN via Keysight 8163/8164/8166 mainframes)
Display	None (uses mainframe display)
Recommended Calibration Cycle	2 years

Physical

Power Supply	Powered via mainframe module slot
Operating Temperature	0 °C to +40 °C °C
Dimensions (W×H×D)	75 mm x 32 mm x 335 mm mm
Weight	0.5 kg

Optical Source Specifications

Internal Source Wavelengths	1310 nm ± 20 nm, 1550 nm ± 20 nm
Internal Laser Type	Fabry-Perot (FP) Laser
Spectral Bandwidth (FWHM)	< 5 nm (1310 nm), < 10 nm (1550 nm)
Output Power Level	≥ +1.0 dBm (into SMF 9/125 μm)
Output Power Stability (15 min)	±0.02 dB (at constant temperature)
Output Power Stability (24 hours)	±0.05 dB (for ±1 K temperature change)
Laser Safety Class	Class 1 (FDA 21 CFR 1040.10, IEC 60825-1)

Optical Receiver Specifications

Sensor Element Type	InGaAs Photodetector
Internal Receiver Wavelength Range	1250 nm to 1640 nm
Power Measurement Range	+10 dBm to -80 dBm
Power Linearity (0 to -50 dBm)	±0.05 dB
Power Linearity (-50 to -70 dBm)	±0.15 dB

Return Loss Measurement Specifications

Return Loss Range (Single-mode)	0 to 70 dB
Return Loss Accuracy (0 to 50 dB)	±0.4 dB
Return Loss Accuracy (50 to 60 dB)	±0.65 dB
Return Loss Accuracy (60 to 70 dB)	±1.7 dB
Return Loss Resolution	0.01 dB
External Source Input Wavelength Range	1250 nm to 1640 nm
External Source Max Input Power	+10 dBm

Optical Interfaces and Fiber Compatibility

Fiber Type Compatibility	Single-mode (9/125 μm)
Connector Interface Options	Option 021: Straight Contact, Option 022: 8° Angled Contact
Connector Keying	Narrow key (2.0 mm)

Mainframe Integration and Software

Compatible Mainframe Models	8163A, 8163B, 8164A, 8164B, 8166A, 8166B
Module Slot Occupancy	1 slot

Environmental and Physical Specifications

Storage Temperature Range	-40 °C to +70 °C
Warm-up Time	20 minutes

Environmental

Operating Humidity	< 80% R.H. at 35 °C (non-condensing)
Storage Humidity	Non-condensing
Operating Altitude	2000 m
Storage Altitude	4600 m
Pollution Degree	2
Installation Category	II

Power Meter

Power Meter Calibration Uncertainty	±4.5% (at reference conditions 1310 nm / 1550 nm)
Power Meter Noise Level	< -80 dBm
Power Meter Spectral Ripple	< ±0.01 dB

Internal Laser Sources

Internal Source Wavelength Tolerance	±20 nm
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External Source Input

External Source Path Insertion Loss	7.5 dB (typical)
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TECHNOLOGY

Optical Return Loss (ORL) Measurement

APPLICATIONS

Characterization of optical components, fiber cable testing, and optical network installation

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.