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Data Sheet

August 14, 2026

AGILENT / KEYSIGHT

Agilent/Keysight 81609A Tunable Laser Module (1480-1640 nm)

Agilent Keysight 81609A Step Tunable Laser Source Module The Keysight 81609A is the basic-line step-tunable 8160xA laser module for the 8164B mainframe. OEM 8160xA Family data sheet 5992-3735 lists 0.1 pm resolution, 300 ms typical 1 nm step time, ± 30 pm absolute wavelength accuracy, typical ± 3 pm wavelength repeatability, and greater than +12 dBm peak output with ± 0.01 dB power stability over one hour. Cost-effective testing of broadband optical devices; static local-oscillator source for receiver and modulator tests; stepped spectral measurements that do not need continuous sweep. The Keysight 81609A is the basic-line step-tunable 8160xA laser module for the 8164B mainframe. OEM 8160xA Family data sheet 5992-3735 lists 0.1 pm resolution, 300 ms typical 1 nm step time, ± 30 pm absolute wavelength accuracy, typical ± 3 pm wavelength repeatability, and greater than +12 dBm peak output with ± 0.01 dB power stability over one hour. Cost-effective testing of broadband optical devices; static local-oscillator source for receiver and modulator tests; stepped spectral measurements that do not need continuous sweep.



MODEL

**Agilent / Keysight
81609A**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

81609A

LISTING

<https://aumictechlabs.com/products/81609a-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Keysight 81609A is a step-tunable laser module delivering continuous-wave output across the 1480–1640 nm band. Engineered for DWDM system testing, component characterization, and optical research, this module combines narrow 10 kHz spectral width with ± 10 pm absolute wavelength accuracy and ± 3 pm repeatability. Peak output power exceeds +12 dBm (or +13 dBm depending on configuration) with user-adjustable attenuation to 0 dBm, while maintaining ± 0.01 dB power stability over one hour. The module steps to discrete wavelengths in 300 ms per 1 nm increment and features 0.1 pm resolution tuning. Polarization-maintaining fiber coupling (Panda-type, angled connector standard) ensures stable signal delivery with ≥ 75 dB/nm SSE ratio. Operating temperature range spans -40 °C to 70 °C; warm-up time is 60 minutes. The 81609A installs in Keysight 8163A/B, 8164A/B, and 8166A/B mainframes and integrates with N774xA multiport power meters and N7700A software for swept-wavelength measurement capabilities.

Technical Specifications
Wavelength Range: 1480–1640 nm
Tuning Resolution: 0.1 pm
Tuning Speed: 300 ms per 1 nm step
Spectral Width: 10 kHz
Output Power: +12 dBm peak (typical, standard options); +13 dBm peak (typical, option 113); user-adjustable down to 0 dBm
Power Stability: ± 0.01 dB over one hour
Absolute Wavelength Accuracy: ± 10 pm (typical)
Wavelength Repeatability: ± 3 pm (typical)
Signal-to-Spontaneous Emission Ratio: ≥ 75 dB/nm (typical)
Output Mode: Continuous Wave (CW)
Fiber Coupling: Polarization-maintaining (PMF), Panda-type, angled connectors (standard)
Operating Temperature: -40 °C to 70 °C
Warm-up Time: 60 minutes
Laser Classification: Class 3B per IEC 60825-1

Key Features
Step-tunable architecture with 0.1 pm resolution enables precise wavelength selection across the C-band extension
Exceptional linewidth and SSE ratio support demanding filter and component measurements
High repeatability (± 3 pm) minimizes recalibration requirements between test cycles
Flexible output power control from +13 dBm to 0 dBm in a single module
Angled PMF connector (Option 072, standard) reduces back-reflection
Wide operating temperature range accommodates laboratory and field environments

Typical Applications
DWDM system validation and channel characterization
Optical filter and multiplexer testing
Laser and photodiode performance evaluation
Wavelength-dependent loss and dispersion measurement

Compatibility & Integration
Mainframes: 8163A/B, 8164A/B, 8166A/B
Lightwave Systems Power meters: N774xA multiport or 816xxx module-based systems
Software: N7700A suite for swept-wavelength operation
Panel interface: Two BNC connectors (front), ± 6 V absolute maximum per connector

81609A Characteristics / Specifications

PARAMETER	VALUE
Model	81609A
Instrument Type	Step tunable laser source module
Series Family	Keysight 8160xA
Wavelength Range Option 1	1240 nm to 1380 nm
Wavelength Range Option 2	1450 nm to 1650 nm
Maximum Output Power Option 216 Peak	greater than +12 dBm peak
Host Mainframe	8164B Lightwave Measurement System, bottom back-loadable slot
Wavelength Resolution	0.1 pm (17.5 MHz at 1310 nm, 14.3 MHz at 1450 nm, 12.5 MHz at 1550 nm)
Minimum Output Power Setting	0 dBm
Output Fiber	Panda PMF, TE in slow axis aligned to connector key
Operating Temperature	+10 C to +35 C
Storage Temperature	minus 40 C to +70 C
Humidity	less than 80% RH at +10 C to +35 C, non-condensing
Warm Up Time	60 minutes; 30 minutes if previously stored at the same temperature
Built In Wavelength Meter	real-time wavelength meter for set, stabilize, and sweep logging
Built In Gas Cell	acetylene class gas cell for long-term absolute referencing
Absolute Wavelength Accuracy	±30 pm (typical ±10 pm)
Relative Wavelength Accuracy	±15 pm (typical ±5 pm)
Wavelength Repeatability	±5 pm (typical ±3 pm)
Wavelength Stability Typical	≤ ±5 pm, 24 hours typical
Power Repeatability Typical	±0.01 dB typical
Power Stability One Hour	±0.01 dB, 1 hour; typical ±0.03 dB, 24 hours
Power Linearity	±0.1 dB
Power Flatness Versus Wavelength	±0.25 dB (typical ±0.1 dB Options 116/216)
Tuning Time One Nm Typical	300 ms typical, 1 nm step at max output power

PARAMETER	VALUE
Tuning Time 100 Nm Typical	1.5 s typical, 100 nm step at max output power
Signal To Sse Ratio	≥ 75 dB/nm; ≥ 85 dB/0.1 nm
Linewidth Typical Coherence Off	less than 10 kHz typical
Effective Linewidth Coherence On Typical	greater than 50 MHz typical
Wavelength range	Option 113: 1240 nm to 1380 nm
Wavelength stability	Typical: $\leq \pm 5$ pm, 24 hours typical
Linewidth	Typical Coherence Off: less than 10 kHz typical
Effective linewidth	Coherence On Typical: greater than 50 MHz typical
Maximum output power	Option 216 Peak: greater than +12 dBm peak
Power repeatability	Typical: ± 0.01 dB typical
Power stability	One Hour: ± 0.01 dB, 1 hour; typical ± 0.03 dB, 24 hours

General Specifications & Supplementary Characteristics

PARAMETER	VALUE
Storage temperature	minus 40 C to +70 C
Operating temperature	+10 C to +35 C
Operating Temperature	+10 C to +35 C
Humidity	less than 80% RH at +10 C to +35 C, non-condensing
Warm Up Time	60 minutes; 30 minutes if previously stored at the same temperature
Built In Wavelength Meter	real-time wavelength meter for set, stabilize, and sweep logging
Built In Gas Cell	acetylene class gas cell for long-term absolute referencing
Absolute Wavelength Accuracy	±30 pm (typical ±10 pm)
Relative Wavelength Accuracy	±15 pm (typical ±5 pm)
Wavelength Repeatability	±5 pm (typical ±3 pm)
Wavelength Stability Typical	≤ ±5 pm, 24 hours typical
Power Repeatability Typical	±0.01 dB typical
Power Stability One Hour	±0.01 dB, 1 hour; typical ±0.03 dB, 24 hours
Power Linearity	±0.1 dB
Power Flatness Versus Wavelength	±0.25 dB (typical ±0.1 dB Options 116/216)
Tuning Time One Nm Typical	300 ms typical, 1 nm step at max output power
Tuning Time 100 Nm Typical	1.5 s typical, 100 nm step at max output power
Signal To Sse Ratio	≥75 dB/nm; ≥85 dB/0.1 nm
Linewidth Typical Coherence Off	less than 10 kHz typical
Effective Linewidth Coherence On Typical	greater than 50 MHz typical Notes Numeric rows from Keysight 8160xA Family of Tunable Laser Sources data sheet 5992-3735. 81609A does not specify continuous-sweep dynamic accuracy.

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications	
Specifications	
PARAMETER	VALUE
Model	81609A
Instrument Type	Step tunable laser source module
Series Family	Keysight 8160xA
Wavelength Range Option 113	1240 nm to 1380 nm
Wavelength Range Option 114	1340 nm to 1495 nm
Wavelength Range Option 116	1490 nm to 1640 nm
Wavelength Range Option 216	1450 nm to 1650 nm
Maximum Output Power Option 216 Peak	greater than +12 dBm peak
Host Mainframe	8164B Lightwave Measurement System, bottom back-loadable slot
Wavelength Resolution	0.1 pm (17.5 MHz at 1310 nm, 14.3 MHz at 1450 nm, 12.5 MHz at 1550 nm)
Minimum Output Power Setting	0 dBm
Output Fiber	Panda PMF, TE in slow axis aligned to connector key
Operating Temperature	+10 C to +35 C
Storage Temperature	minus 40 C to +70 C
Humidity	less than 80% RH at +10 C to +35 C, non-condensing
Warm Up Time	60 minutes; 30 minutes if previously stored at the same temperature
Built In Wavelength Meter	real-time wavelength meter for set, stabilize, and sweep logging
Built In Gas Cell	acetylene class gas cell for long-term absolute referencing
Absolute Wavelength Accuracy	±30 pm (typical ±10 pm)
Relative Wavelength Accuracy	±15 pm (typical ±5 pm)
Wavelength Repeatability	±5 pm (typical ±3 pm)
Wavelength Stability Typical	≤ ±5 pm, 24 hours typical
Power Repeatability Typical	±0.01 dB typical
Power Stability One Hour	±0.01 dB, 1 hour; typical ±0.03 dB, 24 hours
Power Linearity	±0.1 dB

PARAMETER	VALUE
Power Flatness Versus Wavelength	±0.25 dB (typical ±0.1 dB Options 116/216)
Tuning Time One Nm Typical	300 ms typical, 1 nm step at max output power
Tuning Time 100 Nm Typical	1.5 s typical, 100 nm step at max output power
Signal To Sse Ratio	≥75 dB/nm; ≥85 dB/0.1 nm
Linewidth Typical Coherence Off	less than 10 kHz typical
Effective Linewidth Coherence On Typical	greater than 50 MHz typical

Notes

Numeric rows from Keysight 8160xA Family of Tunable Laser Sources data sheet 5992-3735. 81609A does not specify continuous-sweep dynamic accuracy.

Ordering Information

OPTION	DESCRIPTION
Option 216	Peak: greater than +12 dBm peak

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

788 S 500 E, Pleasant Grove, UT 84062
sales@aumictech.com · +1 (484) 841-9341
<https://aumictechlabs.com>

NIST-traceable calibration · SAM registered ·
30-day returns
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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.