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Data Sheet

August 14, 2026

AGILENT / KEYSIGHT

Agilent / Keysight 81949A 1520nm-1630nm Tunable Laser Source

Agilent Keysight 81949A Compact Tunable Laser Source The Keysight 81949A is a compact single-slot step-tunable laser module for 8163/8164/8166 lightwave mainframes. OEM compact TLS data sheet 5988-8518EN lists 1520 nm to 1630 nm, 5 pm wavelength resolution, ± 100 pm absolute wavelength accuracy, and $\geq +13$ dBm output in the high-power band. C- and L-band stepped source applications and amplifier loading where 5 pm resolution is sufficient. Mode-hop-free step tunability across the full module range The Keysight 81949A is a compact single-slot step-tunable laser module for 8163/8164/8166 lightwave mainframes. OEM compact TLS data sheet 5988-8518EN lists 1520 nm to 1630 nm, 5 pm wavelength resolution, ± 100 pm absolute wavelength accuracy, and $\geq +13$ dBm output in the high-power band. C- and L-band stepped source applications and amplifier loading where 5 pm resolution is sufficient. Mode-hop-free step tunability across the full module range Typical 3 s tuning time for a 100 nm step



MODEL

**Agilent / Keysight
81949A**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

81949A

LISTING

<https://aumictechlabs.com/products/81949a-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Keysight 81949A is a tunable laser source module delivering precise wavelength control across the C and L bands (1520 nm to 1630 nm). This plug-in instrument generates up to +13 dBm output power with ± 100 pm absolute wavelength accuracy and mode-hop-free tunability across

its full 110 nm range. Built-in coherence control, SBS suppression, and an integrated wavemeter (± 20 pm accuracy) enable demanding single-channel and DWDM test applications in telecommunications and optical networking environments.

Technical Specifications

Wavelength Range: 1520 nm to 1630 nm Tuning Range: 110 nm (C + L band) Output Power: $\geq +13$ dBm (1570 nm to 1620 nm); $\geq +10$ dBm (full range); typical peak $\geq +14.5$ dBm Absolute Wavelength Accuracy: ± 100 pm Relative Wavelength Accuracy: ± 50 pm Wavelength Resolution: 5 pm (625 MHz @ 1550 nm) Mode-Hop-Free Tunability: Full range Tuning Speed: Typical 3 seconds for 100 nm sweep Power Linearity: ± 0.1 dB Power Stability: ± 0.03 dB over 24 hours (typical) Power Flatness: ± 0.2 dB typical (full range); ± 0.1 dB (1570 nm to 1620 nm) Side-Mode Suppression Ratio (SMSR): ≥ 50 dB (typical) Signal-to-Source Spontaneous Emission Ratio: ≥ 48 dB/nm (1570 nm to 1620 nm); typical 60 dB/0.1 nm Linewidth: 100 kHz (coherence control off); > 50 MHz (coherence control on, 1570 nm to 1620 nm) Wavelength Stability: ± 5 pm over 24 hours (typical) Built-in Wavemeter Accuracy: ± 20 pm absolute

Key Features

- Coherence control for extended effective linewidth
- Stimulated Brillouin Scattering (SBS) suppression
- Integrated wavemeter for absolute wavelength verification
- BNC front-panel input for external voltage control (± 5 V maximum)
- GPIB and front-panel button control interfaces

Typical Applications

- DWDM system characterization and component testing
- Single-channel optical receiver and transmitter validation
- Wavelength-dependent loss and dispersion measurement
- Fiber optic and optical network research and development

Compatibility & Integration

Plug-in module compatible with Keysight 8163A/B, 8164A/B, and 8166A/B mainframes.

81949A Characteristics / Specifications

PARAMETER	VALUE
Model	81949A
Instrument Type	Compact tunable laser source module
Series Family	Keysight 819xxA compact TLS
Wavelength Range	1520 nm to 1630 nm
Wavelength Resolution	5 pm, 625 MHz at 1550 nm
Mode Hop Free Tunability	full wavelength range
Tuning Time Typical	3 s typical for 100 nm
Absolute Wavelength Accuracy	±100 pm
Relative Wavelength Accuracy	±50 pm
Wavelength Repeatability	±5 pm
Wavelength Stability Typical 24 Hours	±5 pm typical over 24 hours at constant temperature ±0.5 K
Linewidth Typical Coherence Off	100 kHz typical
Effective Linewidth Coherence On Typical	greater than 50 MHz typical, 1570 nm to 1620 nm
Maximum Output Power Peak Typical	≥+14.5 dBm peak typical
Maximum Output Power High Band	≥+13 dBm, 1570 nm to 1620 nm
Maximum Output Power Full Range	≥+10 dBm, 1520 nm to 1630 nm
Power Linearity	±0.1 dB
Power Stability One Hour	±0.01 dB over 1 hour (typical ±0.0075 dB over 1 hour; typical ±0.03 dB over 24 hours)
Power Flatness High Band	±0.2 dB, typical ±0.1 dB, 1570 nm to 1620 nm
Power Flatness Full Range	±0.3 dB, typical ±0.15 dB, full range
Power Repeatability Typical	±0.01 dB typical
Smsr Typical	≥50 dB typical
Signal To Sse Ratio	≥45 dB/nm; ≥48 dB/nm in high-power band
Rin Typical	minus 145 dB/Hz typical, 0.1 GHz to 6 GHz

PARAMETER	VALUE
Host Mainframes	8163A/B, 8164A/B, 8166A/B single-slot modules
Fiber Type	Panda PMF, TE in slow axis aligned to connector key
Module Dimensions	75 mm x 32 mm x 335 mm
Module Weight	0.95 kg
Recommended Recalibration Period	2 years
Operating Temperature	+10 C to +35 C
Storage Temperature	minus 40 C to +70 C
Internal Digital Modulation	200 Hz to 1 MHz, 50% duty cycle, extinction ratio greater than 30 dB
Wavelength stability	Typical 24 Hours: ± 5 pm typical over 24 hours at constant temperature ± 0.5 K
Linewidth	Typical Coherence Off: 100 kHz typical
Effective linewidth	Coherence On Typical: greater than 50 MHz typical, 1570 nm to 1620 nm
Maximum output power	Peak Typical: $\geq +14.5$ dBm peak typical
Power repeatability	Typical: ± 0.01 dB typical
Power stability	One Hour: ± 0.01 dB over 1 hour (typical ± 0.0075 dB over 1 hour; typical ± 0.03 dB over 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
Internal Digital Modulation	200 Hz to 1 MHz, 50% duty cycle, extinction ratio greater than 30 dB Notes Numeric rows from Keysight compact tunable laser data sheet 5988-8518EN.
Internal digital modulation	200 Hz to 1 MHz, 50% duty cycle, extinction ratio greater than 30 dB

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	
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Wavelength Repeatability	±5 pm
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Maximum Output Power Peak Typical	≥+14.5 dBm peak typical
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Power Flatness High Band	±0.2 dB, typical ±0.1 dB, 1570 nm to 1620 nm
Power Flatness Full Range	±0.3 dB, typical ±0.15 dB, full range
Power Repeatability Typical	±0.01 dB typical
Smsr Typical	≥50 dB typical
Signal To Sse Ratio	≥45 dB/nm; ≥48 dB/nm in high-power band
Rin Typical	minus 145 dB/Hz typical, 0.1 GHz to 6 GHz
Host Mainframes	8163A/B, 8164A/B, 8166A/B single-slot modules

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Notes
Numeric rows from Keysight compact tunable laser data sheet 5988-8518EN.

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>

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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.