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Data Sheet

August 13, 2026

HP / AGILENT

HP / Agilent 81689B tunable laser is specially for the C- Band

Agilent 81689B Compact Tunable Laser Module C-band 10 dBm The Agilent 81689B is a compact C-band tunable laser module for 8163/8164/8166 Lightwave platforms, covering 1525 nm to 1575 nm with continuous power during tuning and at least +10 dBm across the band. It succeeds the 81689A with higher power and tighter relative wavelength accuracy for DWDM amplifier, component, and multi-channel system stimulus. Optional Panda PMF outputs support integrated-optics polarization control. Optical amplifier characterization; DWDM component and system multi-channel tests; DFB source across C-band ITU grids; PMF stimulus for waveguide devices. The Agilent 81689B is a compact C-band tunable laser module for 8163/8164/8166 Lightwave platforms, covering 1525 nm to 1575 nm with continuous power during tuning and at least +10 dBm across the band. It succeeds the 81689A with higher power and tighter relative wavelength accuracy for DWDM amplifier, component, and multi-channel system stimulus. Optional Panda PMF outputs support integrated-optics polarization control. Optical amplifier characterization; DWDM component and system multi-channel tests; DFB source across C-band ITU grids; PMF stimulus for waveguide devices.



MODEL

**HP / Agilent
81689B**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

81689B

LISTING

<https://aumictechlabs.com/products/81689b-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The Agilent 81689B is a compact C-band tunable laser module engineered for optical testing and measurement applications in DWDM systems. It delivers a stable, precise optical source across the entire C-band, enabling flexible test configurations for optical amplifiers, DWDM components, and related optical subsystems. The module supports both internal and external modulation with continuous sweep capability across its full wavelength range, and operates within Agilent's modular lightwave measurement platforms.

Technical Specifications

- Wavelength Range: 1525 nm to 1575 nm
- Wavelength Resolution: 0.01 nm (1.25 GHz at 1550 nm)
- Absolute Wavelength Accuracy: ± 0.3 nm
- Wavelength Repeatability: ± 0.05 nm
- Wavelength Stability: ± 0.02 nm over 24 hours
- Output Power: ≥ 10 dBm
- Output Power Stability: ± 0.03 dB over 1 hour; typical ± 0.015 dB to ± 0.0075 dB over 1 hour at constant temperature
- Power Stability (typical): $< \pm 0.025$ dB over 1 minute
- Spectral Linewidth: 20 MHz (Option 021)
- Tuning Speed: < 10 seconds per 50 nm
- Maximum External Voltage: ± 6 V (per BNC connector)

Key Features

- Tunable across full C-band (1525–1575 nm) with 0.01 nm resolution
- Dual modulation capability: internal and external
- Continuous sweep through entire wavelength range
- Single-mode fiber and polarization-maintaining fiber output options
- Straight or angled contact connectors available
- Class IIIb laser (FDA 21 CFR 1040.10); Class 3A (IEC 825-1:1993)
- Integrated safety circuitry disables optical output on fault detection
- NIST-traceable calibration with 2-year recommended recalibration interval
- Storage temperature range: -40 °C to $+70$ °C

Typical Applications

- DWDM system characterization and component testing
- Optical amplifier performance validation
- Wavelength-dependent measurements across C-band
- Dynamic wavelength tuning in optical test configurations

Compatibility & Integration

The 81689B integrates into Agilent 8163A/B Lightwave Multimeters, 8164A/B Lightwave Measurement Systems, and 8166A/B Lightwave Multichannel Systems. Pairs with the optional 81651A optical attenuator module to extend output power dynamic range.

Features & description

From manufacturer datasheet

Features

- Compact single-slot TLS with continuous power during tuning
- Greater than or equal to 10 dBm across 1525 to 1575 nm
- Coherence control for reduced interference ripple
- Internal digital modulation 200 Hz to 1 MHz class
- Host up to 2 in 8163B; 4 upper slots in 8164B; 17 in 8166B

81689B Characteristics / Specifications

PARAMETER	VALUE
Model	81689B
Manufacturer	Agilent / Keysight
Instrument Type	Compact tunable laser module
Alias	Agilent 81689B; Keysight 81689B; HP 81689B
Wavelength Range	1525 nm to 1575 nm
Wavelength Resolution	0.01 nm (1.25 GHz at 1550 nm)
Absolute Wavelength Accuracy Typical	plus/minus 0.3 nm
Relative Wavelength Accuracy	plus/minus 0.15 nm
Wavelength Repeatability	plus/minus 0.05 nm
Wavelength Stability Typical 24 h	plus/minus 0.01 nm at constant temperature
Wavelength Stability Typical 1 h	plus/minus 0.005 nm at constant temperature
Tuning Speed Typical	less than 10 s per 50 nm
Linewidth Typical Coherence Control Off	less than 20 MHz
Linewidth Typical Coherence Control On	greater than 100 MHz
Output Power Continuous During Tuning	greater than or equal to 10 dBm (1525 to 1575 nm)
Minimum Output Power	0 dBm
Power Stability 1 Hour	plus/minus 0.015 dB at constant temperature
Power Stability 1 Hour Typical	plus/minus 0.0075 dB
Power Stability 24 Hours Typical	plus/minus 0.05 dB
Power Repeatability Typical	plus/minus 0.02 dB
Power Linearity	plus/minus 0.1 dB
Power Flatness Versus Wavelength	plus/minus 0.2 dB
Side Mode Suppression Typical	greater than 45 dB at greater than or equal to 3 dBm
SSE Ratio Typical At 10 dBm	greater than or equal to 44 dB/nm
RIN Typical At Plus 7 dBm	less than -137 dB/Hz (100 MHz to 2.5 GHz)

PARAMETER	VALUE
Output Isolation Typical	38 dB
Return Loss Typical Angled Options	55 dB
Return Loss Typical Straight Options	40 dB
Internal Digital Modulation	50 percent 200 Hz to 300 kHz; greater than 45 percent to 1 MHz
External Digital Modulation	200 Hz to 1 MHz; fall time less than 300 ns
External Analog Modulation	greater than or equal to plus/minus 15 percent depth; 5 kHz to 1 MHz; 5 Vpp
Dimensions	75 mmHx 32 mmWx 335 mmDNet Weight: 1 kg
Operating Temperature	15 C to 35 C
Storage Temperature	-40 C to +70 C
Humidity	less than 80 percent RH at 15 C to 35 C
Warmup Time	less than 40 min
Recommended Recalibration Period	2 years
Fiber Options	021/022 SMF; 071/072 Panda PMF
Related Lower Power Sibling	81689A greater than or equal to 6 dBm
RelatedLBand Sibling	81649A 1570 to 1620 nm
Absolute wavelength accuracy	Typical: plus/minus 0.3 nm
Wavelength stability	Typical 24 h: plus/minus 0.01 nm at constant temperature
Linewidth	Typical Coherence Control Off: less than 20 MHz
Power repeatability	Typical: plus/minus 0.02 dB
Power stability	1 Hour: plus/minus 0.015 dB at constant temperature
Output isolation	Typical: 38 dB
Return loss	Typical Angled Options: 55 dB

General Specifications & Supplementary Characteristics

PARAMETER	VALUE
Storage temperature	40 C to +70 C
Operating temperature	15 C to 35 C
Operating Temperature	15 C to 35 C
Humidity	less than 80 percent RH at 15 C to 35 C
Warmup Time	less than 40 min
Recommended Recalibration Period	2 years
Fiber Options	021/022 SMF; 071/072 Panda PMF
Related Lower Power Sibling	81689A greater than or equal to 6 dBm
RelatedLBand Sibling	81649A 1570 to 1620 nm Notes Specs from Agilent 81689A/81689B/81649A Compact Tunable Laser Modules Technical Specifications February 2002 (5988-3675EN). Confirm fiber option 021/022/071/072 and mainframe slot map.
Internal digital modulation	200 Hz to 1 MHz class - Host up to 2 in 8163B; 4 upper slots in 8164B; 17 in 8166B
External digital modulation	200 Hz to 1 MHz; fall time less than 300 ns
External analog modulation	greater than or equal to plus/minus 15 percent depth; 5 kHz to 1 MHz; 5 Vpp
Output isolation	Typical: 38 dB
Return loss	Typical Angled Options: 55 dB
Model	81689B
Manufacturer	Agilent / Keysight
Instrument Type	Compact tunable laser module
Alias	Agilent 81689B; Keysight 81689B; HP 81689B
Wavelength Range	1525 nm to 1575 nm
Wavelength Resolution	0.01 nm (1.25 GHz at 1550 nm)
Absolute Wavelength Accuracy Typical	plus/minus 0.3 nm
Relative Wavelength Accuracy	plus/minus 0.15 nm

PARAMETER	VALUE
Wavelength Repeatability	plus/minus 0.05 nm
Wavelength Stability Typical 24 h	plus/minus 0.01 nm at constant temperature
Wavelength Stability Typical 1 h	plus/minus 0.005 nm at constant temperature
Tuning Speed Typical	less than 10 s per 50 nm
Linewidth Typical Coherence Control Off	less than 20 MHz
Linewidth Typical Coherence Control On	greater than 100 MHz
Output Power Continuous During Tuning	greater than or equal to 10 dBm (1525 to 1575 nm)
Minimum Output Power	0 dBm
Power Stability 1 Hour	plus/minus 0.015 dB at constant temperature
Power Stability 1 Hour Typical	plus/minus 0.0075 dB
Power Stability 24 Hours Typical	plus/minus 0.05 dB
Power Repeatability Typical	plus/minus 0.02 dB
Power Linearity	plus/minus 0.1 dB
Power Flatness Versus Wavelength	plus/minus 0.2 dB
Side Mode Suppression Typical	greater than 45 dB at greater than or equal to 3 dBm
SSE Ratio Typical At 10 dBm	greater than or equal to 44 dB/nm
RIN Typical At Plus 7 dBm	less than -137 dB/Hz (100 MHz to 2.5 GHz)
Output Isolation Typical	38 dB
Return Loss Typical Angled Options	55 dB
Return Loss Typical Straight Options	40 dB
Dimensions	75 mmHx 32 mmWx 335 mmDNet Weight: 1 kg
Operating Temperature	15 C to 35 C
Storage Temperature	-40 C to +70 C
Humidity	less than 80 percent RH at 15 C to 35 C
Warmup Time	less than 40 min
Recommended Recalibration Period	2 years
Fiber Options	021/022 SMF; 071/072 Panda PMF

PARAMETER	VALUE
Related Lower Power Sibling	81689A greater than or equal to 6 dBm
RelatedLBand Sibling	81649A 1570 to 1620 nm Notes Specs from Agilent 81689A/81689B/81649A Compact Tunable Laser Modules Technical Specifications February 2002 (5988-3675EN). Confirm fiber option 021/022/071/072 and mainframe slot map.

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	
Technical Specifications	
PARAMETER	VALUE
Model	81689B
Manufacturer	Agilent / Keysight
Instrument Type	Compact tunable laser module
Alias	Agilent 81689B; Keysight 81689B; HP 81689B
Wavelength Range	1525 nm to 1575 nm
Wavelength Resolution	0.01 nm (1.25 GHz at 1550 nm)
Absolute Wavelength Accuracy Typical	plus/minus 0.3 nm
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Wavelength Repeatability	plus/minus 0.05 nm
Wavelength Stability Typical 24 h	plus/minus 0.01 nm at constant temperature
Wavelength Stability Typical 1 h	plus/minus 0.005 nm at constant temperature
Tuning Speed Typical	less than 10 s per 50 nm
Linewidth Typical Coherence Control Off	less than 20 MHz
Linewidth Typical Coherence Control On	greater than 100 MHz
Output Power Continuous During Tuning	greater than or equal to 10 dBm (1525 to 1575 nm)
Minimum Output Power	0 dBm
Power Stability 1 Hour	plus/minus 0.015 dB at constant temperature
Power Stability 1 Hour Typical	plus/minus 0.0075 dB
Power Stability 24 Hours Typical	plus/minus 0.05 dB
Power Repeatability Typical	plus/minus 0.02 dB
Power Linearity	plus/minus 0.1 dB
Power Flatness Versus Wavelength	plus/minus 0.2 dB
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SSE Ratio Typical At 10 dBm	greater than or equal to 44 dB/nm
RIN Typical At Plus 7 dBm	less than -137 dB/Hz (100 MHz to 2.5 GHz)
Output Isolation Typical	38 dB

PARAMETER	VALUE
Return Loss Typical Angled Options	55 dB
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External Digital Modulation	200 Hz to 1 MHz; fall time less than 300 ns
External Analog Modulation	greater than or equal to plus/minus 15 percent depth; 5 kHz to 1 MHz; 5 Vpp
Dimensions	75 mm H x 32 mm W x 335 mm D
Net Weight	1 kg
Operating Temperature	15 C to 35 C
Storage Temperature	-40 C to +70 C
Humidity	less than 80 percent RH at 15 C to 35 C
Warmup Time	less than 40 min
Recommended Recalibration Period	2 years
Fiber Options	021/022 SMF; 071/072 Panda PMF
Related Lower Power Sibling	81689A greater than or equal to 6 dBm
Related L Band Sibling	81649A 1570 to 1620 nm

Specifications

PARAMETER	VALUE
Model	81689B
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Wavelength Repeatability	plus/minus 0.05 nm
Wavelength Stability Typical 24 h	plus/minus 0.01 nm at constant temperature
Wavelength Stability Typical 1 h	plus/minus 0.005 nm at constant temperature
Tuning Speed Typical	less than 10 s per 50 nm
Linewidth Typical Coherence Control Off	less than 20 MHz
Linewidth Typical Coherence Control On	greater than 100 MHz

PARAMETER	VALUE
Output Power Continuous During Tuning	greater than or equal to 10 dBm (1525 to 1575 nm)
Minimum Output Power	0 dBm
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Power Stability 1 Hour Typical	plus/minus 0.0075 dB
Power Stability 24 Hours Typical	plus/minus 0.05 dB
Power Repeatability Typical	plus/minus 0.02 dB
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Recommended Recalibration Period	2 years
Fiber Options	021/022 SMF; 071/072 Panda PMF
Related Lower Power Sibling	81689A greater than or equal to 6 dBm
RelatedLBand Sibling	81649A 1570 to 1620 nm

Notes

Specs from Agilent 81689A/81689B/81649A Compact Tunable Laser Modules Technical Specifications February 2002 (5988-3675EN). Confirm fiber option 021/022/071/072 and mainframe slot map.

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

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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.