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Data Sheet

August 14, 2026

AGILENT / KEYSIGHT

Agilent/Keysight 81640A Tunable Laser Source

Agilent Keysight 81640A C+L Band Tunable Laser Module 1510 to 1640 nm The Agilent 81640A is a mode-hop-free C+L-band tunable laser module for the 8164A Lightwave Measurement System with dual outputs (low SSE and high power). OEM 81480A/81680A/81640A user's guide specification tables list 1510 to 1640 nm, 0.1 pm resolution, plus or minus 0.015 nm absolute accuracy, and Output 1 / Output 2 power by band. C- and L-band DWDM passive-component IL/crosstalk and amplifier stimulus with a power meter. Two optical outputs: low SSE and high power with built-in Output 2 attenuator The Agilent 81640A is a mode-hop-free C+L-band tunable laser module for the 8164A Lightwave Measurement System with dual outputs (low SSE and high power). OEM 81480A/81680A/81640A user's guide specification tables list 1510 to 1640 nm, 0.1 pm resolution, plus or minus 0.015 nm absolute accuracy, and Output 1 / Output 2 power by band. C- and L-band DWDM passive-component IL/crosstalk and amplifier stimulus with a power meter. Two optical outputs: low SSE and high power with built-in Output 2 attenuator

**MODEL****Agilent / Keysight
81640A****CALIBRATION****Available on
request****CONDITION****Used****STATUS****In stock****RFQ / SKU****81640A****LISTING**<https://aumictechlabs.com/products/81640a-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Agilent/Keysight 81640A Tunable Laser Source is a precision optical module engineered for wavelength-critical applications in optical communications and component testing. Operating across the 1510–1640 nm band with mode-hop-free tuning, the 81640A delivers ± 0.015 nm

absolute wavelength accuracy and ± 0.5 pm repeatability, supported by a built-in wavelength control loop and exceptional 24-hour stability of ± 1 pm at constant temperature.

Technical Specifications

- Wavelength Range: 1510 nm to 1640 nm
- Maximum Output Power: 4 dBm
- Absolute Wavelength Accuracy: ± 0.015 nm
- Wavelength Repeatability: ± 0.5 pm (typical)
- Wavelength Stability: $\leq \pm 1$ pm (typical, 24 hours at constant temperature)
- Tuning Speed: 400 ms (1 nm step), 600 ms (10 nm step), 2.8 s (100 nm step)
- Linewidth (coherence control off): 100 kHz (typical)
- Effective Linewidth (coherence control on): > 50 MHz (typical)
- Optical Attenuator Range: > 60 dB (Output 2 available)
- Connector Options: Polarization-maintaining fiber with straight contact (Option 071) or angled contact (Option 072)

Key Features

- Mode-hop-free tuning across full wavelength range
- Continuous sweep capability
- Dual optical outputs: ultra-low spontaneous emission (SSE) and high power
- Ultra-low SSE output optimized for crosstalk measurements and component characterization (Fiber Bragg Gratings)
- Angled connectors (Option 072) reduce back-reflected light for improved return loss in high-sensitivity environments
- Built-in wavelength control loop ensures measurement confidence

Typical Applications

- Dense-wavelength division multiplexing (DWDM)
- passive component testing
- Optical amplifier characterization
- Fiber Bragg Grating measurement and evaluation
- Crosstalk and insertion loss assessment

Compatibility & Integration

The 81640A is a back-loadable module for the Agilent 8164A Lightwave Measurement System. The 81640B is the current replacement; upgrade paths are available.

Features & description

From manufacturer datasheet

Built-in wavelength control loop

PMF outputs standard Internal digital modulation 200 Hz to 300 kHz Fits 8164A bottom TLS slot
Technical Specifications Model: 81640A Instrument Type: Tunable laser source module Series Family: Agilent 81480A/81680A/81640A TLS for 8164A Wavelength Range: 1510 nm to 1640 nm Wavelength Resolution: 0.1 pm, 12.5 MHz at 1550 nm Mode Hop Free Tuning Range: 1510 nm to 1640 nm Absolute Wavelength Accuracy: plus or minus 0.015 nm (one month, plus or minus 5 K after wavelength zeroing, CW, vacuum wavelength meter) Wavelength Repeatability: plus or minus 1 pm, typical plus or minus 0.5 pm Wavelength Stability Typical 24 Hour: less than or equal to plus or minus 1 pm typical, 24 hours at constant temperature Tuning Speed Typical: 400 ms / 600 ms / 2.8 s for 1/10/100 nm steps Linewidth Typical Coherence Off: 100 kHz typical Minimum Output Power Output 1: minus 13 dBm Attenuation Mode Floor Output 2: minus 60 dBm in attenuation mode Power Stability 1 Hour: plus or minus 0.01 dB, 1 hour; typical plus or minus 0.03 dB, 24 hours Power Repeatability Typical: plus or minus 0.01 dB typical Power Linearity Output 1: plus or minus 0.1 dB Power Linearity Output 2: plus or minus 0.3 dB Sidemode Suppression Typical: greater than or equal to 40 dBc in the stated SMSR band

81640A Characteristics / Specifications

PARAMETER	VALUE
Model	81640A
Instrument Type	Tunable laser source module
Series Family	Agilent 81480A/81680A/81640A TLS for 8164A
Wavelength Range	1510 nm to 1640 nm
Wavelength Resolution	0.1 pm, 12.5 MHz at 1550 nm
Mode Hop Free Tuning Range	1510 nm to 1640 nm
Absolute Wavelength Accuracy	plus or minus 0.015 nm (one month, plus or minus 5 K after wavelength zeroing, CW, vacuum wavelength meter)
Wavelength Repeatability	plus or minus 1 pm, typical plus or minus 0.5 pm
Wavelength Stability Typical 24 Hour	less than or equal to plus or minus 1 pm typical, 24 hours at constant temperature
Tuning Speed Typical	400 ms / 600 ms / 2.8 s for 1/10/100 nm steps
Linewidth Typical Coherence Off	100 kHz typical
Minimum Output Power Output	minus 13 dBm
Attenuation Mode Floor Output	minus 60 dBm in attenuation mode
Power Stability 1 Hour	plus or minus 0.01 dB, 1 hour; typical plus or minus 0.03 dB, 24 hours
Power Repeatability Typical	plus or minus 0.01 dB typical
Power Linearity Output	plus or minus 0.1 dB
Sidemode Suppression Typical	greater than or equal to 40 dBc in the stated SMSR band
Relative Intensity Noise Typical	minus 145 dB/Hz in the stated RIN band
Laser Type Safety Table	InGaAsP FP-laser, less than 15 mW max CW at connector, 9 um beam waist, NA 0.1
Host Mainframe	Agilent 8164A Lightwave Measurement System, back-loadable TLS slot
Bnc Absolute Maximum	plus or minus 6 V on modulation BNCs
Storage Temperature	minus 40 C to plus 70 C
Warm Up	1 hour for warranted specs (footnote 9/10)
Relative Wavelength Accuracy	plus or minus 7 pm, typical plus or minus 3 pm

PARAMETER	VALUE
Effective Linewidth Coherence On Typical	greater than 50 MHz, 1520 to 1620 nm at maximum flat output power
Output 1 Peak Power Typical	greater than or equal to minus 5 dBm peak typical (1530-1610 nm)
Output 1 Power 1520 To 1620 Nm	greater than or equal to minus 7 dBm (1520-1620); greater than or equal to minus 9 dBm; greater than or equal to minus 13 dBm (1510-1640)
Output 2 Peak Power Typical	greater than or equal to plus 4 dBm peak typical (1530-1610 nm)
Output 2 Power 1520 To 1620 Nm	greater than or equal to plus 2 dBm (1530-1610); greater than or equal to 0 dBm (1520-1620); greater than or equal to minus 5 dBm (1510-1640)
Sse Output 1 1530 To 16	greater than or equal to 60 dB/nm (1530-1610); typical 55/50 dB/nm wider bands
Sse Output 2 1530 To 16	greater than or equal to 45 dB/nm (1530-1610); 40/35 dB/nm wider bands
Signal To Total Sse Output	greater than or equal to 55 dB (1530-1610 nm)
Rin Band	minus 145 dB/Hz typical, 1530 to 1610 nm
Wavelength stability	Typical 24 Hour: less than or equal to plus or minus 1 pm typical, 24 hours at constant temperature
Linewidth	Typical Coherence Off: 100 kHz typical
Effective linewidth	Coherence On Typical: greater than 50 MHz, 1520 to 1620 nm at maximum flat output power
Attenuation	Mode Floor Output 2: minus 60 dBm in attenuation mode
Power repeatability	Typical: plus or minus 0.01 dB typical
Power stability	1 Hour: plus or minus 0.01 dB, 1 hour; typical plus or minus 0.03 dB, 24 hours
Power linearity	Output 1: plus or minus 0.1 dB
Relative intensity noise	Typical: minus 145 dB/Hz in the stated RIN band

General Specifications & Supplementary Characteristics

PARAMETER	VALUE
Storage temperature	minus 40 C to plus 70 C
Warm Up	1 hour for warranted specs (footnote 9/10)
Relative Wavelength Accuracy	plus or minus 7 pm, typical plus or minus 3 pm
Effective Linewidth Coherence On Typical	greater than 50 MHz, 1520 to 1620 nm at maximum flat output power
Output 1 Peak Power Typical	greater than or equal to minus 5 dBm peak typical (1530-1610 nm)
Output 1 Power 1520 To 1620 Nm	greater than or equal to minus 7 dBm (1520-1620); greater than or equal to minus 9 dBm; greater than or equal to minus 13 dBm (1510-1640)
Output 2 Peak Power Typical	greater than or equal to plus 4 dBm peak typical (1530-1610 nm)
Output 2 Power 1520 To 1620 Nm	greater than or equal to plus 2 dBm (1530-1610); greater than or equal to 0 dBm (1520-1620); greater than or equal to minus 5 dBm (1510-1640)
Sse Output 1 1530 To 16	greater than or equal to 60 dB/nm (1530-1610); typical 55/50 dB/nm wider bands
Sse Output 2 1530 To 16	greater than or equal to 45 dB/nm (1530-1610); 40/35 dB/nm wider bands
Signal To Total Sse Output	greater than or equal to 55 dB (1530-1610 nm)
Rin Band	minus 145 dB/Hz typical, 1530 to 1610 nm Notes Numeric rows from Agilent 81480A and 81680A, 81640A, 81682A, 81642A, and 81689A Tunable Laser Modules User's Guide specification tables (81640A Output 1/2 columns). Absolute accuracy is valid for one month within plus or minus 5 K after wavelength zeroing.
Internal digital modulation	200 Hz to 300 kHz
Model	81640A
Instrument Type	Tunable laser source module
Series Family	Agilent 81480A/81680A/81640A TLS for 8164A
Wavelength Range	1510 nm to 1640 nm
Wavelength Resolution	0.1 pm, 12.5 MHz at 1550 nm
Mode Hop Free Tuning Range	1510 nm to 1640 nm

PARAMETER	VALUE
Absolute Wavelength Accuracy	plus or minus 0.015 nm (one month, plus or minus 5 K after wavelength zeroing, CW, vacuum wavelength meter)
Wavelength Repeatability	plus or minus 1 pm, typical plus or minus 0.5 pm
Wavelength Stability Typical 24 Hour	less than or equal to plus or minus 1 pm typical, 24 hours at constant temperature
Tuning Speed Typical	400 ms / 600 ms / 2.8 s for 1/10/100 nm steps
Linewidth Typical Coherence Off	100 kHz typical
Minimum Output Power Output	minus 13 dBm
Attenuation Mode Floor Output	minus 60 dBm in attenuation mode
Power Stability 1 Hour	plus or minus 0.01 dB, 1 hour; typical plus or minus 0.03 dB, 24 hours
Power Repeatability Typical	plus or minus 0.01 dB typical
Power Linearity Output	plus or minus 0.1 dB
Sidemode Suppression Typical	greater than or equal to 40 dBc in the stated SMSR band
Relative Intensity Noise Typical	minus 145 dB/Hz in the stated RIN band
Laser Type Safety Table	InGaAsP FP-laser, less than 15 mW max CW at connector, 9 um beam waist, NA 0.1
Host Mainframe	Agilent 8164A Lightwave Measurement System, back-loadable TLS slot
Bnc Absolute Maximum	plus or minus 6 V on modulation BNCs
Storage Temperature	minus 40 C to plus 70 C
Warm Up	1 hour for warranted specs (footnote 9/10)
Relative Wavelength Accuracy	plus or minus 7 pm, typical plus or minus 3 pm
Effective Linewidth Coherence On Typical	greater than 50 MHz, 1520 to 1620 nm at maximum flat output power
Output 1 Peak Power Typical	greater than or equal to minus 5 dBm peak typical (1530-1610 nm)
Output 1 Power 1520 To 1620 Nm	greater than or equal to minus 7 dBm (1520-1620); greater than or equal to minus 9 dBm; greater than or equal to minus 13 dBm (1510-1640)
Output 2 Peak Power Typical	greater than or equal to plus 4 dBm peak typical (1530-1610 nm)
Output 2 Power 1520 To 1620 Nm	greater than or equal to plus 2 dBm (1530-1610); greater than or equal to 0 dBm (1520-1620); greater than or equal to minus 5 dBm (1510-1640)

PARAMETER	VALUE
Sse Output 1 1530 To 16	greater than or equal to 60 dB/nm (1530-1610); typical 55/50 dB/nm wider bands
Sse Output 2 1530 To 16	greater than or equal to 45 dB/nm (1530-1610); 40/35 dB/nm wider bands
Signal To Total Sse Output	greater than or equal to 55 dB (1530-1610 nm)
Rin Band	minus 145 dB/Hz typical, 1530 to 1610 nm Notes Numeric rows from Agilent 81480A and 81680A, 81640A, 81682A, 81642A, and 81689A Tunable Laser Modules User's Guide specification tables (81640A Output 1/2 columns). Absolute accuracy is valid for one month within plus or minus 5 K after wavelength zeroing.

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	81640A
Instrument Type	Tunable laser source module
Series Family	Agilent 81480A/81680A/81640A TLS for 8164A
Wavelength Range	1510 nm to 1640 nm
Wavelength Resolution	0.1 pm, 12.5 MHz at 1550 nm
Mode Hop Free Tuning Range	1510 nm to 1640 nm
Absolute Wavelength Accuracy	plus or minus 0.015 nm (one month, plus or minus 5 K after wavelength zeroing, CW, vacuum wavelength meter)
Wavelength Repeatability	plus or minus 1 pm, typical plus or minus 0.5 pm
Wavelength Stability Typical 24 Hour	less than or equal to plus or minus 1 pm typical, 24 hours at constant temperature
Tuning Speed Typical	400 ms / 600 ms / 2.8 s for 1/10/100 nm steps
Linewidth Typical Coherence Off	100 kHz typical
Minimum Output Power Output 1	minus 13 dBm
Attenuation Mode Floor Output 2	minus 60 dBm in attenuation mode
Power Stability 1 Hour	plus or minus 0.01 dB, 1 hour; typical plus or minus 0.03 dB, 24 hours
Power Repeatability Typical	plus or minus 0.01 dB typical
Power Linearity Output 1	plus or minus 0.1 dB
Power Linearity Output 2	plus or minus 0.3 dB
Sidemode Suppression Typical	greater than or equal to 40 dBc in the stated SMSR band
Relative Intensity Noise Typical	minus 145 dB/Hz in the stated RIN band
Laser Type Safety Table	InGaAsP FP-laser, less than 15 mW max CW at connector, 9 um beam waist, NA 0.1
Host Mainframe	Agilent 8164A Lightwave Measurement System, back-loadable TLS slot
Bnc Absolute Maximum	plus or minus 6 V on modulation BNCs
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Warm Up	1 hour for warranted specs (footnote 9/10)

PARAMETER	VALUE
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Effective Linewidth Coherence On Typical	greater than 50 MHz, 1520 to 1620 nm at maximum flat output power
Output 1 Peak Power Typical	greater than or equal to minus 5 dBm peak typical (1530-1610 nm)
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Output 2 Peak Power Typical	greater than or equal to plus 4 dBm peak typical (1530-1610 nm)
Output 2 Power 1520 To 1620 Nm	greater than or equal to plus 2 dBm (1530-1610); greater than or equal to 0 dBm (1520-1620); greater than or equal to minus 5 dBm (1510-1640)
Sse Output 1 1530 To 1610	greater than or equal to 60 dB/nm (1530-1610); typical 55/50 dB/nm wider bands
Sse Output 2 1530 To 1610	greater than or equal to 45 dB/nm (1530-1610); 40/35 dB/nm wider bands
Signal To Total Sse Output 1	greater than or equal to 55 dB (1530-1610 nm)
Rin Band	minus 145 dB/Hz typical, 1530 to 1610 nm

Notes

Numeric rows from Agilent 81480A and 81680A, 81640A, 81682A, 81642A, and 81689A Tunable Laser Modules User's Guide specification tables (81640A Output 1/2 columns). Absolute accuracy is valid for one month within plus or minus 5 K after wavelength zeroing.

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

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