

Optical Head Specifications

All optical heads have to be operated with the single (Agilent 81618A) or dual (Agilent 81619A) Interface Modules.

Table 1 Optical Head Specifications

	Agilent 81623A	Agilent 81624A	Agilent 81625A
Sensor Element	Ge, Ø 5 mm	InGaAs, Ø 5 mm	
Wavelength Range	750-1800 nm	800-1700 nm	850-1650 nm
Power Range	+10 to -80 dBm	+10 to -90 dBm	+20 to -80 dBm
Display Resolution	0.0001 dB/dBm, 0.001 pW to 1 pW (depending on power range)		
Applicable Fiber Type	Standard SM and MM max 100 µm core size, NA ≤ 0.3		
Open Beam	Parallel beam max Ø 5 mm		
Uncertainty at Reference Conditions¹	±2.2% (1000 to 1650 nm)	±2.2% (1000 to 1630 nm)	±2.5% (950 to 1630 nm)
Total Uncertainty²	±3.5% (1000 to 1650 nm)	±3.5% (1000 to 1630 nm)	±4.0% (950 to 1630 nm)
Relative Uncertainty - due to polarization ³ Spectral ripple (due to interference) ⁴		± 0.005 dB (typ. ± 0.002 dB) ± 0.005 dB typ. ± 0.002 dB	± 0.005 dB (typ. ± 0.002 dB) ± 0.005 dB typ. ± 0.002 dB
Linearity (power)⁵ -at 23°C ±5°C -operating temp. range	CW +10 to -60 dBm (1000 - 1650 nm) ≤±0.02 dB ± 100 pW ⁹ ≤±0.05 dB ± 100 pW ⁹	CW +10 to -70 dBm (1000 - 1630 nm) ≤±0.02 dB ± 5 pW ≤±0.05 dB ± 5 pW	CW +20 to -60 dBm (950 - 1630 nm) ≤±0.02 dB ± 100 pW ⁸ ≤±0.05 dB ± 100 pW ⁸
Return Loss⁷	> 45 dB	typ. 60 dB	> 60 dB
Noise (peak to peak)^{5,6}	< 100 pW	< 5 pW	< 100 pW
Averaging Time (minimal)	100 µs		
Dimensions (H x W x D)	75 mm × 32 mm × 335 mm (2.8" × 1.3" × 13.2")		
Weight	0.5 kg		
Recalibration Period	2 years		
Operating Temperature	0°C to +40°C		0°C to +35°C ⁶
Humidity	Non-condensing		
Warm-up time	20 minutes		

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1 Reference Conditions: <ul style="list-style-type: none">• Power level 10 μW (-20 dBm), continuous wave (CW)• Parallel beam, 3 mm spot diameter on the center of the detector• Ambient temperature 23 °C \pm 5 °C• On day of calibration (add \pm 0.3% for aging over one year; add \pm 0.6% over two years)• Spectral width of source < 10 nm (FWHM)• Wavelength setting at power meter must correspond to source wavelength			
2 Total uncertainty includes: polarization, interference, linearity conditions: <ul style="list-style-type: none">• Parallel beam, 3 mm spot diameter on the center of the detector or connectorized fiber with NA \leq 0.2• For NA > 0.2, add 1%• Within one year after calibration, add 0.3% for second year			
3 All states of polarization at constant wavelength (1550 nm \pm 30 nm) and constant power, straight connector, T = 23°C \pm 5°. For angled connector (8°) add 0.01 dB typ.			
4 Conditions: Wavelength 1550 nm \pm 30 nm, fixed state of polarization, constant power, Temperature 23°C \pm 5°C, Linewidth of source \geq 100 MHz, angled connector 8°.			
5 At constant temperature $\Delta T = \pm 1^\circ\text{C}$			
6 Averaging time 1s, T = 23°C \pm 5°C, observation time 300 s. Wavelength range 1200 - 1630 nm.			
7 Conditions <ul style="list-style-type: none">• Wavelengths 1550 nm \pm 30 nm.• Standard single-mode fiber, angled connector min 8°.			
8 For input power >+10 mW add: \pm 0.001 dB/ mW without Agilent 81000AF or add \pm 0.02 dB/ mW with Agilent 81000AF (direct coupled)			
9 For input power > 2 mW, add \pm 0.004 dB/ mW			