

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	Agilent 81625B
Sensor Element	Ge, Ø 5 mm	InGaAs, Ø 5 mm		
Wavelength Range	750 - 1800 nm	800 - 1700 nm	850 - 1650 nm	850 - 1650 nm
Power Range	+10 to -80 dBm	+10 to -90 dBm	+20 to -80 dBm	+27 to -70 dBm (1250 - 1650 nm) +23 to 70 dBm (850 - 1650 nm)
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)	±3.0% (950 to 1630 nm)
Total Uncertainty²	+3.5% (1000 to 1650 nm)	±3.5% (1000 to 1630 nm)	±4.0% (950 to 1630 nm)	±5.0% (950 to 1630 nm)
Relative Uncertainty⁷ - due to polarization ³		± 0.005 dB (typ. ± 0.002 dB)	± 0.005 dB (typ. ± 0.002 dB)	± 0.005 dB (typ. ± 0.002 dB)
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)
Linearity (power):⁵ - at 23°C ±5°C - at 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	(CW +27 to -50 dBm) (950 - 1630 nm) <±0.04 dB ± 500 pW ¹¹ <±0.15 dB ± 500 pW ¹¹
Return Loss⁷	> 45 dB	typ. 60 dB	> 60 dB	> 45 dB
Noise (peak to peak)^{5,6}	< 100 pW	< 5 pW	< 100 pW	< 500 pW
Averaging Time (minimal)	100 µs			
Dimensions (H x W x D)	75 mm x 32 mm x 335 mm (2.8" x 1.3" x 13.2")			
Weight	0.5 kg			
Recalibration Period	2 years			
Operating Temperature	0°C to +40°C		0°C to +35°C	0°C to +35°C ¹⁰
Humidity	Non-condensing			
Warm-up time	40 minutes			

Table 1 Optical Head Specifications

	Agilent 81623A	Agilent 81624A	Agilent 81625A	Agilent 81626B
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 \pm 0.4 nm 				
2 Total uncertainty includes: polarization, interference, linearity conditions:				
<ul style="list-style-type: none"> • Parallel beam, 3mm 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 (ΔT = \pm 1°C), zeroing required.				
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:				
typ. \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				
10 30°C for > +20 dBm input power				
11 For input power >+10 mW add:				
typ. \pm 0.0016 dB / mW without Agilent 81000AF, or add \pm 0.0008 dB / mW with Agilent 81000AF (direct coupled)				
In the case of a negative power change >50 dB allow an addition recovery time of 3 minutes.				