

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 Conditions ¹	±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 Uncertainty ²	±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 Uncertainty ⁷ - 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)	± 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 Loss ⁷	> 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 × 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	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:				
• Power level 10 μW (-20 dBm), continuous wave (CW) • Parallel beam, 3 mm spot diameter on the center of the detector • Ambient temperature $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$ • 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 ± 0.4 nm				
2 Total uncertainty includes: polarization, interference, linearity conditions:				
• Parallel beam, 3mm spot diameter on the center of the detector or connectorized fiber with $\text{NA} \leq 0.2$ • For $\text{NA} > 0.2$, 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, $T = 23^{\circ}\text{C} \pm 5^{\circ}$. For angled connector ($8^{\circ}$) add 0.01 dB typ.				
4 Conditions:				
Wavelength 1550 nm $\pm$ 30 nm, fixed state of polarization, constant power, Temperature $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$, Linewidth of source ≥ 100 MHz, angled connector 8° .				
5 At constant temperature ($\Delta T = \pm 1^{\circ}\text{C}$), zeroing required.				
6 Averaging time 1s, $T = 23^{\circ}\text{C} \pm 5^{\circ}\text{C}$, observation time 300 s. Wavelength range 1200 - 1630 nm.				
7 Conditions				
• Wavelengths 1550 nm $\pm$ 30 nm. • Standard single-mode fiber, angled connector min 8°.				
8 For input power $> +10$ mW add:				
typ. ± 0.001 dB / mW without Agilent 81000AF, or add ± 0.02 dB / mW with Agilent 81000AF (direct coupled)				
9 For input power > 2 mW, add ± 0.004 dB / mW				
10 30°C for $> +20$ dBm input power				
11 For input power $> +10$ mW add:				
typ. ± 0.0016 dB / mW without Agilent 81000AF, or add ± 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.				