

Agilent N4156A High Performance Measurement Solution Specifications (all specifications are typical at 95% confidence level)

The specifications given in this section are valid after warm-up, at the stated operating conditions and measurement settings, at uninterrupted line voltage, and after following the wavelength calibration and adjustment procedure and the loss reference measurements (IL,PDL) described in the Operating Guide.

	Technical Specifications		
Required instruments and options	N4156A High Performance Measurement Solution, consisting of: 8164B Lightwave Measurement System (mainframe); 81640B or 81680B Tunable Laser module, #072 angled connector interface; One or more 81634B Power Sensor(s); Matching connector interfaces and adapters.		
Minimum System Requirements	Pentium III, min. 300 MHz (recommended: 800 MHz); min. 64 Mbyte RAM (recommended: 256 Mbyte); min. 30 Mbyte free hard disk space; Windows NT 4.0 SP 5; or Windows 2000 SP 1; Internet Explorer 4 or later, installed to display the online help system; GPIB card, VISA compliant; VISA, latest revision recommended.		
Programming interface	Agilent VEE, National Instruments LabVIEW and LabWindows: C, C++, VisualBasic		
VISA layer	Agilent, Hewlett-Packard, or National Instruments VISA		
Wavelength range	<i>With 81640B Tunable Laser Module</i>	<i>With 81680B Tunable Laser Module</i>	
	1520 nm to 1620 nm	1460 nm to 1560 nm	
Wavelength resolution	0.5 pm; equivalent to 62.5 MHz at 1550 nm		
Absolute wavelength uncertainty (typ.) [1]	<i>With 81640B Tunable Laser Module</i>	<i>With 81680B Tunable Laser Module</i>	
	±1.0 pm	±1.2 pm	
Relative wavelength uncertainty (typ.) [1]	<i>With 81640B Tunable Laser Module</i>	<i>With 81680B Tunable Laser Module</i>	
	±0.6 pm	±0.8 pm	
Wavelength repeatability (typ.) [1]	±0.1 pm		
Loss range (typ.) [2]	≥75 dB (3 sweeps)		
	≥60 dB (2 sweeps)		
	≥35 dB (1 sweep)		
Operating conditions	ambient temperature 20°C to 30°C, constant ±1 K relative humidity < 80%, non-condensing		
Warm-up time	1 hour		
	Insertion loss 0 dB < IL ≤ 10 dB PDL _{Device} ≤ 0.4 dB	Insertion loss 10 dB < IL ≤ 35 dB PDL _{Device} ≤ 1 dB	Insertion loss 35 dB < IL ≤ 55 dB PDL _{Device} ≤ 1 dB
Number of sweeps	1	2	3
Relative insertion loss uncertainty (typ.) [3] [4]	±0.020 dB	±0.020 dB	±0.035 dB
Polarization dependent loss (PDL) uncertainty (typ.) [3] [4]	<i>With 81640B Tunable Laser Module</i>	<i>With 81680B Tunable Laser Module</i>	<i>With 81680B Tunable Laser Module</i>
	±(0.015 dB + 5%*PDL _{Device}) ±(0.020 dB + 5%*PDL _{Device})	±(0.025 dB + 5%*PDL _{Device}) ±(0.045 dB + 5%*PDL _{Device})	±(0.04 dB + 5%*PDL _{Device}) ±(0.08 dB + 5%*PDL _{Device})

[1] Wavelength range 1511-1563 nm ; sweep speed 5 nm/s, step size 1 pm ; power meter range ≥ - 50 dBm . Setup was calibrated against a wavecell prior to measurement. Wavecell is not part of the solution set-up.

[2] Source power set to -8.5 dBm ; power meter zeroing prior to measurement.

[3] Measurement settings as follows: 100 nm span (1520 nm – 1620 nm (81640B), 1460 nm – 1560 nm (81680B)); 2 pm step size ; 5 nm/s sweep speed ; coherence control off ; individual reference measurement for each power meter channel prior to measurement. Source power set to -8.5 dBm . Valid where spectral response is flat within a range of ±50 pm. For polarization dependent devices, the measurement result corresponds to the insertion loss for non polarized light.

[4] All optical patchcords and fibers fixed and settled for at least 3 minutes ; launch cable connected directly to power meter.