



428/438系列光通讯专用多波长计

特点：

- 波长测量精度可达 ± 0.3 nm
- 内置标准稳频HeNe激光器实现连续校准
- 测量置信水平 $\geq 99.7\%$ ，NIST可追溯
- 可以同时实现光功率测量，准确度可达 ± 0.5 dB
- 自动计算信噪
- 测试波长范围1270-1650 nm；1000-1680 nm，覆盖C、L、T、O光学波段
- 测量速率10 Hz
- 高灵敏度 -40 dBm (0.1 μ W)
- 可以用于测量连续激光器或者调制信号
- 测量速率可达1 kHz，时间分辨率1 ms
- 便捷的触摸屏显示测量数据
- 可采用USB、Ethernet、GPIB进行通讯
- 设计用于生产环境的坚实结构

428/438系列多波长计结合迈克尔逊干涉仪与快速傅里叶变换分析，实现波长、功率、信噪比的测量。具有精度高、测量速度快、操作简单、结构坚实的特色。438提供满足生产过程所需的高精度、可靠、高效的WDM波长测试。

技术参数

Model	428A	428B	438A	438B
Optical Signal	CW and modulated			
Wavelength Range	1270 – 1650 nm (182 – 236 THz)		Option -001: 1270 – 1680 nm (179 – 236 THz) Option -002: 1000 – 1680 nm (179 – 300 THz)	
Wavelength Accuracy ^{1,2,3}	± 0.2 parts per million (± 0.3 nm at 1550 nm)	± 0.65 parts per million (± 1.0 nm at 1550 nm)	± 0.2 parts per million (± 0.3 nm at 1550 nm)	± 0.65 parts per million (± 1.0 nm at 1550 nm)
Minimum Resolvable Separation ^{3,4}	10 GHz (equal power lines input)			
Calibration	Continuous - built-in stabilized single-frequency HeNe laser	Continuous - built-in standard HeNe laser	Continuous - built-in stabilized single-frequency HeNe laser	Continuous - built-in standard HeNe laser
Units ⁵	nm, cm^{-1} , Thz			
Power Calibration Accuracy	± 0.5 dB (± 30 nm from 1310 and 1550 nm)			
Power Units	dBm, mW, μ W			
Signal-to-noise ratio ^{4,6}	> 40 dB (100 averages), ≥ 100 GHz channel spacing > 35 dB (100 averages), ≥ 50 GHz channel spacing			
Sensitivity				
Single line input	-40 dBm (1270 – 1600 nm), -30 dBm (1600 – 1650 nm)		-40 dBm (1270 – 1600 nm), -35 dBm (1000 – 1270 nm),	
Multiple lines input ⁴	30 dB below total input power, but not less than single line input sensitivity		-30 dBm (1600 – 1650 nm)	
Maximum Number of Lines ⁷	1000			
Measurement Rate (Time)	4 Hz (0.25 S)		10 Hz (0.1 S)	
Data Measurement Mode	Single channel, list by wavelength table, list by power table			
Delta Measurement Mode	Delta wavelengths from ITU grid, delta wavelengths and powers from reference channel			
Drift Measurement Mode	Maximum, minimum, delta (max-min) of wavelengths and powers over time Current, start, drift (current-start) of wavelengths and powers over time			
Optical Input	9/125 μ m single-mode fiber (FC/UPC or FC/APC)			
Instrument Interface	Library of commands (SCPI) via USB 2.0, Ethernet, and optional GPIB			

1. Defined as measurement uncertainty, or maximum wavelength error, using a coverage factor of 3 providing a confidence level of $\geq 99.7\%$.

2. Traceable to an NIST standard (SRM 2517a).

3. For multi-wavelength measurement, ≥ 15 GHz channel separation is required to achieve specified wavelength accuracy.

4. Characteristic performance, but non-warranted.

5. Data in units of nm and cm^{-1} are given as vacuum values.

6. For lines above -25 dBm, 0.1 nm noise bandwidth.

7. OSNR is reduced as the number of lines is increased.