

WS500HS Spectral Attenuation, MFD, A_{eff} Cutoff & NA

NEW



- Fully IEC, TIA & ITU compliant., all measurements use the IEC 'Reference' test methods.
- High Speed Attenuation in 20 seconds*¹ using the 'IEC Reference' Cutback method..
- High Speed MFD/ A_{eff} & optional NA by the 'IEC Reference' Far Field Scan method in 20 seconds*².
- High Speed Cutoff by the 'IEC Reference' Single mode Bend & the alternative Multimode reference methods in 10 seconds*³.
- True high dynamic range Attenuation measurement(50dB snr=1), measures up to 35dB loss.
- New operating software 'PEcon' is Windows 7™, Windows 8™ and Windows 10™ compatible using Desktop/Laptop/Tablet PC.
- LED Light sources for ultra Stable power and long service free life..
- Solid State Monochromators for Long service free life with and high accuracy, stable and hysteresis free wavelength setting.
- Single Mode launch for Attenuation and MFD allowing more accurate testing of G657 b3 fibers.

Continued innovation and investment at **PE.fiberoptics** has yielded yet another major improvement in the series of Attenuation MFD & cutoff measurement systems that began with the WS400 and happily continues with the WS500HS.

New from-the-ground-up DSP and detection technology reduces measurement noise and greatly improves measurement speed.

All internal modular subassemblies employ TWI/ I²C and RS485 technology, enabling comprehensive control over every aspect of system operation including temperatures and resulting in greatly enhanced stability.

Considerable investment has been made in the programming to control the system. **PE.fiberoptics'** latest controller package 'PEcon' has been built on the Microsoft® .Net Framework which has resulted in an all-new software package that maintains our philosophy of simplicity, stability and user friendliness, whilst adding powerful features such as an all-new Report Designer.

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WS500/WS500-MFD-NA Configuration Specifications

Description	System for Spectral Attenuation, Cutoff Wavelength, Mode Field Diameter and Numerical Aperture measurement in Single Mode and Multimode mode fiber, components and cables. Configured as Main Unit and control PC for laboratory and factory measurements. System measurement options as configured at time of order.
Measurement Methods	IEC 60793-1-40/43/44/45 IEC 60794 TIA-455 FOTP-80/178/191 ITU-T G.650

Attenuation	Fiber Interface	Light Sources	Detector	λ Selection
	Singlemode bare fiber launch using Piezo optimised FiberCell™	Thermally Stabilised LED's, 1310nm & 1550nm (1400nm optional)	Cooled InGaAs PIN diode, followed by DSP Lock-in	(SSM) Solid State Monochromator

Cutoff	Fiber Interface	Light Sources	Detector	λ Selection
	Multimode bare fiber launch using FiberCell™	Tungsten Lamp	Cooled InGaAs PIN diode, followed by DSP Lock-in	(SSM) Solid State Monochromator

Mode Field Diameter	Fiber Interface	Light Sources	Detector	λ Selection
	Singlemode Bare Fiber launch using Piezo optimised FiberCell™	Thermally Stabilised LED's, 1310nm & 1550nm (other wavelengths optional)	Small-area InGaAs PIN diode, followed by DSP Lock-in	(SSM) Solid State Monochromator

Numerical Aperture	Fiber Interface	Light Sources	Detector	λ Selection
	Bare Fiber using FiberCell-Lite-M™	Thermally Stabilised LED, 850nm	Small-area InGaAs PIN diode, followed by DSP Lock-in	Full spectrum LED

Preliminary Specifications

WS500/WS500-MFD-NA Measurement Specifications

	Attenuation	Cutoff	MFD, Aeff	optional NA
Wavelength Range	1150nm to 1650nm <small>(best specs achieved at 1310nm ± 25nm & 1550nm ± 25nm)</small>	1000nm to 1650nm	1150nm to 1650nm <small>(best specs achieved at 1310nm ± 25nm & 1550nm ± 25nm)</small>	850nm
Spectral Width	<4nm	<10nm	<4nm	<100nm
Wavelength Accuracy	<0.5nm	<0.5nm	<0.5nm	NA
Scan increment _(min)	0.001nm	0.001nm	0.0025°	0.0025°
Far Field Scan Range	NA	NA	up to 0.5NA <small>(0.8NA optional)</small>	up to 0.5NA
Dynamic Range <small>(SNR=1)</small>	50dB	35dB	50dB	30dB
Absolute Accuracy/ Uncertainty***	± 0.03dB/dB	± 10nm	± 2%	± 0.01
Repeatability _{(1σ_(n-1))}	0.03dB _(loss<3dB)	<10nm	≤0.05μm	≤0.005

Environmental & Physical Characteristics

Operating range	Storage range
+10 to +35°C, 0 to 80% RH <small>(non condensing)</small>	+10 to +55°C, 0 to 80% RH <small>(non condensing)</small>

Dimensions	Weight
150cm x 49cm x 49cm <small>(includes additional width fiber table) (configuration dependant)</small>	35kg approx <small>(configuration dependant)</small>

Power Requirements
+10 to +35°C, 0 to 80% RH <small>(non condensing)</small>

*1 40 wavelengths. Time quoted is total for long and cutback scans.

*2 Time quoted is per wavelength.

*3 Single scan using multimode reference method.

*** Accuracies/uncertainties are quoted when directly calibrated with NPL standard.

Where transfer standards are used in the field, accuracies/uncertainties will be based on the expended uncertainty principle which will be calculated at the time of recalibration.

note:

All times quoted are typical and approximate and may vary according to individual measurement settings.

All times quoted refer to scanning/data acquisition only.

Sample handling and preparation times are not included.

Ordering information

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|----|----------|--|---|
| 1. | WS500MFD | Spectral Attenuation, Cutoff Wavelength and MFD measurement system (complete). | WS500 = Attenuation only.
WS500MFD = Attenuation, Cutoff & MFD |
| 2. | LC500 | Cutoff Wavelength measurement system. | SA500 = Attenuation only special system.*
LC500 = Cutoff wavelength only.
MA500 = Mode Field Diameter only.*
MA500HD = High performance MFD only.* |
| 3. | MA500 | Mode Field Diameter Measurement system. See MA500 datasheet. | * see separate data sheet. |

All specifications are typical based on systems using High power WS525 option and subject to improvement or modification without notice or obligation. Please refer to any formal offers for specification guarantees.

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This product complies with 21 CFR 1040.10 Class 1 LED product

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