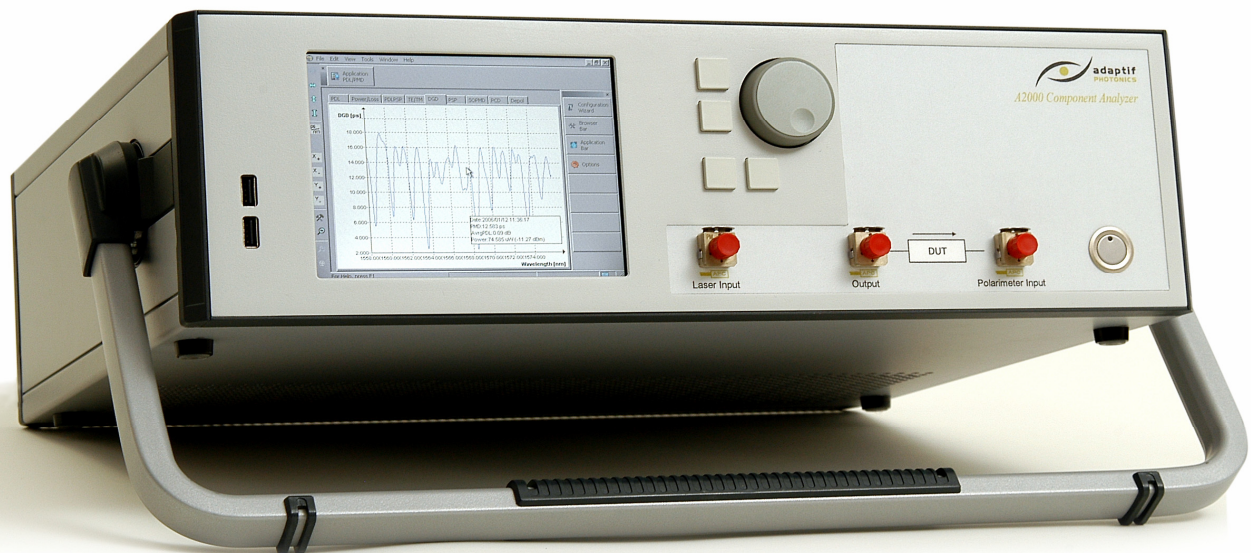


Swept Wavelength System



Next Generation Component Test

for R&D and Manufacturing

...PMD...DGD...PDL...Loss...2nd order PMD...Jones Matrices...Mueller Matrices...

Poincaré-Sphere



PMD / PDL / Loss - MEASUREMENT

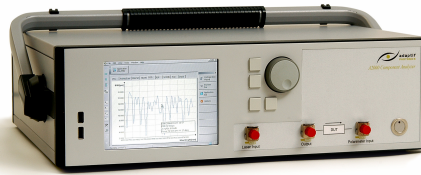
Adaptif PHOTONICS pushes the limits of component measurements with the proprietary technology which is implemented in the A2000. The technology is comparable with the well-known **Jones-Matrix-Eigenanalysis (JME)** which is the standard method for measuring Polarization Mode Dispersion (PMD) or differential group delay (DGD) of optical devices.

Compared to the JME, Adaptif's **single scan technology** offers a range of advantages:

- **A complete set of parameters:**
 - DGD / PMD
 - PDL
 - Power / Loss
 - TE / TM-Loss
 - 2nd-order PMD (Depolarization + PCD)
 - Principal States of Polarization (PSPs)
 - Jones Matrices
 - Mueller Matrices
- **Highest Accuracy** in a single sweep: no averaging over multiple sweeps required
- **High measurement speed:** Complete measurement across C/L-band in less than 10 seconds (no need to wait for many averages)
- **Robustness** against fiber movement / vibration and drift: Fixing fibers with sticky tape on the table or even operation on isolated optical table is not required!
- No limitation on optical path length of component

The **internal referencing scheme** guarantees reliable and accurate measurements!

Housing Options



A2000-B3/R3:
touch panel PC integrated
 B3: benchtop version with handle
 R3: rack mountable version



A2000-BT:
Compact Benchtop Version:
 external PC required



A2000-R2:
19" Rack mountable version:
 external PC required

Support of Tunable Laser Sources:

Adaptif Photonics provides a range of drivers for integration of various tunable laser sources in the measurement system:

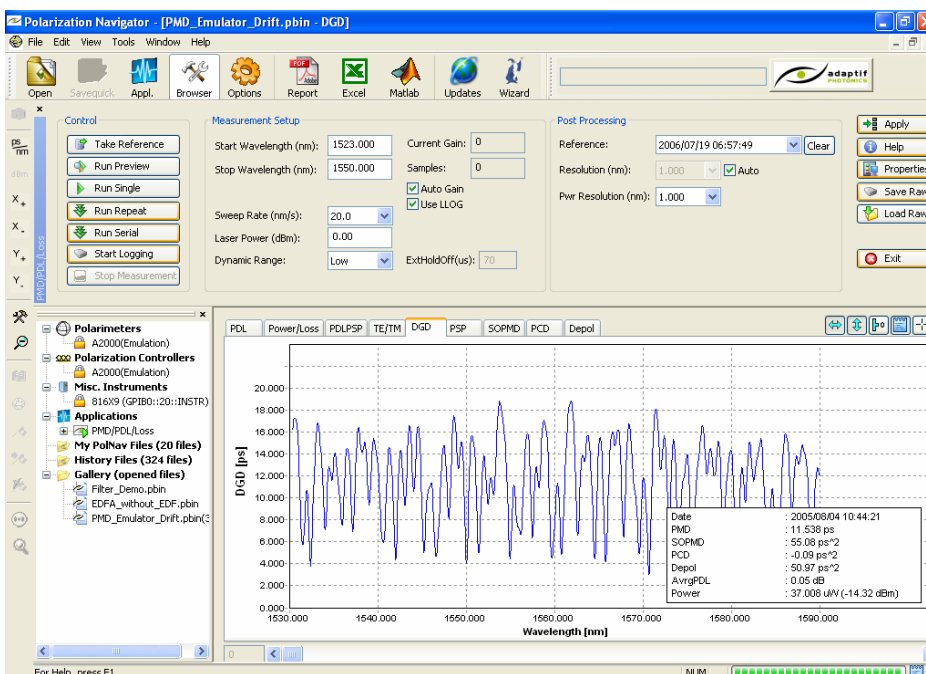
- Agilent 816XX / 819XX Series
- Anritsu / NetTest Tunics Series
- Yokogawa AQ4321, AQ2200-136
- NewFocus Velocity 6300 Series

Further drivers are in preparation!
 Talk to Adaptif Photonics about your requirements!

Application examples:

- Fiber characterization: SMF, PMF, DCF
- Passive component testing: filters, isolators, circulators
- Dynamic component / module testing: OADM / ROADM
- Active component testing: EDFAs, SOAs, VOAs
- Link test: In-Channel measurements across amplifiers

Application Software



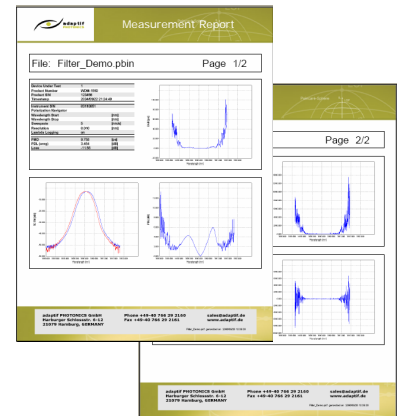
The **polarizationNAVIGATOR™** application software comes along with each instrument.

It runs directly on the instrument and can also be installed on additional computers for viewing and post-processing the data as well as for remote control of the instrument.

Manufacturing Applications

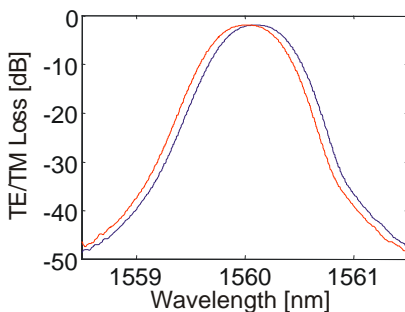
Designed for Operation on the Manufacturing Floor!

- High throughput:**
 A complete analysis across the C and the L band is performed in less than 10 seconds!
- Software Drivers:**
 A range of software drivers is available for external control of the system (LabView, VBA, Python, MATLAB). This allows easy integration in common ERP systems.
- Remote control:**
 Control of the instrument through LAN or via the Internet is supported. This supports automation as well as trouble shooting.
- Report Generation:**
 Generating PDF reports is supported. The content including layout is configurable by the user.
- Real time power readout:**
 High throughput measurement of non-connectorized components is supported by providing a real time power readout which enables fiber coupling of the new device
- Barcode Scanner:**
 Using Barcode scanner is supported for quick transfer of the DUT serial number (for example)



Measurement Examples

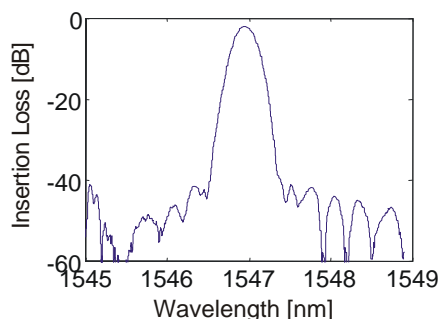
TE/TM Insertion Loss Function of an Optical Filter



Resolving TE/TM Insertion Loss

The TE/TM-function allows accurate determination of the minimum and maximum loss of the DUT at each wavelength. Due to birefringence, optical filters tend to show different transmission functions depending on the polarization state. As shown in the figure above, these functions are typically shifted in wavelength depending on the amount of birefringence.

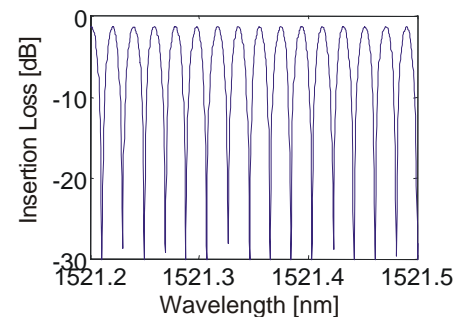
Sidelobes of an Optical Filter



Insertion Loss with High Dynamic

Particularly for characterizing optical filters, the high dynamic range of the A2000 allows accurate resolution of the filter's sidelobes. The internal reference path allows to measure insertion loss spectra with excellent accuracy minimizing the influence of the power characteristics of the tunable laser source.

2.5 GHz DPSK Demodulator



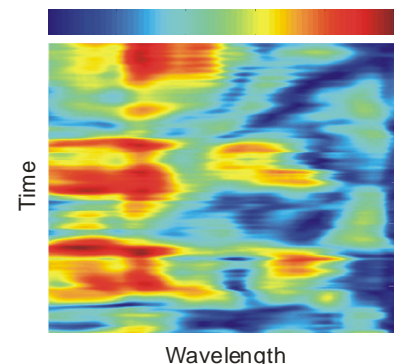
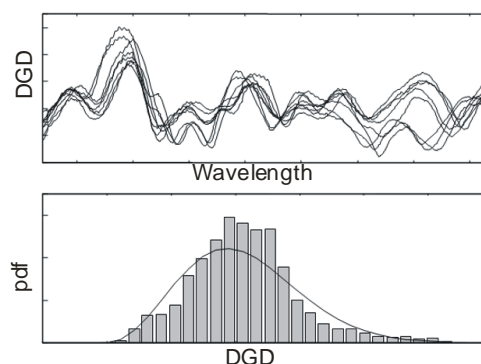
Excellent Spectral Resolution

Due to the excellent spectral resolution, the A2000 is best suited for intra-channel DGD/PDL characterization. The All-Parameter-JME algorithm allows flexible adjustments of the wavelength resolution without the need to repeat the measurement. This allows to easily find the optimum trade-off between PDL/DGD accuracy and wavelength resolution.

Long-Term Measurements

The capability of performing quick PMD-measurements makes this measurement system well-suited for collecting long-term PMD data. The polarization NAVIGATOR™ software allows to continuously collect the spectral PMD data and store it on the hard disc. The data can then be visualized as pseudo-color plot (see figure).

Long Term DGD Spectra of Installed Fiber Links DGD






Characteristics

Model		A2000			
Option		A2	B	C	D
Wavelength Operating Range ⁽¹⁾		950-1100nm	1260-1640nm		
Factory Calibration Range ⁽²⁾		980nm	1270-1375nm	1460-1620nm	1270-1375nm, 1460-1620nm
Wavelength	Resolution	50pm ⁽³⁾	1pm ⁽⁴⁾		
	Accuracy	100pm ⁽³⁾	15pm ⁽⁴⁾		
PMD ⁽⁵⁾	Range	0-200ps	0-1000ps		
	Accuracy	+/- (0.03ps + 2% of PMD value)			
PDL	Range	0-10dB			
	Accuracy	+/- (0.01dB + 4% of PDL value) ⁽⁶⁾			
Dynamic Range		>40dB	>57dB		
Input Power Range		-40...+10dBm	-50 dBm ... +7 dBm		
Optical Connectors		Adapter System (FC, SC, DIN, ST, LC, E2000), straight / angled			
Operating Temperature		+5°C ... +40°C			
Interfaces		Ethernet ⁽⁷⁾ , USB, GPIB, RS232			
Power		100 – 240 VAC, B3/R3: <100W; BT/R2: <40W			
Dimensions		B3/R3: 483 x 133.4 x 420mm ³ (19" wide, 5.25" high, 15.5" deep) B2: 483 x 89 x 316mm ³ (19" wide, 3.5" high, 12.4" deep) BT: 330 x 70 x 270mm ³ (12" wide, 2.75" high, 10.6" deep)			

- (1) The wavelength range for passive component test applications is determined by the overlap between the wavelength range of the tunable laser source and the wavelength range of the instrument.
- (2) Other factory calibration wavelength ranges on request
- (3) Typical values for operation with New Focus Velocity 6300 series tunable laser sources.
- (4) Valid for operation with Agilent family of tunable laser sources. Because wavelength accuracy is determined by the tunable laser, operation with other laser sources may result in different wavelength accuracy.
- (5) Average DGD value across 100nm wavelength range.
- (6) Valid for 1500nm to 1620nm
- (7) Ethernet Interface only available in housing option R3 / B3

Order Information

A2000 – H H – X – M – Y – Z

Housing	Wavelength Range	Connector Type	Laser Input Port	DUT Ports
BT: Benchtop 	A2: 950nm - 1100nm B: 1270nm - 1375nm C: 1460nm - 1620nm D: 1270nm - 1375nm and 1460nm - 1620nm	0: FC 1: Multipurpose Adapter If M=1: Please select the type of Adapter from: FC, SC, DIN, ST, LC, E2000	0: straight 1: angled	0: straight 1: angled
R2: 2U Rack Unit 				
B3: Benchtop 				
R3: 3U Rack Unit				

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