



OPTICAL FIBER MEASUREMENT SPECIALISTS



nPA-600

Refractive Index Profiler

The nPA-600 Refractive Index Profiler uses a modified refracted near-field technique to analyse a fiber end-face to determine the full 2D refractive index distribution.

The nPA-600 is the quick and easy way to get the Refractive Index data you need to verify your specialty fiber design and manufacturing processes. The nPA-600 comes with the nPA v4.0 software which improves measurement speed, enhances user experience, and enables greater measurement customisation possibilities. Its API allows the nPA-600 to integrate to users' systems seamlessly.

Optional software plug-ins enable new functionalities such as measuring the geometry of single-mode fibers, PM fibers, multi-core fibers and various parameters of bend-insensitive multimode (BIMM) fibers.



Measure fibers up to 600 μm



Measure refractive index profiles in seconds



Measure most standard and specialty fibers



Production ready software with optional plug-ins to enable new features

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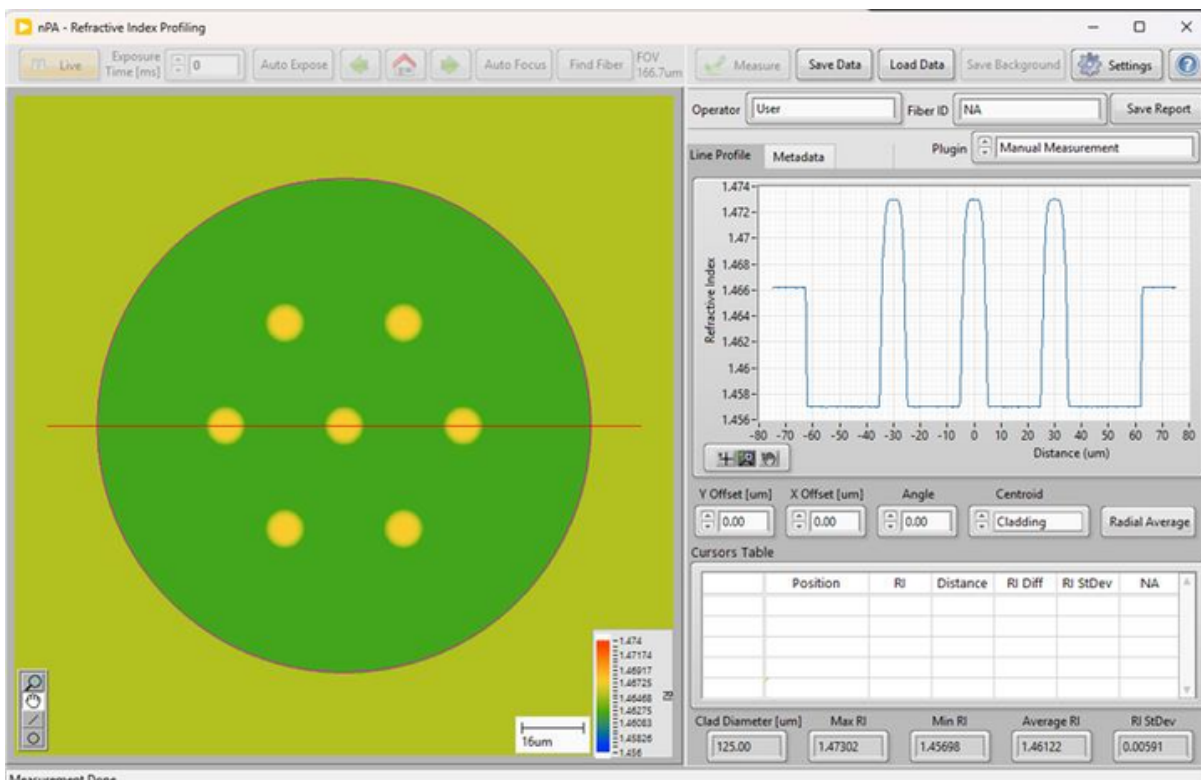
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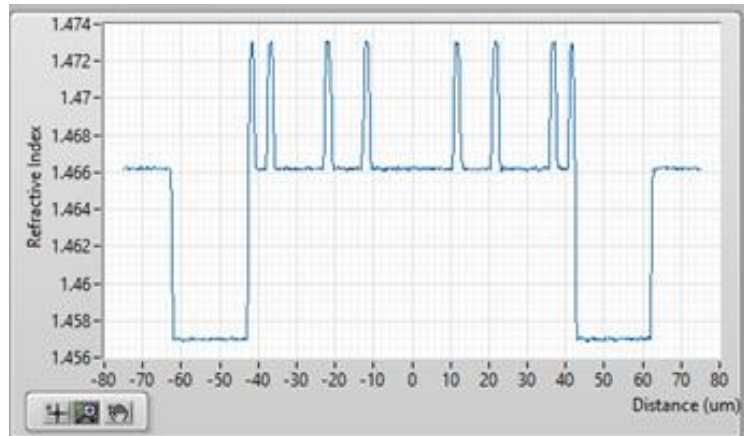
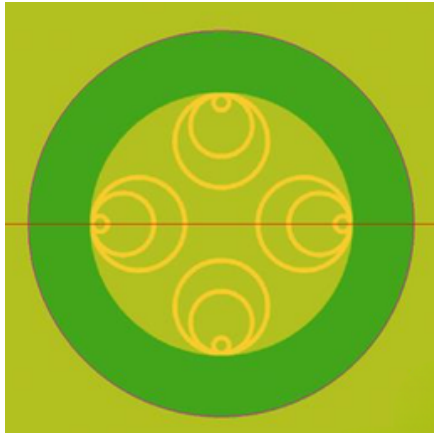
Features & Benefits

- Measure fibers up to 600 μm in diameter
- Prepare and measure a fiber sample in under 2 minutes (2D measurement in seconds)
- Measure circularly symmetric fibers and non-circularly symmetric fibers – good for PM, octagonal, multi-core fibers
- Preinstalled with production-ready nPA v4.0 software
 - User Experience enhancement: Various measurement options (refractive index scales, measurement areas) and output options (e.g. PDF measurement reports)
 - Faster measurement of smaller fibers
 - Customisable measurement template for easy comparison vs target values
 - API facilitates users customisation and integration with other systems
 - Optional software plug-ins enabling new functionalities
 - In-field traceable re-calibration enabled by the new calibration tool and the new optional calibration fiber certified by the National Physical Laboratory (NPL) and Arden, without having to send the instrument to Arden service centres.

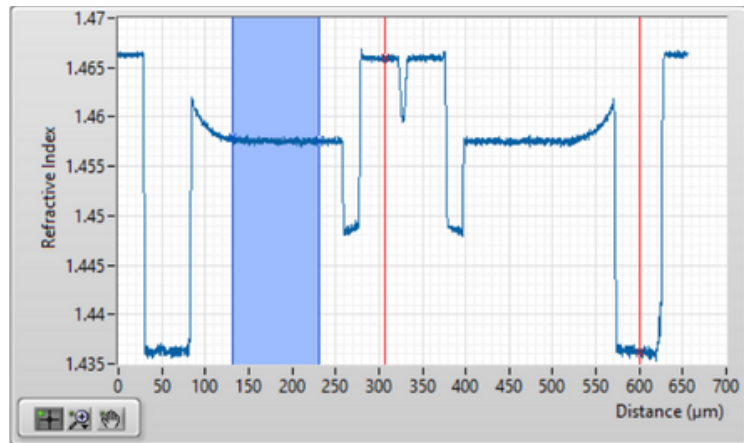
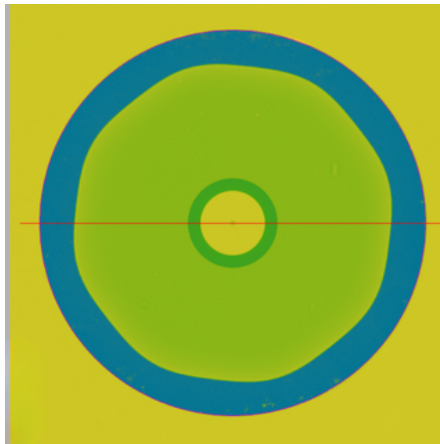


The nPA-600 with nPA 4.0 software measures fibers (multi-core fibers) up to 600 μm in diameter with customised measurement points and regions.

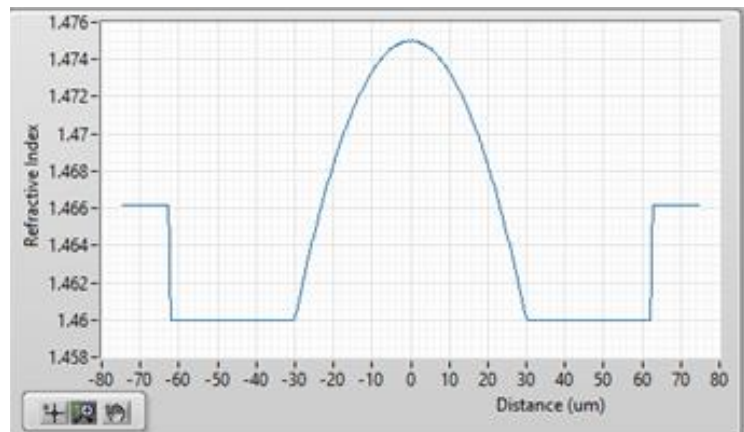
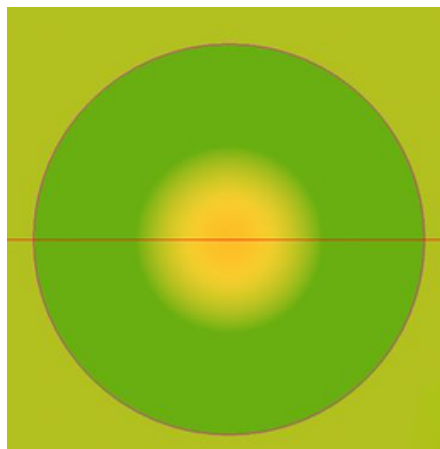
The nPA-600 measures most specialty fibers, such as



Nested Antiresonant Nodeless Fiber (NANF)



Octagonal fiber - for fiber laser applications



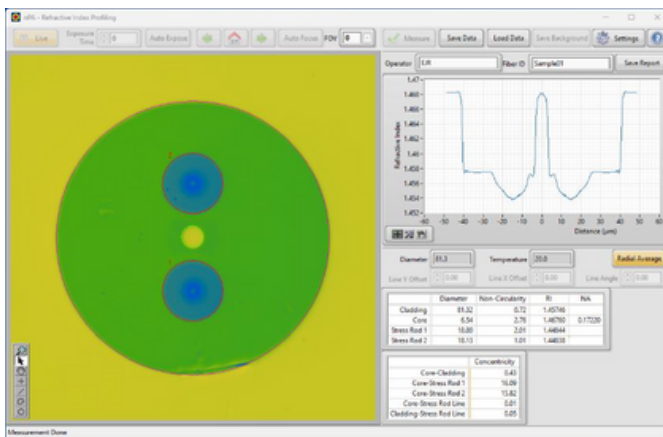
Graded index multimode fiber

Optional Software Plug-ins (Available from nPA 3.0 software onwards)

The optional plug-ins further extend the functionalities of nPA-600. Three optional plug-ins are available for measuring the RI & geometry of specialty fibers.

- nPA-SPI01 : measures the RI & geometry of Panda-style PM fibers, with cladding diameters 80 - 400 μm .
- nPA-SPI02 : measures the RI & geometry of single-mode fibers, with cladding diameter 80 - 400 μm .
- nPA-SPI03: measures the RI & geometry of BIMM fibers, with cladding diameter 125 μm .
- nPA-SPI04: measures the RI & geometry of Multicore Fiber, with cladding diameter 40 - 600 μm

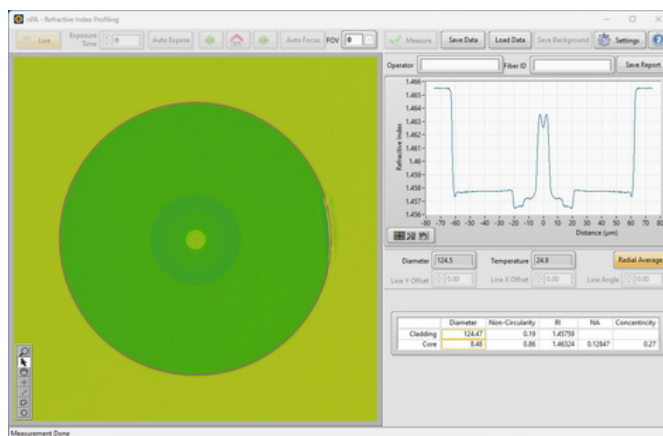
PM fiber measurement using SPI-01 plug-in



Measured values:

- Cladding – diameter, non-circularity, average refractive index
- Core – diameter, non-circularity, average refractive index
- Stress Rods – diameter, non-circularity, average refractive index
- Concentricity – core-clad, core-stress rod
- Stress Rod Line offset to core and cladding

Single mode fiber measured using SPI-02 plug-in



Measured values:

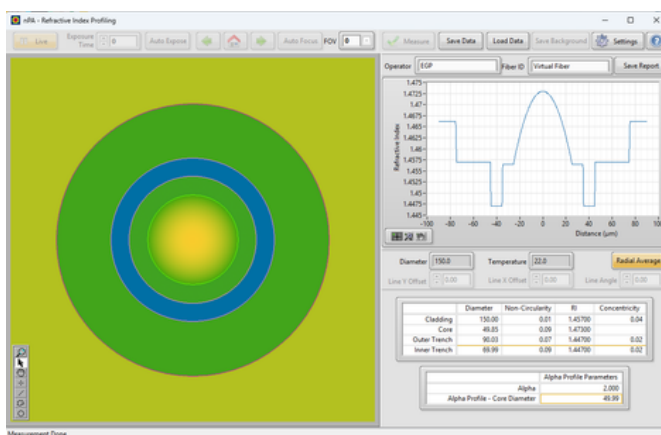
- Cladding – diameter, non-circularity, average refractive index
- Core – diameter, non-circularity, average refractive index
- Core-Clad Concentricity

Optional Software Plug-ins (Available from nPA 3.0 software onwards)

The optional plug-ins further extend the functionalities of nPA-600. Three optional plug-ins are available for measuring the RI & geometry of specialty fibers.

- nPA-SPI01 : measures the RI & geometry of Panda-style PM fibers, with cladding diameters 80 - 400 μm .
- nPA-SPI02 : measures the RI & geometry of single-mode fibers, with cladding diameter 80 - 400 μm .
- nPA-SPI03: measures the RI & geometry of BIMM fibers, with cladding diameter 125 μm .
- nPA-SPI04: measures the RI & geometry of Multicore Fiber, with cladding diameter 40 - 600 μm

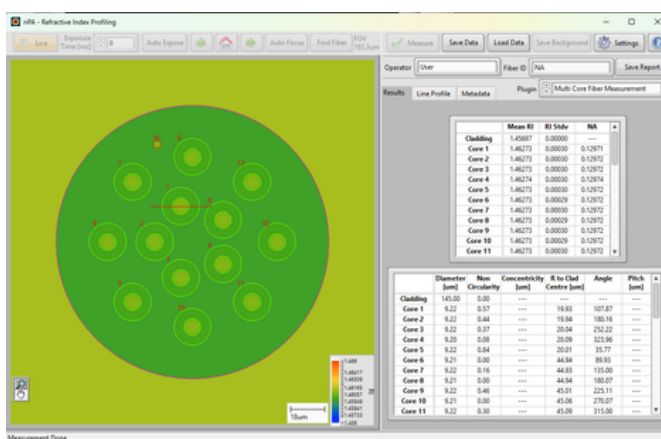
BIMM fiber measured using SPI-03 plug-in



Measured values:

- Cladding – diameter, non-circularity, average RI
- Core – diameter, non-circularity, peak RI used for alpha estimations
- Alpha index profile parameters: alpha, theoretical core diameter.
- Core-Clad Concentricity
- Trench – Inner and Outer Diameter, non-circularity, average RI
- Trench-Core Concentricity

Multi-core fiber measured using SPI-04 plug-in



Measured values:

- Cladding – diameter, non-circularity, average RI, RI standard deviation
- Core – diameter, non-circularity, peak RI, Trench/pedestal diameter, Trench/pedestal non-circularity, Trench/pedestal RI, Relative position – either cladding, central core, or average of cores as reference. Expressed as either X-Y or R- Θ .
- Marker - Relative position



nPA-600

Refractive Index Profiler

Technical Specifications

Measurement Capabilities	
Refractive Index Repeatability*	0.0002
Fiber Diameter	40 to 600 μm
Fiber Material	Silica glass
2D Measurement Time**	< 10 sec
Measurement Range***	+/- 0.025

*Repeatability is measured on a 125 μm MM fiber sample without removing from the measurement cell

** averaging 5 images

*** around reference fluid index

Optical	
Measurement Wavelength	630 nm
Maximum Field of View	830 μm

Physical	
Weight	6 kg
Size	0.5 m x 0.16 m x 0.13 m
Operating Temperature	15 – 30°C
Performance Specification	Validated at 22°C
Computer Requirements	All systems are supplied with a computer running up-to-date Windows operating system
Data Interface	1 X USB 3.0 (USB A to USB B: 1m cable supplied)



nPA-600

Refractive Index Profiler

Ordering Information

Part Number	Description
nPA-600	Optical Fiber Refractive Index Profiler for full 2D measurement of optical fibers with diameters between 40 μm and 600 μm . Including optical unit, nPA-IL-1.4680 refractive index liquid kit, nPA-CS100 set of cover slips, nPA-FTK-600 fiber test kit, nPA-CC rigid carrying case, nPA-F0270 and nPA-F0620 ferrule pins, cables, software package, APL-DC desktop computer, keyboard and mouse.

Plug-ins	Description
nPA-SPI01	nPA Software Plugin for measurement of RI and geometry of Panda-style PM Fibers
nPA-SPI02	nPA Software Plugin for measurement of RI and geometry of Single Mode Fibers
nPA-SPI03	nPA Software Plugin for measurement of RI and geometry of Bend Insensitive Multimode (BIMM) Fibers
nPA-SPI04	nPA Software Plugin for measurement of RI and geometry of Multicore Fiber

Ferrule Pins	Description
nPA-F0125	nPA Fiber guide assembly for optical fiber with outer diameter of up to 125 μm
nPA-F0160	nPA Fiber guide assembly for optical fiber with outer diameter of 125 – 160 μm
nPA-F0230	nPA Fiber guide assembly for optical fiber with outer diameter of 160 – 230 μm
nPA-F0270	nPA Fiber guide assembly for optical fiber with outer diameter of 230 – 270 μm
nPA-F0440	nPA Fiber guide assembly for optical fiber with outer diameter of 270 – 440 μm
nPA-F0520	nPA Fiber guide assembly for optical fiber with outer diameter of 440 – 520 μm
nPA-F0570	nPA Fiber guide assembly for optical fiber with outer diameter of 520 – 570 μm
nPA-F0620	nPA Fiber guide assembly for optical fiber with outer diameter of 570 – 620 μm



nPA-600

Refractive Index Profiler

Ordering Information

Optional Accessories	Description
nPA-IL-1.4680	Bottle of Immersion liquid, 10 ml, (Refractive Index = 1.4680, measured at 589 nm and 25°C) for refilling nPA measurement cell assembly, including syringes and nozzles
nPA-CP01	nPA Calibration Fiber
nPA-SOC	Replacement oil cell for nPA-600
nPA-CS100	Set of 100 replacement cover slips for use with nPA-600 oil cell
nPA-CC	nPA-600 rigid carrying case
nPA-600EW3	nPA-600 Refractive Index Profiler extended warranty covering parts and labour for 3 years from purchase, return to base.
nPA-600EW5	nPA-600 Refractive Index Profiler extended warranty covering parts and labour for 5 years from purchase, return to base.

For North American sales enquiries, call +1 727 504 8748 or email us on sales@ardenphotonics.com

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