



OPTICAL FIBER MEASUREMENT SPECIALISTS

# Characterising Specialty Fibers in the AI Age

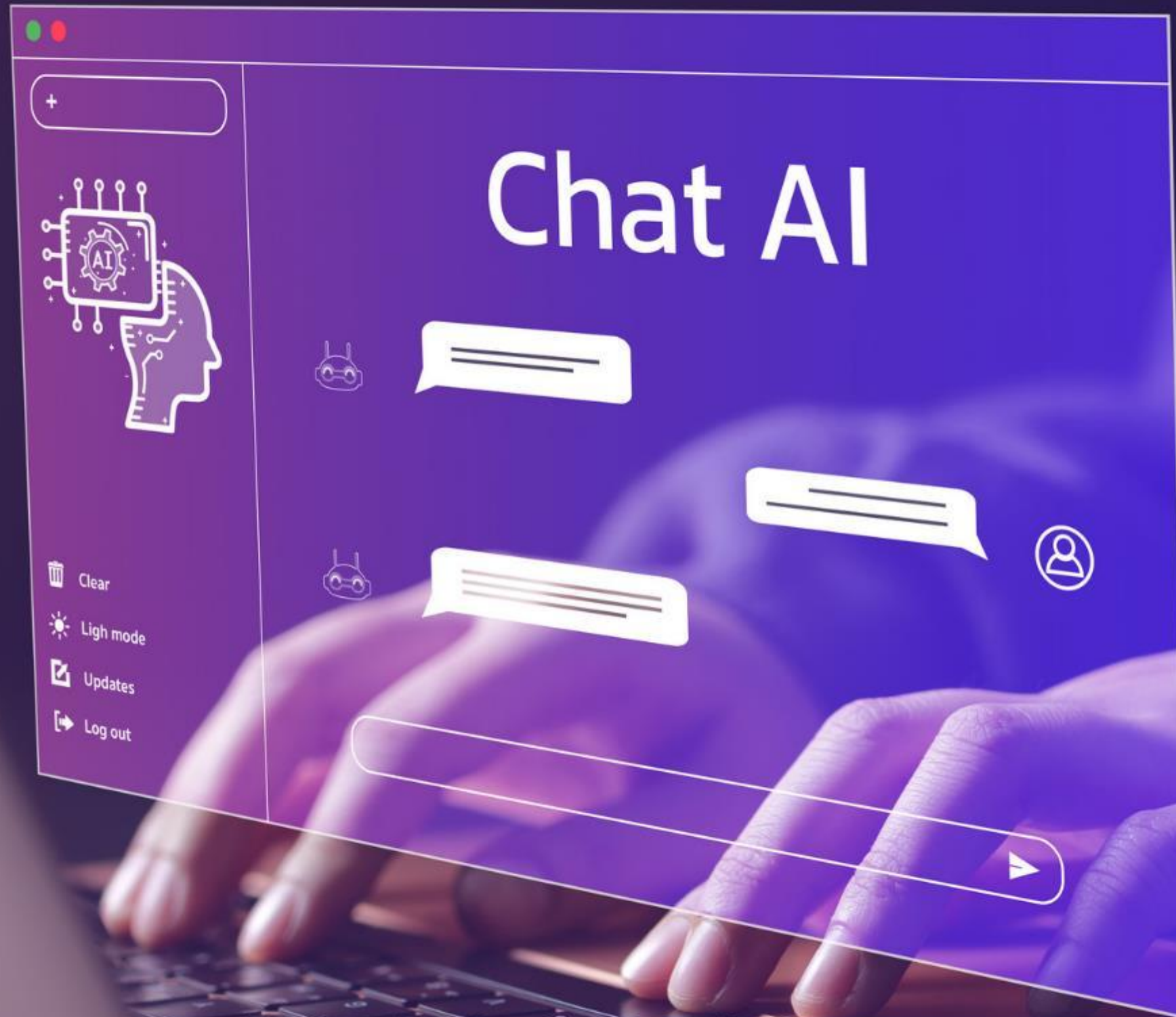
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David Robinson

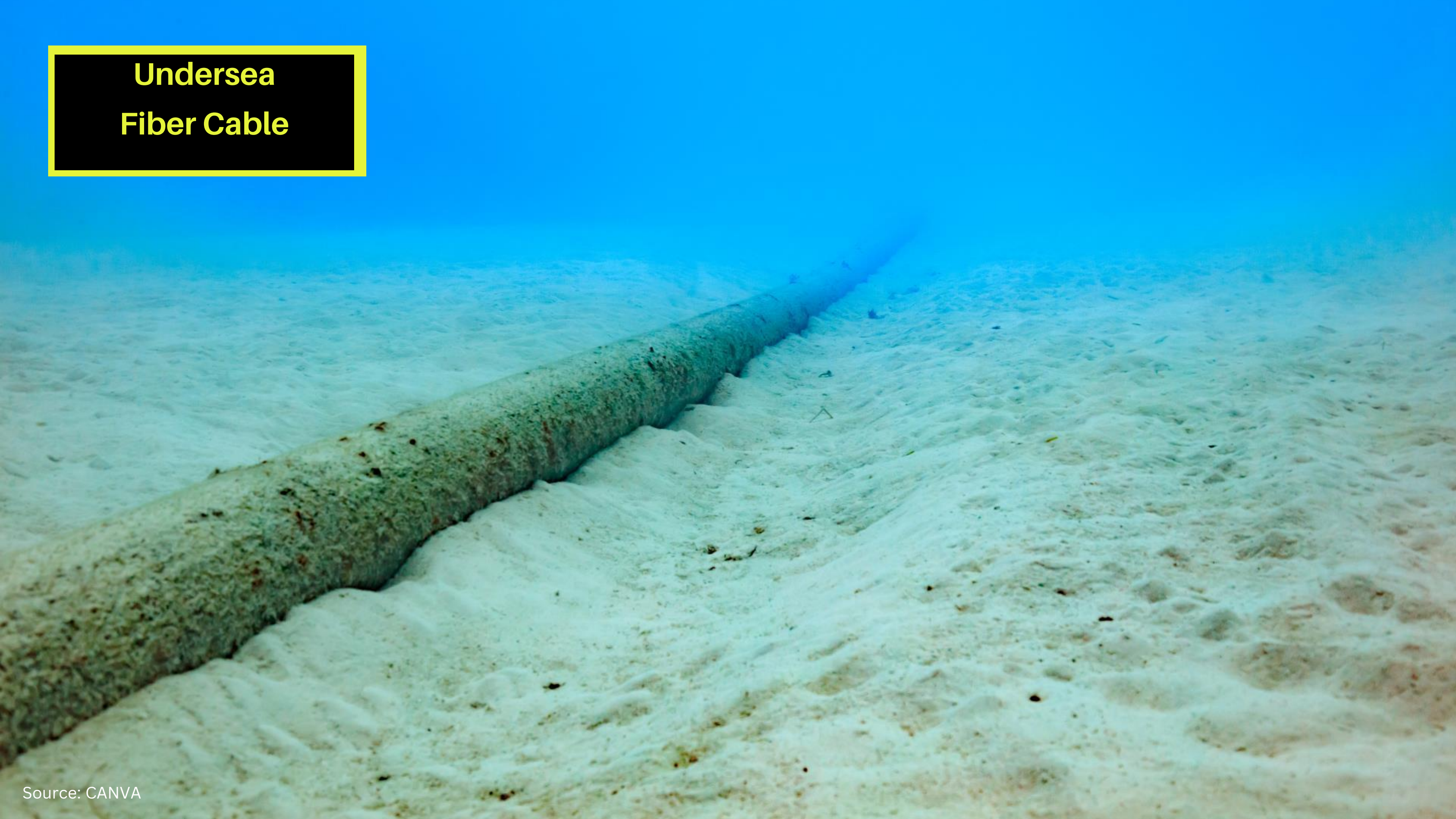
Founder and CEO, Arden Photonics

13 June 2024

# Artificial Intelligence



**Undersea  
Fiber Cable**



**Laser  
Cutting**

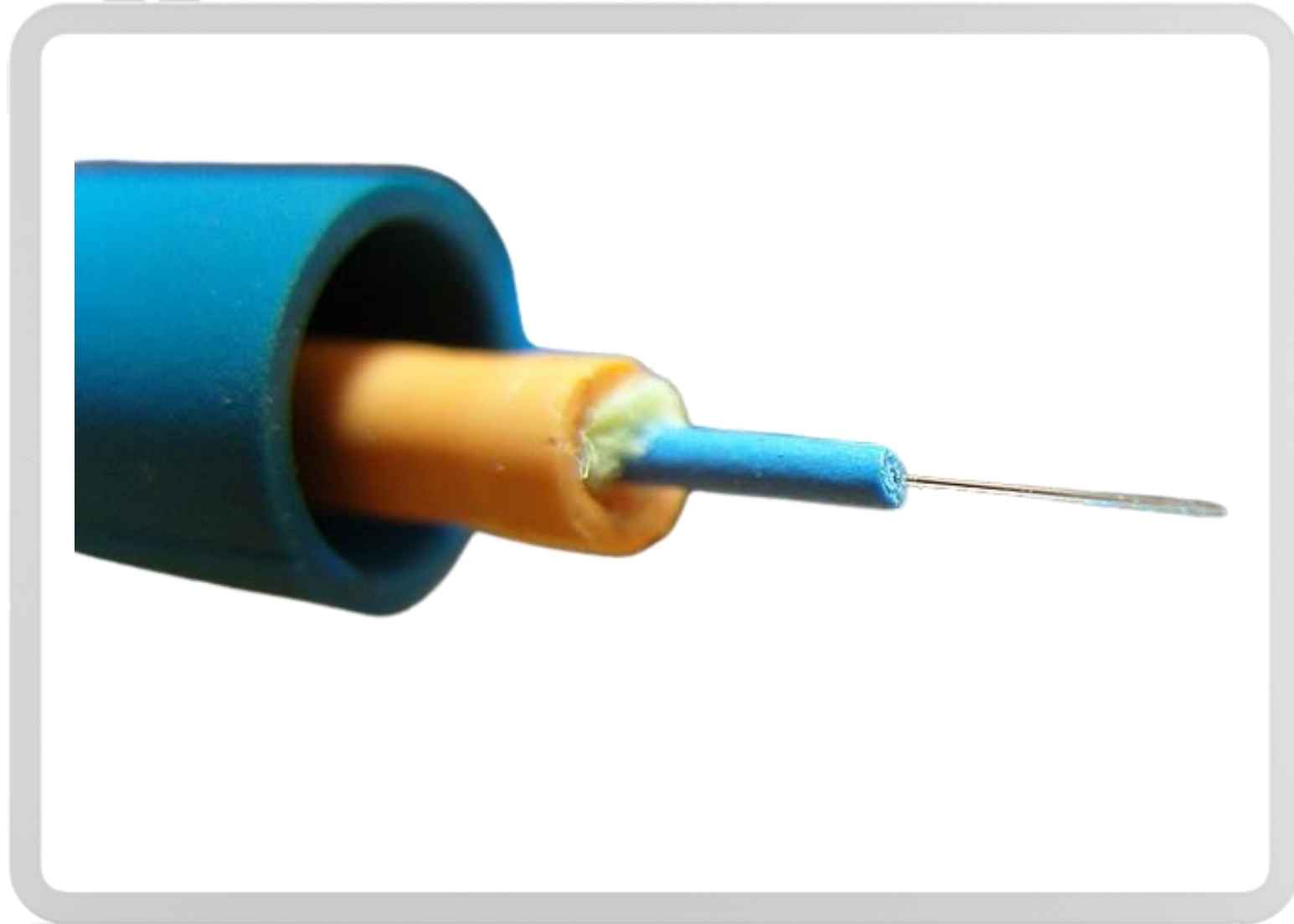


# Medical Imaging





# High speed multimode network



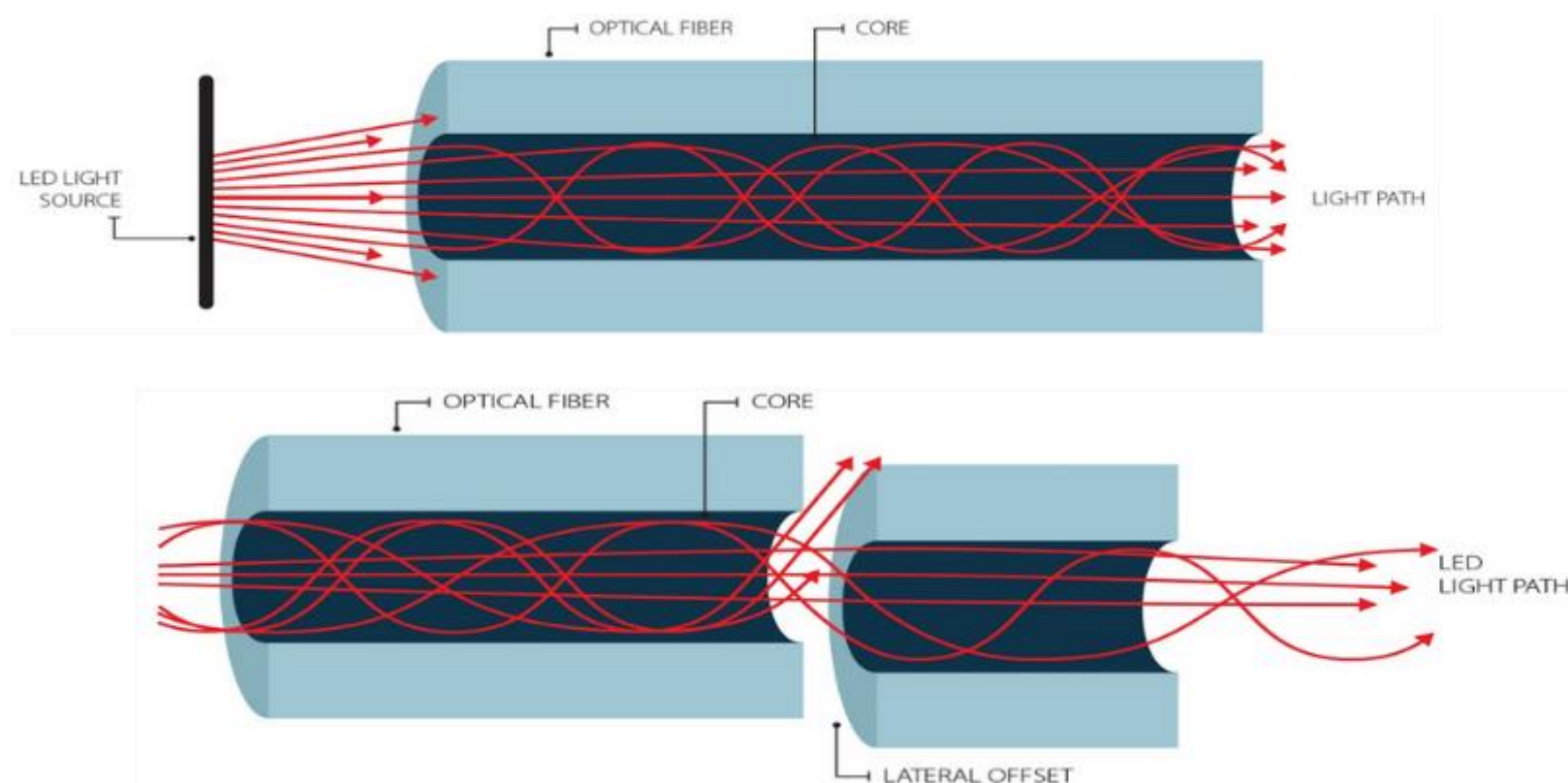
**Multimode Fiber**



**Multimode Transceiver**

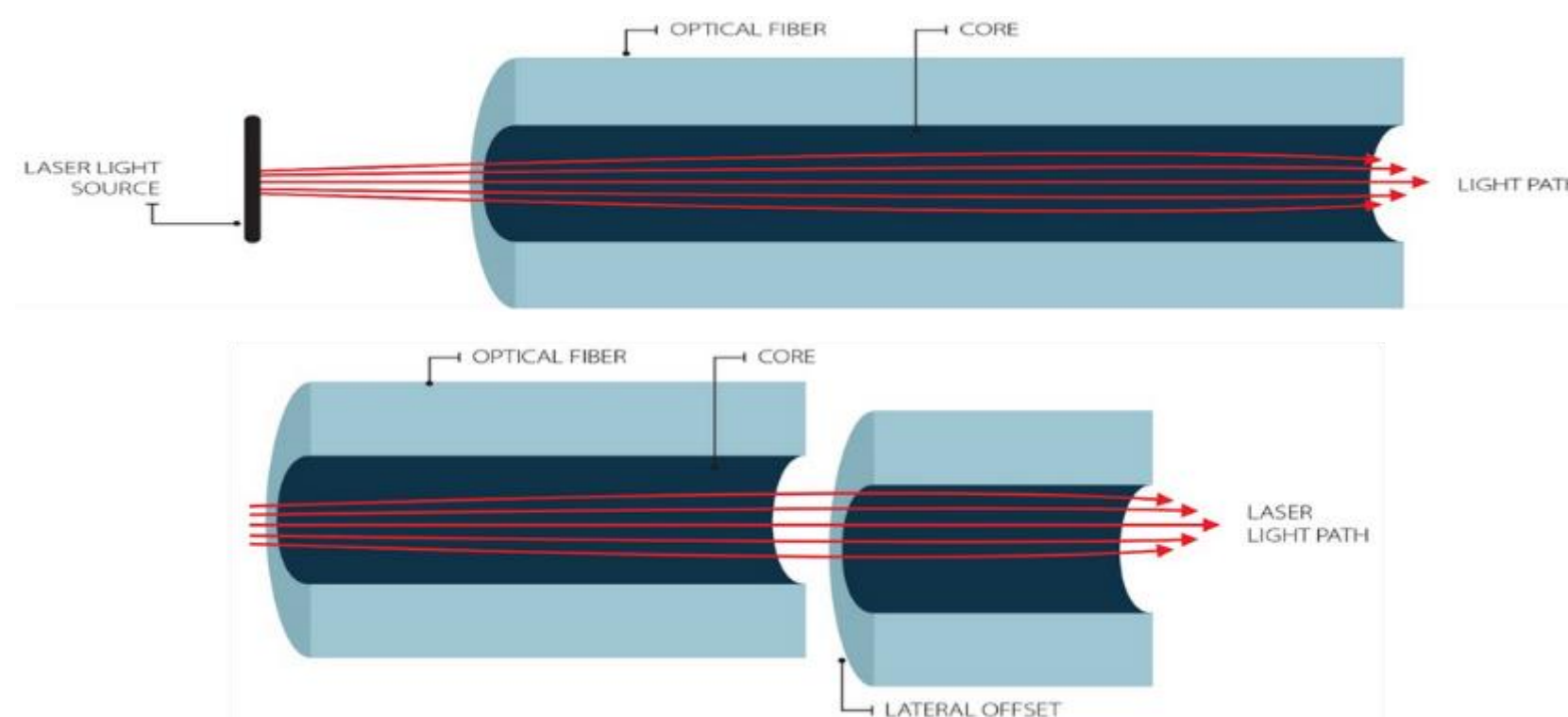
# Optimising multimode network - Encircled Flux (EF)

## Overfilled Launch



- Too much power put into higher order modes
- Unrealistically high loss values

## Underfilled Launch



- Too little power put into higher order modes
- Unrealistically low loss values



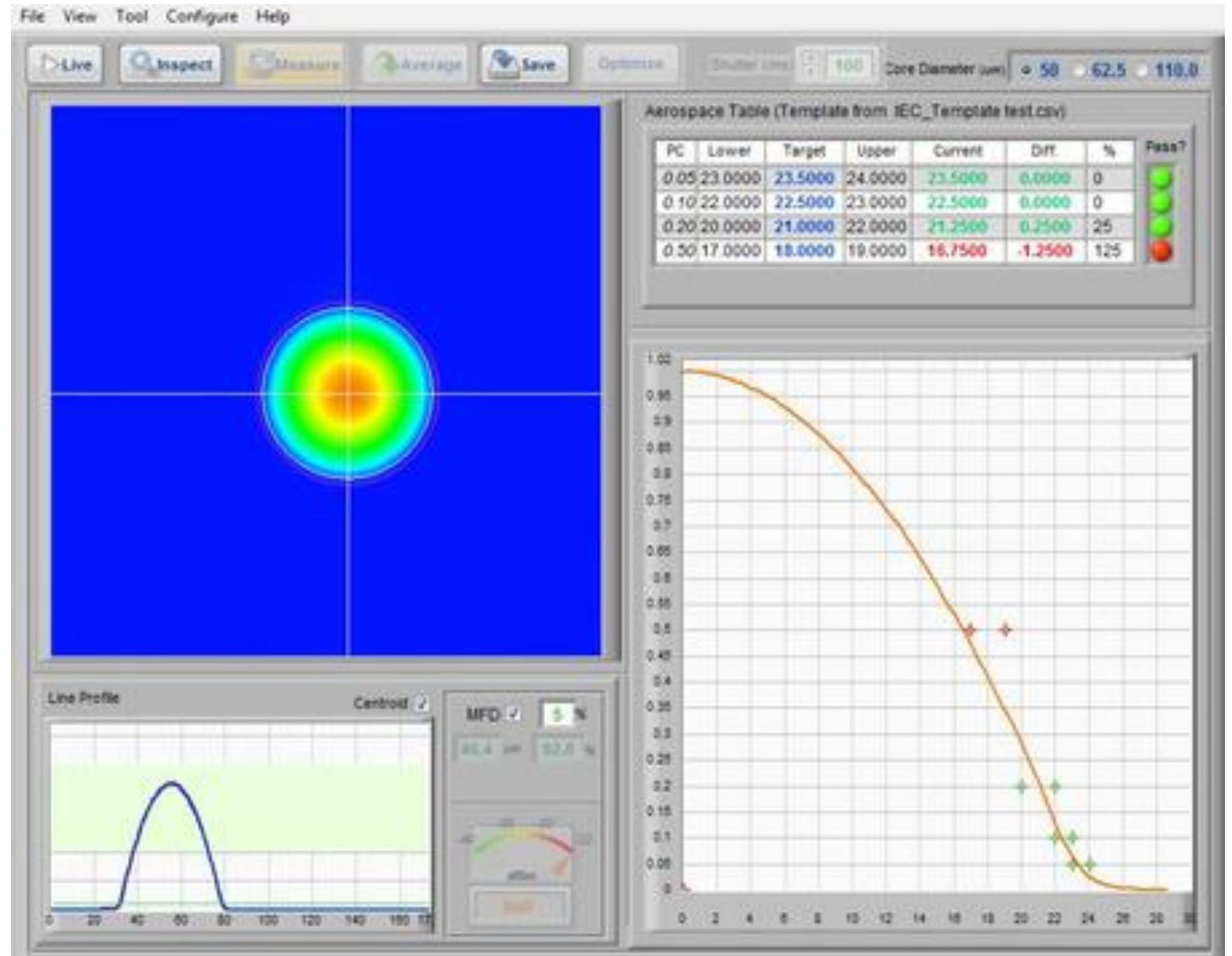
# Optimising multimode network - Encircled Flux (EF)

- Measurement of the distribution of power within the core of a multimode fiber
- The percentage of power within a given fiber core radius when light is launched by a transmitter into a multimode fiber

**Solutions:**

**EF Meter**

**Mode Controller**

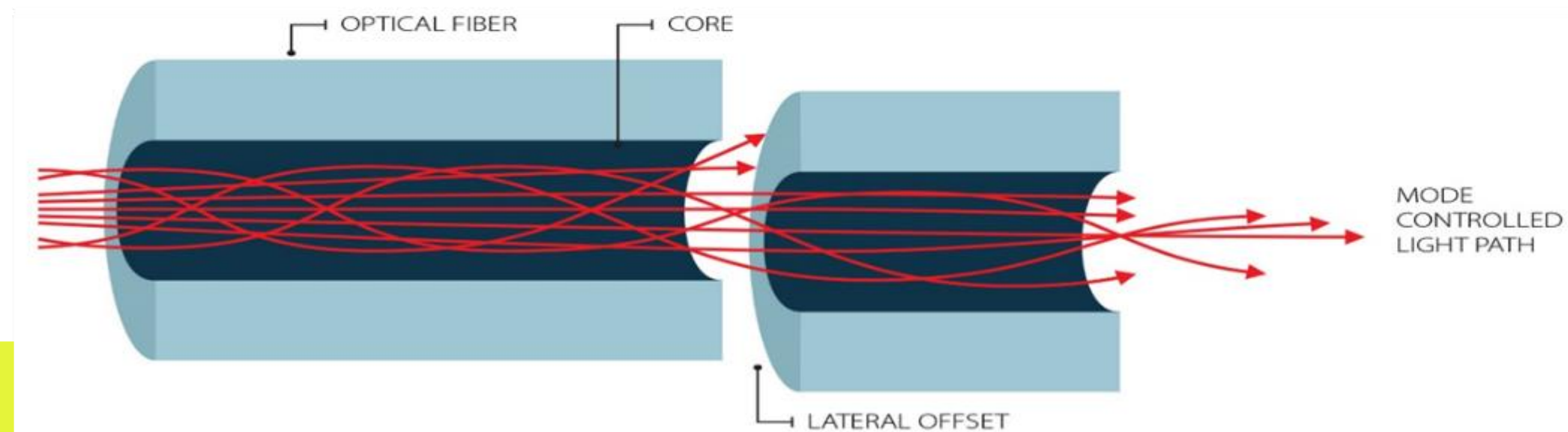
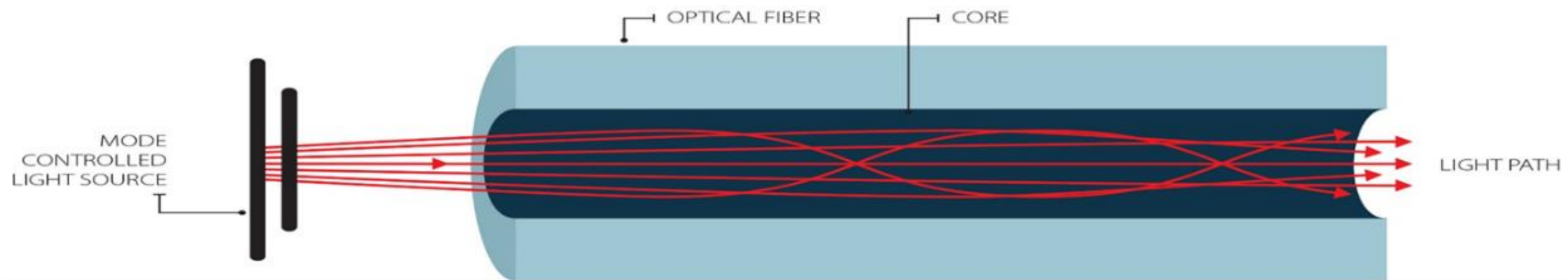






# Optimising multimode network - Encircled Flux (EF)

## An encircled flux compliant launch



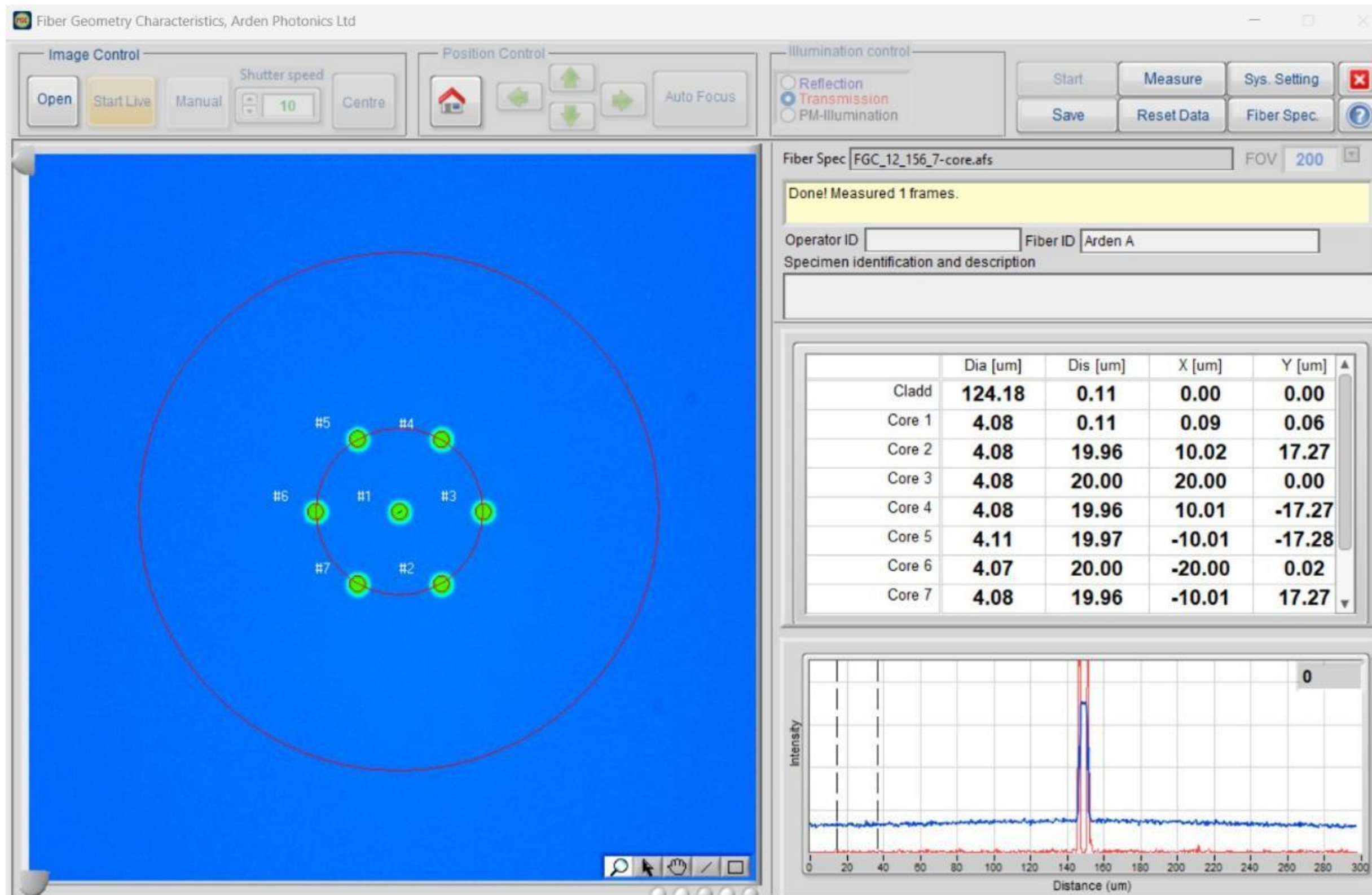
Improved Accuracy & Reliability

**Solutions:**  
**EF Meter**  
**Mode Controller**

Standardised amount of light into higher order modes



# Characterising Multicore Fibers - Fiber Geometry

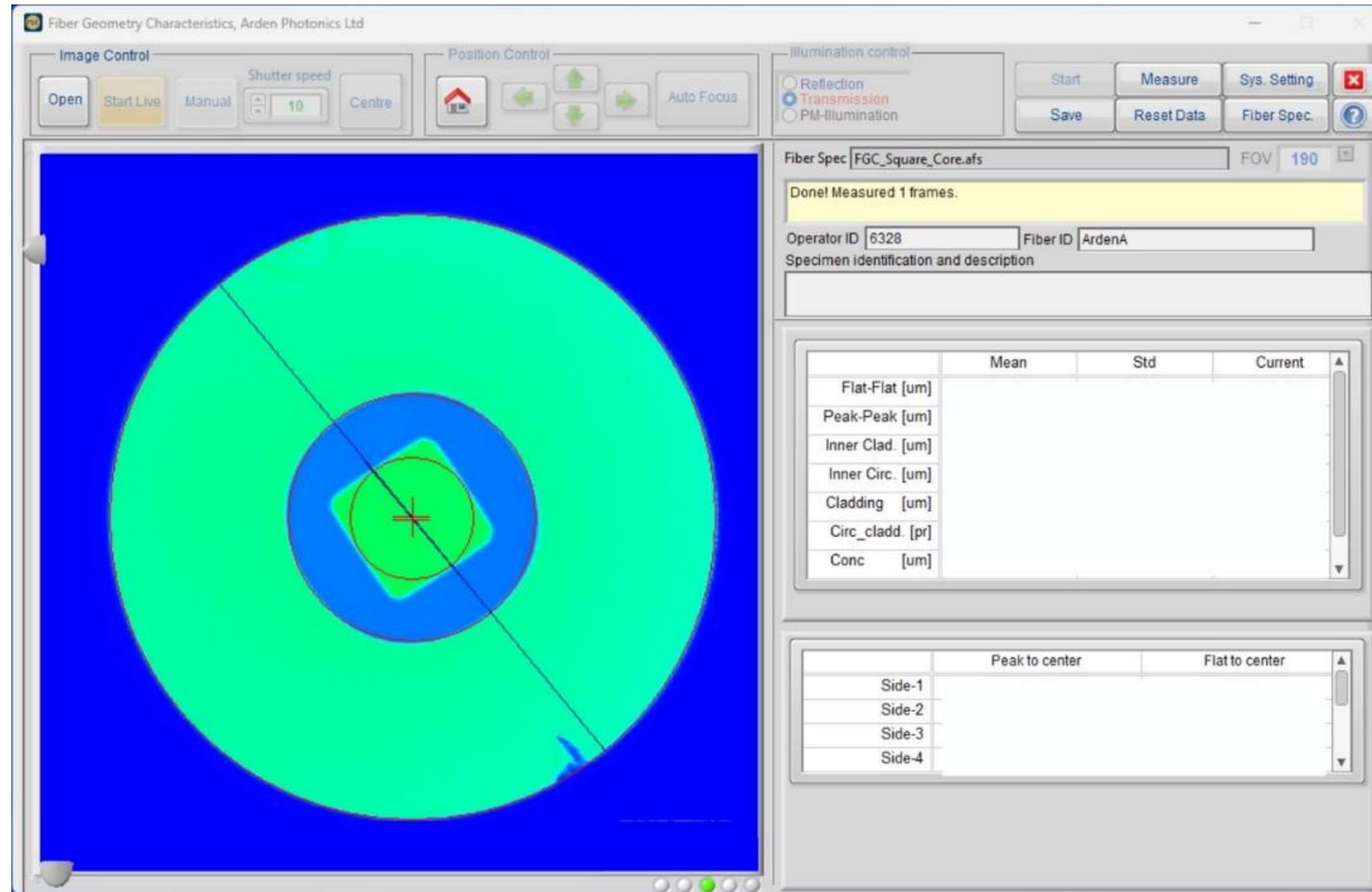


Essential for  
low-loss  
splicing

**Solution:  
Fiber Geometry**



# Characterising Square Core Fibers - Fiber Geometry

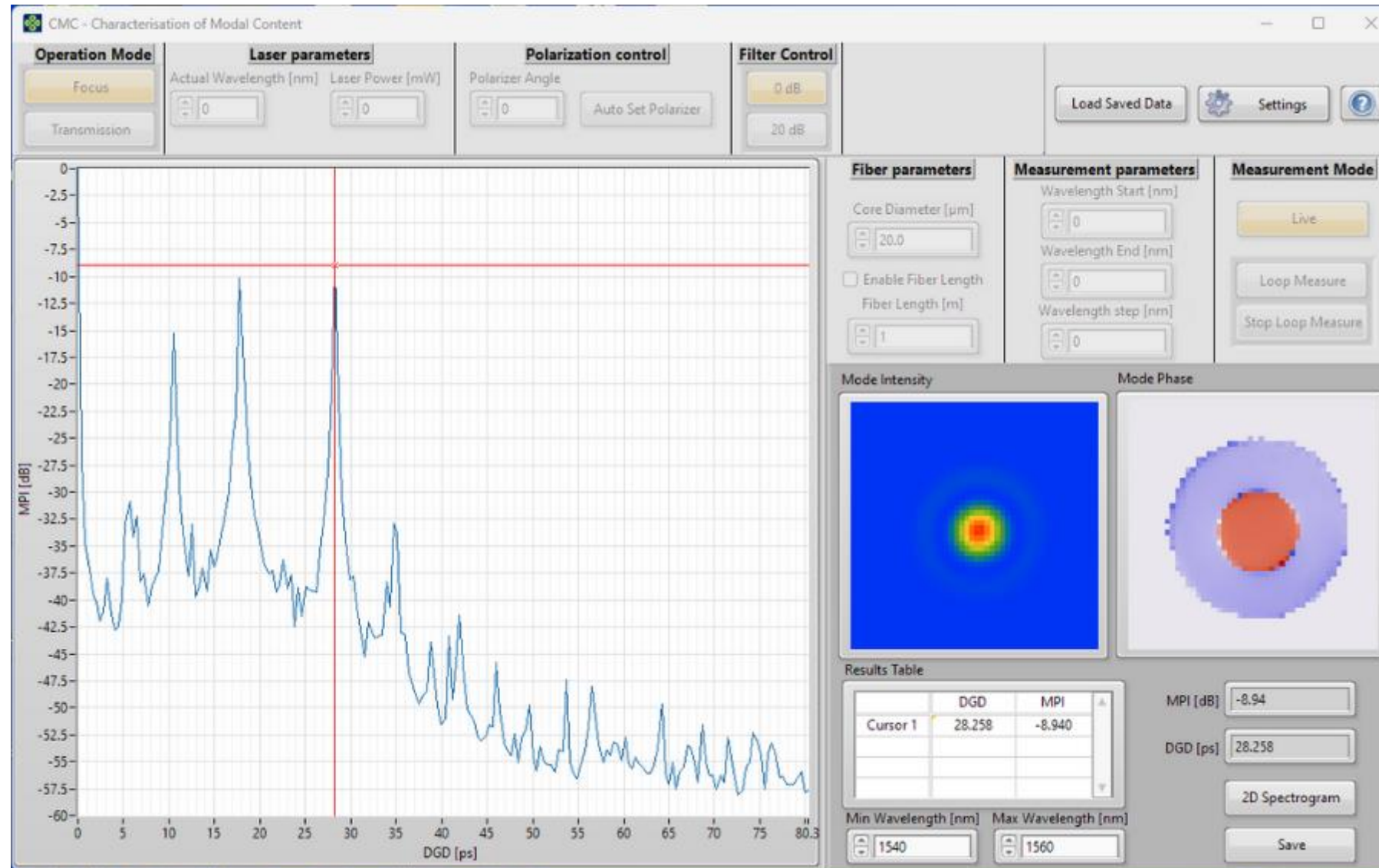


Medical  
Imaging /  
Laser  
Cutting

For the reason of confidentiality, the measurement data has been masked



# Characterising Few Modes Fibers and Hollow Core Fibers - Modal Content



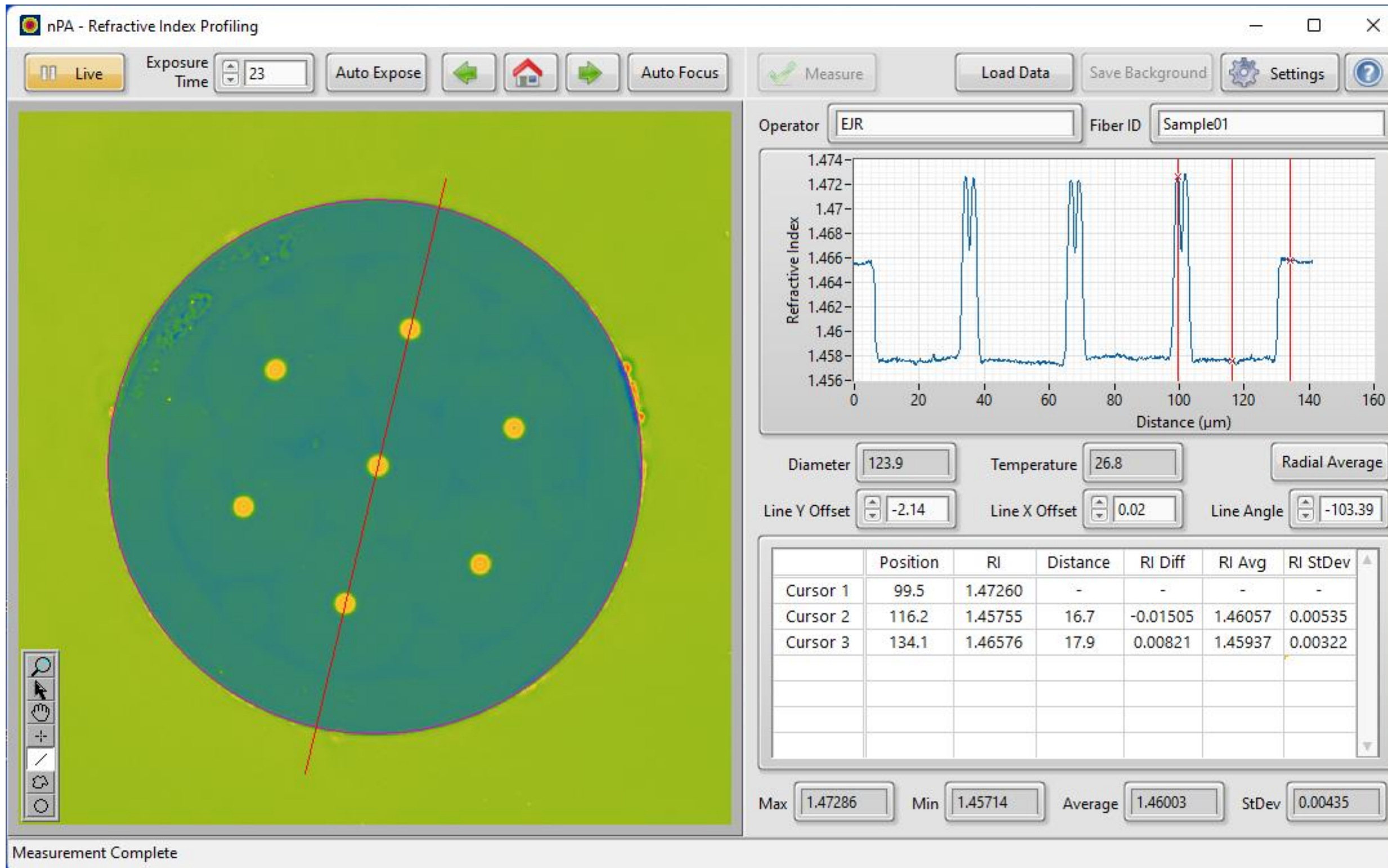
The only S2 in the market

**Solution:  
Modal Content  
Analyser**

Mode Pattern	Mode Intensity	Mode Phase
LP31		
LP21		
LP12		
LP11		
LP02		



# Characterising Multicore Fibers - Refractive Index Profile

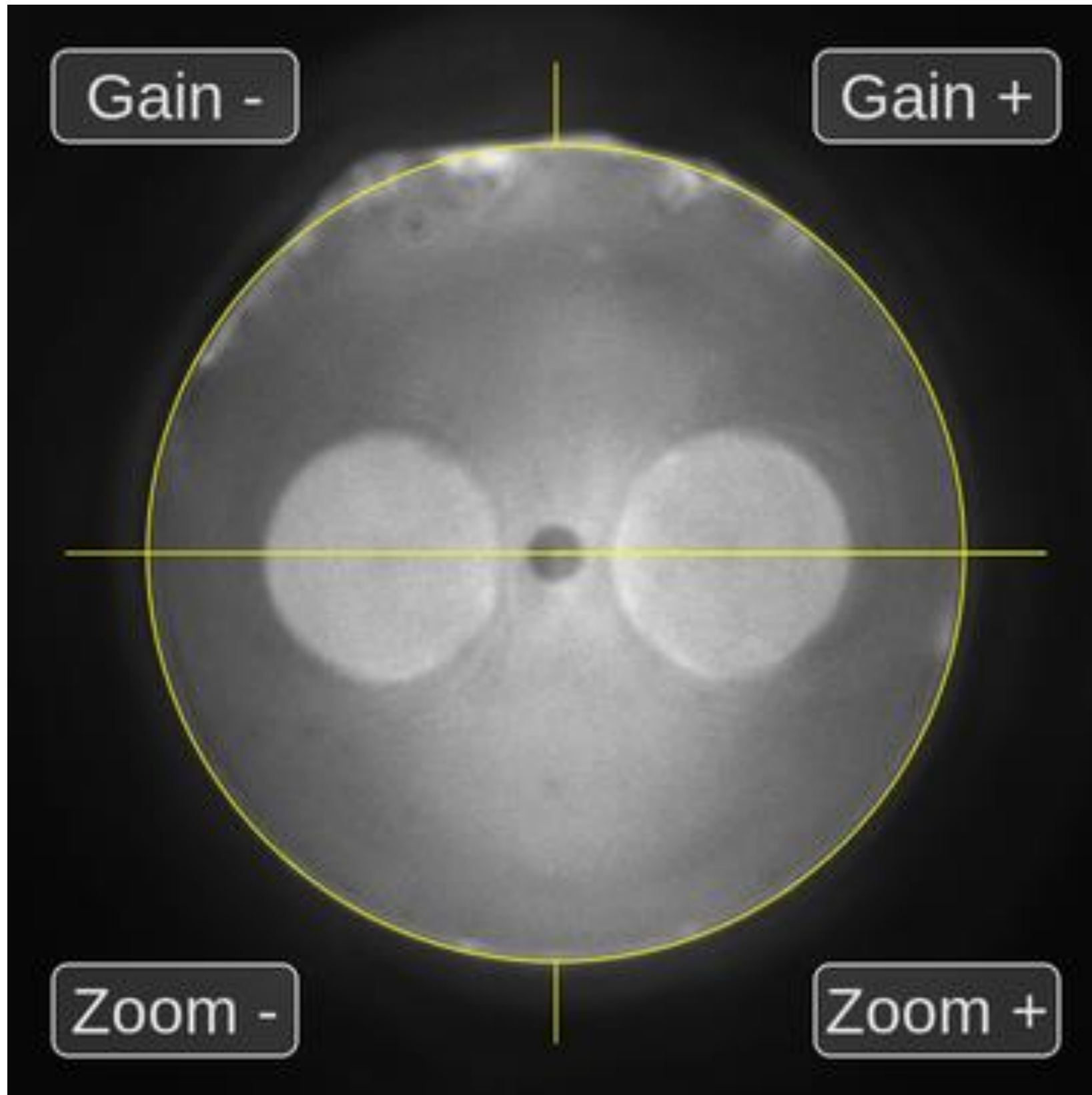


Essential for  
Optimising  
fiber  
performance

**Solution:  
Refractive Index  
Profiler**



# Aligning Specialty Fibers before Splicing

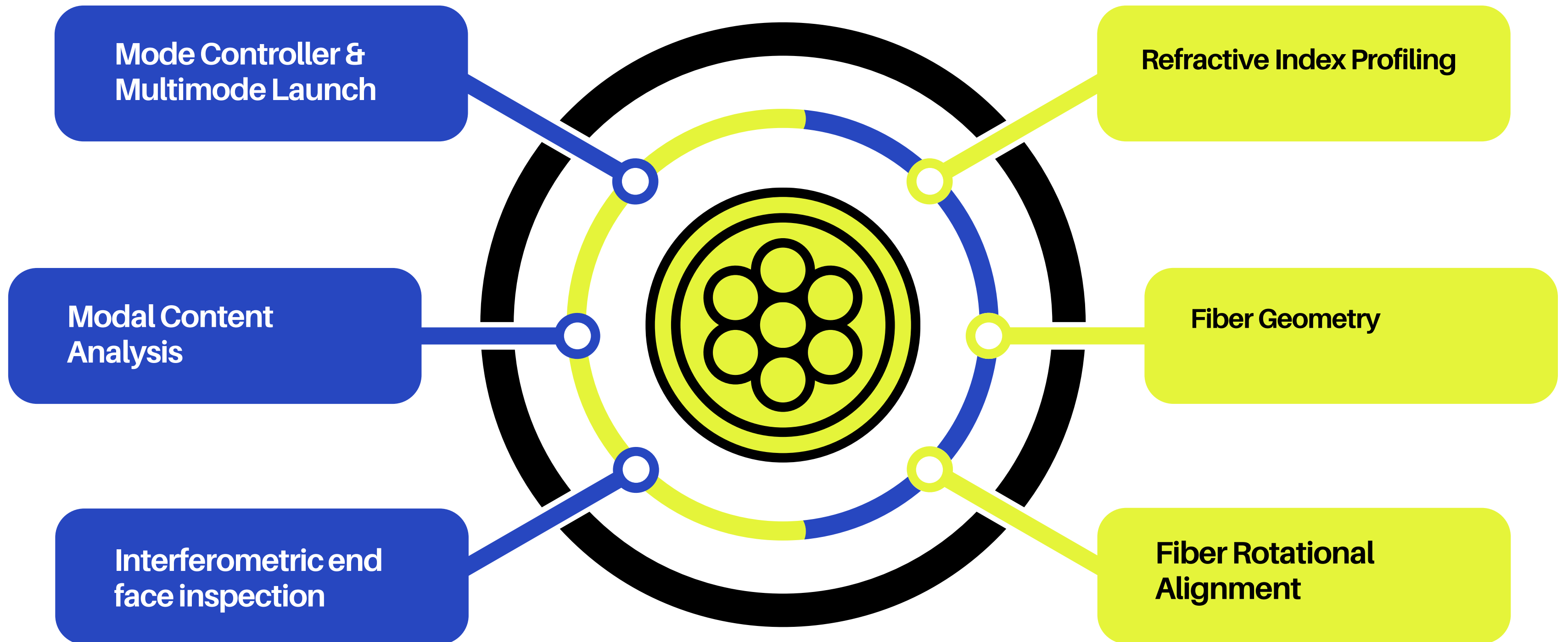


Perfect alignment

**Solution:  
Fiber Rotational  
Aligner**



# We measure most fibers. Our Expertise are...





**We are the only specialty fiber  
measurement specialists**





OPTICAL FIBER MEASUREMENT SPECIALISTS