Elevate Fiber Installation and Testing for Hollow Core Fiber

Build and Characterize High-Quality Hollow Core Fiber (HCF) Links with Speed, Accuracy, and Confidence

FiberComplete PRO, Fiber Characterization and Report PRO

As a trusted partner, VIAVI delivers future proof fiber optic testing solutions tailored to the unique demands of modern high speed fiber networks. We help you optimize your hollow core fiber deployment projects by streamlining processes and ensuring end to end fiber link performances by offering:

- **Innovative Technology:** Our patented FiberComplete PRO™ leads the industry in efficiency and automation with a single test port and one-button press for bidirectional testing, analysis, and reporting. Testing hollow core* fiber with FiberComplete PRO allows all OTDR traces from both directions to be safely stored on a single unit, streamlining the generation of the bidirectional loss profile using ReportPRO.
- **Cost-Effective Solutions:** We help reduce the need for re-tests, lower testing costs, and speed up job delivery with our all-in-one test functions and devices.
- **Endless Capabilities:** We offer a complete suite of test applications/modules, including OLTS, OTDR, CD, PMD, attenuation profile (AP), and fiber end face inspection.

Key Highlights

- Bidirectional loss profile analysis for HCF using ReportPRO
- Most compact and lightweight fiber characterization solution, suitable for HCF distances
- Verify all transmission wavelength ranges with attenuation profile (AP) measurement embedded solution

Applications

- New data center interconnection (DCI) links
- Metro and long-haul DWDM network
- High-speed networks (400/800G and beyond)

* For more information on hollow core fiber testing, please download this HCF Testing Application Note

Test Platforms

OneAdvisor 800 Platform

Most scalable, yet lightweight and compact, platform offering a Linux-based OS and advanced fiber characterization capabilities: bidirectional OLTS and OTDR, CD, PMD, and AP. You can easily expand its functionality by adding modules for BERT/400G+ Ethernet testing, and DWDM spectrum analysis (OSA), without the need for module swapping.

Test Modules

FiberComplete – Bidirectional IL/ORL/OTDR

HCF OTDR testing with up to 45 dB, cost effective solution for medium distances. All-in-one fiber testing module with up to 5 integrated capabilities (power meter, light source, optical loss test set, fault finder and OTDR). One-button operation via one test port makes fiber testing easy. Patented design that integrates a high-speed data link, via the fiber under test, to synchronize instruments setup and enable an error-free, fully automated process. Since hollow core fiber requires a different bidirectional analysis, FiberComplete PRO facilitates the post-processing by having the traces for both directions and all wavelengths available on a single unit.

Optical Dispersion Measurement (ODM) Module – CD/PMD/AP

A single advanced fiber characterization module including CD, PMD, and AP measurements. Industry-leading measurements as per the international standards (IEC, ITU-T, TIA) provide accuracy and fast test time, making it suitable for a wide range of applications (from low to high dispersion fibers). Unlike OTDR-based dispersion analyzers, which are limited by dynamic range and in-line reflectance, VIAVI's ODM is the only viable solution for hollow-core fiber – delivering accurate long-distance testing where other methods fall short. Test through non-bidirectional components (EDFA, filters, compensators, etc.).

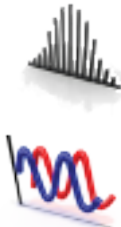### 8100D OTDR with embedded light source and power meter

Industry-leading performance with up to 50 dB dynamic range, lowest dead zones, and best dead zones/dynamic range compromise, enabling hollow core certification over longer distances.

Optical Broadband Source Module for CD/PMD/AP

High-performance optical broadband source covering the widest wavelength range from 1260 to 1640 nm to truly qualify the effective wavelength range and including humidity absorption (OH-).

Main Test Applications

FiberComplete PRO fully automated bidirectional testing, insures all HCF measurements are done bidirectionally on the same fiber using the same test parameters.

Expert OTDR offers greater depth of analysis and more control. It is designed for users who require manual OTDR trace management and access to advanced test settings. Lock Marker records component types and locations for consistent, repeatable measurements across multiple fibers in a cable.

When FiberComplete PRO is active, Expert OTDR becomes an extension and measurements are correlated.

Instrument Job Manager (IJM) handles job files (VIAVI.json format), guides technicians through a simplified testing process, and consolidates test results and reports (offline).

Chromatic Dispersion (CD) and Polarization Mode Dispersion (PMD) simplifies complex testing with a modern and intuitive user interface. Predictable, repeatable and fast testing time - less than 2 minutes per fiber, even for long-distance and high-speed links using low dispersion fibers.

Attenuation Profile (AP): Hollow core fiber (HCF) performance varies by manufacturer due to different design approaches, making post-installation validation critical. Spectral attenuation analysis confirms transmission capability, detects issues like water vapor absorption, and identifies non-uniform behaviors that can affect transmission windows. VIAVI is the only provider offering this advanced testing in the field, ensuring the fiber meets the promised dB/km and certifying readiness for transmission equipment deployment.

HCF Post Processing Software

ReportPRO post-processing software is essential for fully characterizing hollow core fiber. The bidirectional loss profile analysis for hollow core fiber is a must to be able to confirm the fiber has been installed in accordance with the specifications and identify elements such as splices that require rework. ReportPRO aligns the OTDR traces measured from both ends — A to B and B to A — and calculates the difference at each point removing inconsistencies caused by variations in HCF backscattering coefficient, providing the "true" loss profile.

| | Hollow-Core Bi-Dir Fiber Characterization Kit 1 with 4100C–FCOMP and MR ODM

Provides complete fiber characterization including bidirectional insertion loss, optical return loss, length, OTDR, chromatic dispersion, polarization mode dispersion and attenuation profile | Hollow-Core Bi-Dir Fiber Characterization Kit 2 with 8100D OTDR and MR ODM

Provides complete fiber characterization including total loss, dual-ended OTDR, chromatic dispersion, polarization mode dispersion and attenuation profile |
|---|---|---|
| | **Kit 1** | **Kit 2** |
| **Kit Code** | **ONA800A–HCF1–FC2** | **ONA800A–HCF2–FC2** |
| OTDR Distance Range (km)[1] | 195 km | 230 km |
| Bidirectional (Bi-Dir) Loss/ORL | ● | |
| Bidirectional (Bi-Dir) OTDR | ● | ● (Manual) |
| CD/PMD/AP | ● (Medium Range) | ● (Medium Range) |
| OneAdvisor 800A Fiber Platform | 2 Units | 2 Units |
| FiberComplete OTDR Module | ● (2x45 dB) | |
| OTDR Module | | ● (2x50 dB) |
| PM (1.25 mm Adapter) | ● | ● |
| VFL (Universal 2.5 mm Adapter) | ● | ● |
| WIFI-BT | ● | ● |
| Non-reflective Termination Kit for IL/ORL Referencing | ● | |
| Broadband Source (Hand Held) | ● (HH OBS-500) | ● (HH OBS-500) |
| **Software and Accessories** | | |
| Cable Management (Cable-SLM) | ● | ● |
| Instrument Job Manager | ● | ● |
| FiberComplete PRO: TrueBIDIR | ● | |
| ReportPRO for HCF Loss Profile Analysis | ● | ● |
| Soft Carrying Case | | |
| Hard Carrying Case | 2 Cases | 2 Cases |
| Test Cords | ● | ● |
| Launch Cable SC/APC to LC/UPC | ● | ● |

[1] Assuming 1 µs pulsewidth, 1 min averaging, SNR=1 dB, 15 dB Rayleigh backscattering difference between solid core fiber and hollow core fiber, and overall HCF attenuation (incl. splices) of 0.1 dB/km

	Hollow-Core Fiber Characterization Kit 3 with 8100D OTDR and MR ODM Provides complete fiber characterization including total loss, single-ended OTDR, chromatic dispersion, polarization mode dispersion and attenuation profile	Hollow-Core Kit 4 with 8100D OTDR Provides total loss, single-ended OTDR
	Kit 3	**Kit 4**
Kit Code	**ONA800A-HCF3FC1**	**ONA800A-HCF3-O1**
OTDR Distance Range (km)[1]	230 km	230 km
Bidirectional (Bi-Dir) Loss/ORL		
Bidirectional (Bi-Dir) OTDR	• (Manual)	• (Manual)
CD/PMD/AP	• (Medium Range)	
OneAdvisor 800A Fiber Platform	1 Unit	1 Unit
FiberComplete OTDR Module		
OTDR Module	• (50 dB)	• (50 dB)
PM (1.25 mm Adapter)	•	•
VFL (Universal 2.5 mm Adapter)	•	•
WIFI-BT	•	•
Non-reflective Termination Kit for IL/ORL Referencing		
Broadband Source (Hand Held)	• (HH OBS-500)	
Software and Accessories		
Cable Management (Cable-SLM)		
Instrument Job Manager	•	•
FiberComplete PRO: TrueBIDIR		
ReportPRO for HCF Loss Profile Analysis	Order Separately	Order Separately
Soft Carrying Case	1 Case	1 Case
Hard Carrying Case	1 Case	
Test Cords		
Launch Cable SC/APC to LC/UPC		

[1] Assuming 1 μs pulsewidth, 1 min averaging, SNR=1 dB, 15 dB Rayleigh backscattering difference between solid core fiber and hollow core fiber, and overall HCF attenuation (incl. splices) of 0.1 dB/km

	Hollow-Core Kit 5 with LR ODM Provides chromatic dispersion, polarization mode dispersion and attenuation profile	Hollow-Core Fiber Characterization Kit 6 with 8100D OTDR and LR ODM Provides complete fiber characterization including total loss, single-ended OTDR, chromatic dispersion, polarization mode dispersion and attenuation profile
	Kit 5	**Kit 6**
Kit Code	**ONA800A-ULRODM**	**ONA800A-HCF4FC1**
OTDR Distance Range (km)[1]		230 km
Bidirectional Loss/ORL		
Bidirectional OTDR		• (Manual)
CD/PMD/AP	• (Long Range)	• (Long Range)
OneAdvisor 800A Fiber Platform	1 Unit	2 Units
FiberComplete OTDR Module		
OTDR Module		• (50 dB)
PM (1.25 mm Adapter)	•	•
VFL (Universal 2.5 mm Adapter)	•	•
WIFI-BT	•	•
Non-reflective Termination Kit for IL/ORL Referencing		
Broadband Source (Hand Held)	• (HH OBS-500)	• (HH OBS-500)
Software and Accessories		
Cable Management (Cable-SLM)		
Instrument Job Manager	•	•
FiberComplete PRO: TrueBIDIR		
ReportPRO for HCF Loss Profile Analysis	Order Separately	Order Separately
Soft Carrying Case	1 Case	
Hard Carrying Case		2 Cases
Test Cords		
Launch Cable SC/APC to LC/UPC		

[1] Assuming 1 µs pulsewidth, 1 min averaging, SNR=1 dB, 15 dB Rayleigh backscattering difference between solid core fiber and hollow core fiber, and overall HCF attenuation (incl. splices) of 0.1 dB/km

VIAVI

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