VIAVI Solutions

Brochure

VIAVI
OneAdvisor-800

All-in-One Cell-site Installation and Maintenance Test Solution

One Solution. One Process. One Report

LTE and 5G network topologies and infrastructure technologies must converge flawlessly at a cell site to ensure peak performance. In order to integrate all the elements into a functioning cell site, installation and maintenance teams have been using multiple test sets, manual test processes, and manual report consolidation. With the volume of new cell sites that must be installed, multiple test sets and manual processes simply don't meet the work speed and accuracy now required.

Introducing the VIAVI OneAdvisor-800, a portable test solution that brings unprecedented simplicity, speed, and accuracy to site turn-up. Intuitive test process automation streamlines the work into a short sequence of push-button tests.

OneAdvisor combines fiber inspection and validation, cable and antenna analysis, as well as over the air tests with spectrum and interference analysis. All tests are conducted with an intuitive workflow automation bringing built-in guidance, automatic configuration, pass/fail results, and a single report package ready for closeout. OneAdvisor allows field teams to get in, get out, and get paid.

OneAdvisor-800 Benefits

- **Improved tool efficiency.** Replaces multiple independent tools (i.e. OTDR, CAA, Fiber scope, etc).
- **Broad coverage.** Covers all radios types (LTE and 5G) and topologies (Macro-cell, Small-cell, C-RAN, and/or DAS)
- **Scalable.** As a team's test responsibility grows, so can the OneAdvisor platform with modular test components

Benefits of OneAdvisor-800 Test Process Automation

- **Greater accuracy.** Complete test plans exactly to the specifications of the service provider with precise measurements
- **Consistency.** Test processes and workflows are defined centrally and "pushed" to test instruments, eliminating the variability of manual procedures and drives consistent, repeatable results, regardless of technician skill or experience level
- **Lower Training Costs.** Training focus shifts to the test process itself, which is faster and easier to learn, rather than on technical information that is generally time-consuming and overwhelming for new technicians
- **Speed.** Job Manager eliminates wasted technician time trying to remember which tests to run and how to run them
- **Peace of Mind.** Test results automatically uploaded to the StrataSync cloud

Test Process Automation with Job Manager and StrataSync

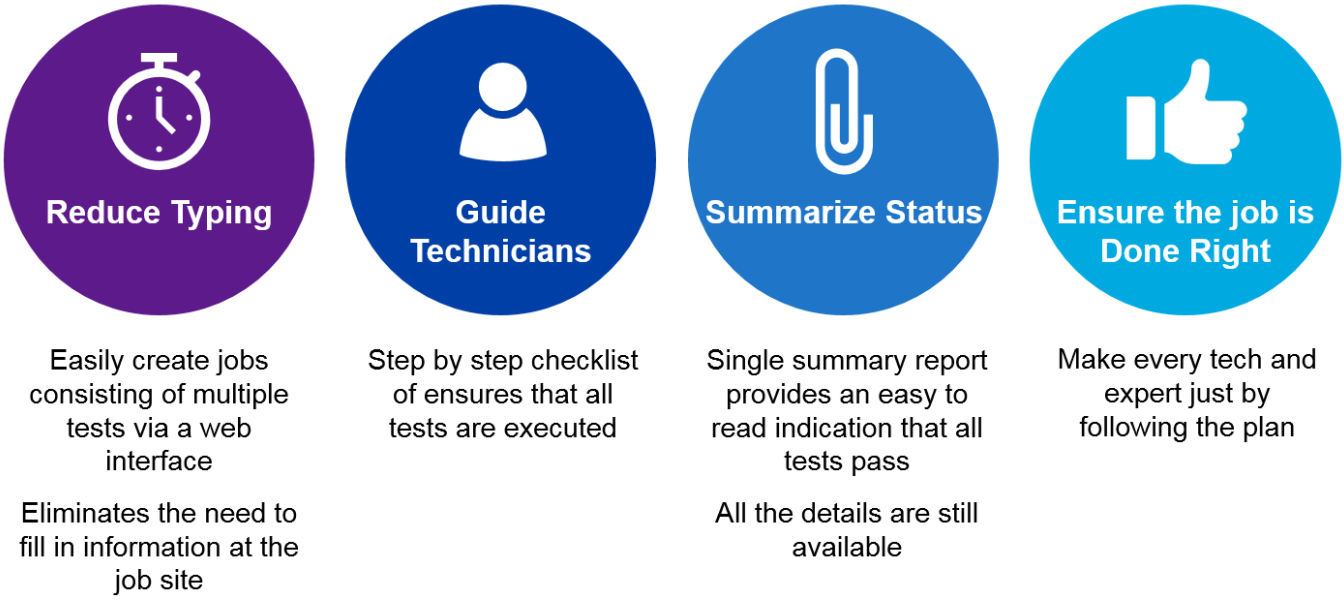
The VIAVI test process automation software, Job Manager, offers network operations and construction teams a self-guided solution to improve efficiency in the field for cell-site installation and maintenance. By automating the entire process, Job Manager ensures the proper test sequence is executed, time is not wasted, and results are consistent.

StrataSync

StrataSync is cloud-hosted system that provides a centralized management of test solutions including; test set management, test configurations, data management, and test results. Stratasync is designed to eliminate email dispatches, manual test procedures, manual report consolidation, test solution availability and test devices that need calibration.

With Test Process Automation, contractors and cell-technicians can perform installation and maintenances tests with confidence:

- In accordance with mobile operator's test criteria
- Covering all radios types (LTE and 5G) and topologies (Macro-cell, Small-cell, C-RAN, and/or DAS)
- Automatically uploading test results to the StrataSync cloud with simple PASS/FAIL indicator



Job Manager benefits and key features

Fiber Inspection

The most common cause of signal impairment in an optical system is a dirty connector or end-face, which can get contaminated very easily at a windy, outdoor cell site. Therefore, the first step in achieving acceptable insertion- and return-loss measurements is by inspecting end-faces with a fiber microscope.

P5000i

There are multiple VIAVI microscopes that integrate with the OneAdvisor-800, including the P5000i. The P5000i connects to the ONA-800 with a simple USB connection, and makes certifying that every connection in your mobile network is clear fast and easy.

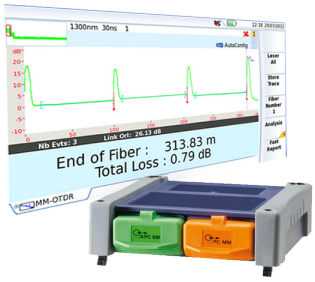
FBP-P5000i Specifications

General Technical (typical at 25°C)	
Weight	110 g (3.88 oz)
Dimensions (w × h × d)	140 x 46 x 44 mm (5.5 x 1.8 x 1.7 in)
Low mag field-of-view (FOV)	Horizontal: 740 µm Vertical: 550 µm
High mag field-of-view (FOC)	Horizontal: 370 µm Vertical: 275 µm
Live image	640 x 480 fps
Connector	USB 2.0 (backwards compatible to USB 1.1)
Cord length	183 cm (6 ft)
Camera sensor	2560 x 1920, 1/2.5-in CMOS
Particle size detection	<1 µm
Light source	Blue LED, 100,000+ hour life
Lighting technique	Coaxial
Power source	USB Port
Certification	CE
Warranty	1 yr

FBPP-WIFI Specifications

Dimensions	218 x 50 x 131 mm (8.6 x 2.0 x 5.2 in)
Weight	272 g (9.5 oz)
Connector	USB 2.0 (Micro-B)
Power Source	Internal Li-ion Battery, USB power
Run Time	5.5 hr
Charge Time	2.5 hr (2.1 A max power source) 8 hr (500 mA max power source)
Power Supply	5 VDC, 2.1 A USB power adapter with interchangeable wall plug for EU, UK, US, and AU

Fiber optic testing – OTDR



Fiber is the foundation of the 5G infrastructure and must be tested to ensure its readiness to transmit huge data loads. Historically, testing fiber with an optical time-domain reflectometer (OTDR) was expensive and complicated. With the VIAVI OTDR module that pairs with the OneAdvisor-800, fiber testing the network at cell-sites is now simple, fast, and cost-effective.

Standard tests:

- Automatic macro bend detection
- Summary results table with pass/fail analysis
- Bidirectional OTDR analysis

Key Features:

- Up to 37 dB dynamic range in single-mode and 26 dB in multi-mode
- Quad-wavelength version with 850, 1300, 1310, and 1550 nm and a dual-wavelength version with 850 and 1300 nm
- Integrated continuous wave (CW) light source and power meter
- TIA/IEC pass/fail thresholds
- Propagation delay measurement in multimode (TIA-568-C)
- Optimized for 10 MB to 40 GE testing
- Certifies Tier 2 premises networks**
- IEC 61280–4–1-compliant using an external modal controller
- Ready for SLM, FTTA-SLM, and FTTHSLM intelligent optical application software

Specifications

General (Typical at 25°C)	
Weight	0.4 kg (0.88 lb)
Dimensions (w × h × d)	128x134x40 mm (5 x 5.28 x 1.58 in)
Optical Interfaces	
Interchangeable optical connectors	FC, SC, DIN, LC, and ST
Technical Characteristics	
Laser safety class (21 CFR)	Class 1
Distance units	Kilometers, feet, and miles
Group index range	1.300000 to 1.700000 in 0.00001 steps
Number of data points	Up to 128,000 data points
Distance measurement	Automatic or dual cursor
Display range	0.5 m to 260 km
Cursor resolution	1 cm
Sampling resolution	4 cm
Accuracy	±1 m ±sampling resolution ±1.10⁻5 x distance (Excluding group index uncertainties)
Attenuation Measurement	
Automatic, manual, 2-point, 5-point, and LSA	
Display range	1.25 dB to 55 dB
Display resolution	0.001 dB
Cursor resolution	0.001 dB
Linearity	±0.03 dB/dB
Threshold	0.01 to 5.99 dB in 0.01 dB steps

Reflectance/ORL Measurements	
Reflectance accuracy	±2 dB
Display resolution	0.01 dB
Threshold	–11 to –99 dB in 1 dB steps
CW Source Option	
CW Source output power level	–3.5 dBm
Operating modes	CW, 270 Hz, 330 Hz, 1 kHz, 2 kHz, TWINTest

Power Meter Option		
Power level range		–3 to –30 dBm
	SM	–2 to –50 dBm
Calibrated wavelengths		850 and 1300 nm
	SM	1310, 1490, 1550, 1625, and 1650 nm
Measurement accuracy		±1 dB
	SM	±0.5 dB

Multimode and Quad OTDR Modules (Typical at 25°C)		
Central wavelength[2]	850/1300 ±30 nm	1310/1550 ±20 nm
Pulse width	3 ns to 1 µs	3 ns to 20 µs
RMS dynamic range[3]	26/24 dB	37/35 dB
Event dead zone[4]	0.8 m	0.9 m
Attenuation dead zone[5]	4 m	4 m

1. Using a mode conditioner
2. Laser at 25°C
3. The one-way difference between the extrapolated backscattering level at the start of the fiber and the RMS noise level after 3-minutes averaging
4. Measured at ±1.5 dB down from the peak of an unsaturated reflective event
5. Measured at ±0.5 dB from the linear regression using an F/UPC-type reflectance

Sweep Test – Cable and Antenna Analyzer (CAA)

Most problems in mobile networks occur in cell site infrastructure: antennas, cables, amplifiers, filters, connectors, combiners, jumpers, etc. The Cable and Antenna Analyzer module, in combination with the OneAdvisor-800, guides a technician through a sweep test that confirms system integration and antenna performance. The user-friendly GUI with intuitive pass/fail results instantly identifies problems enables a technician to easily determine if the performed installation meets the required performance specifications.

Key Applications

- Acceptance testing for new cell sites
- DAS deployment validation
- Test and commission distributed radios with coaxial feed lines

Important Features

- Easy to interpret OTDR results with SmartLink Mapper apps
- Performance characterization and validation of RF devices
- NFC antenna test (RFID and security equipment)
- Trace overlay accurately detects signal degradation over time
- Dual display and multiple tabs allow fast and efficient measurements
- Intuitive pass/fail analysis instantly notifies of any cable and antenna system problem
- Integrated RF CW source enables small cell coverage and DAS path loss testing
- EZ-Cal™ technology ensures fast and easy calibration

Technical Data

Frequency	
Frequency range	12.5 MHz to 6 GHz
Frequency resolution	1 kHz
Frequency accuracy	±2.5 ppm @25°C
Aging per year	±1 ppm
Data points	
126, 251, 501, 1001, 2001	
Measurement bandwidth	
10 kHz	
Measurement accuracy after OSL calibration	
Corrected directivity	> 42 dB
Reflection uncertainty	±(0.3 + |20log (1 + $10^{-EP/20}$)|) typical EP = directivity – measured return loss
Measurement Accuracy after EZ-Cal calibration	
Corrected directivity	> 38 dB (≤ 4 GHz)
	> 33 dB (> 4 GHz)
Reflection uncertainty	±(0.3 + |20log (1 + $10^{-EP/20}$)|) typical (≤ 4 GHz) ±(1 + |20log (1 + $10^{-EP/20}$)|) typical (> 4 GHz) EP = directivity – measured return loss
Output power	
High	0 dBm nominal
Low	-30 dBm nominal
Maximum input level	
Average continuous power	23 dBm nominal
DC voltage	±50 V DC
Interference immunity	
On channel	15 dBm @ ≥ 1.3 MHz
On frequency	15 dBm within 100 kHz
Reflection	
Measurement speed	0.5 ms per data point
VSWR range	1 to 65
Resolution	0.01
Return loss range	0 to 60 dB
Resolution	0.01 dB

Sweep Test – Cable and Antenna Analyzer (CAA) continued

Distance to Fault (DTF)	
Measurement speed	0.5 ms per data point
Vertical VSWR range	1 to 65
Vertical resolution	0.01
Vertical return loss range	0 to 60 dB
Vertical resolution	0.01 dB
Horizontal range	0 to (# of data points – 1) x horizontal resolution Maximum = 1500 m (4921 ft)
Horizontal resolution	$(1.5 \times 10^8) \times (VP)/\Delta F$ VP = propagation velocity ΔF = stop frequency – start frequency (Hz)
1-port cable loss	
Measurement range	0 to -30 dB
Resolution	0.01 dB
1-port phase	
Measurement range	-180 to +180°
Resolution	0.01°
Smith chart	
Impedance	50 Ω
Resolution	0.01

2-port transmission	
Output power	High: 5 dBm typical
	Low: -30 dBm typical
Scalar measurement speed	3.8 ms typical
Dynamic range	110 dB typical @average 5 for ≤ 4.5 GHz
	105 dB typical @average 5 for > 4.5 GHz
Measurement range	-120 to +100 dB
Resolution	0.01 dB
Bias voltage	
Voltage range	+12 to +30 V DC, 6 W max.
Voltage resolution	1 V
Current	500 mA
RF CW source	
Output power range	-30 to +10 dBm for 12.5 MHz to 6 GHz
Step	1 dB
Accuracy	±1.5 dB for 20 to 30°C

VIAVI Solutions

Contact Us **+1 844 GO VIAVI**
(+1 844 468 4284)

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visit viavisolutions.com/contact

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