

VIAVI

OneAdvisor 800 Wireless

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

One Solution. One Process. One Report.

The VIAVI OneAdvisor 800 has been perfectly designed to verify and troubleshoot radio access networks for proper deployment and effective operation.

The OneAdvisor 800 leverages multi-functional architecture, covering different test applications, scaling and adapting to many different user groups, including:

- Radio construction, covering all test aspects of the transmission lines of any cell site, validating coaxial cable, antennas, as well as fiber characterization and inspection
- Radio operation, covering radio's transmission verification according to 3GPP standards, maintenance practices assessing radio's power level and coverage, as well as the ability to identify and locate interference impairments

Key test functions include:

- Cable and antenna reflection tests, distance to fault and cable loss.
- Fiber inspection and fiber validation including OTDR testing
- Real-time persistence spectrum from 9KHz to 6/9/18/32/44 GHz
- Spectrum analysis with gated sweep for interference analysis in LTE or 5G TDD signals
- RFoCPRI interference analysis to effectively characterize interfering signals as received by the radio
- Over-the-Air RF spectrogram testing and logging capability to effectively characterize intermittent interference signals
- Automatic Interference location when is paired with the VIAVI InterferenceAdvisor
- Interference finding with triangulation when is paired with the VIAVI AntennaAdvisor
- Spectrum route map, validating radio's coverage and signal propagation
- O-RAN fronthaul verification, O-RU radio communication and profile
- Front-haul network validation of 1/10/25 Gigabit Ethernet and 1588 PTP Timing



OneAdvisor Fiber Validation



OneAdvisor Realtime Persistence Spectrum

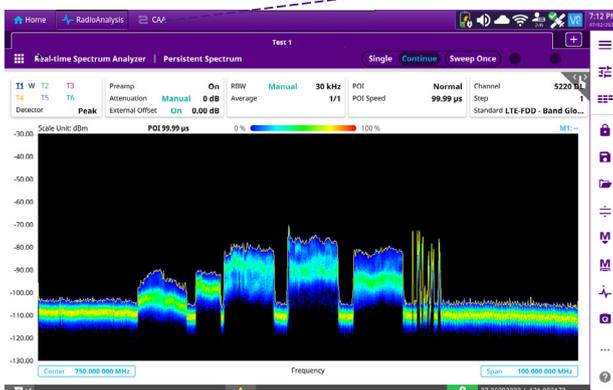
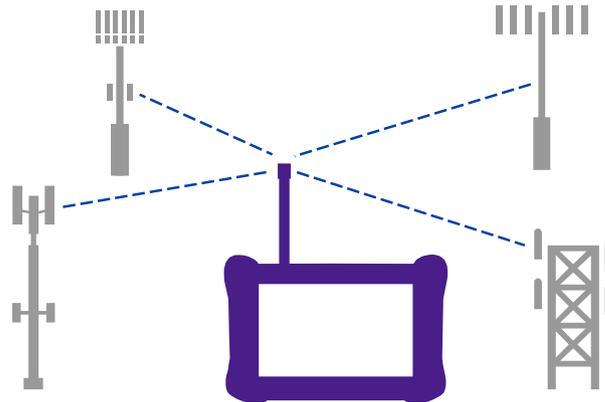


OneAdvisor RFoCPRI Interference Analysis

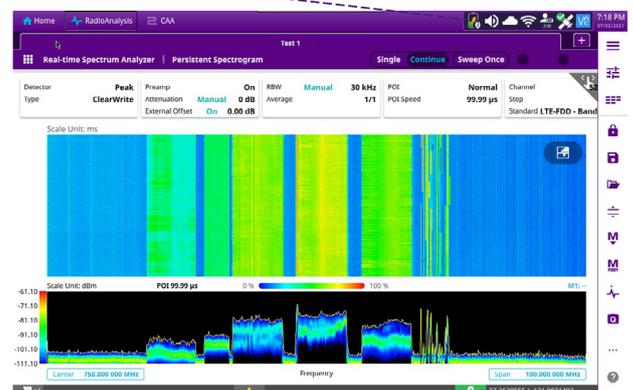
Real-Time Persistence Spectrum

OneAdvisor 800 real-time spectrum analysis (RTSA) performs a persistence power measurement through a defined frequency range in high-speed.

RTSA provides a comprehensive view of intermittent signals for a fast characterization of wireless signals and the identification of intermittent interference signals through its 2D and 3D spectrogram measurements that characterize signals in power, frequency and time.



OneAdvisor 800 Real-time Spectrum Analysis



OneAdvisor 800 Real-Time Spectrogram

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OneAdvisor 800 real-time spectrum analysis is ideal to properly characterize signals that have different communication profile in time-domain, such as time division duplex (TDD) transmissions which in the same frequency channel allocates different time-slots for uplink and downlink signals which is the case of 5G carriers above 3GHz. It also provides the ability to identify the presence and location of 5G beam signals, also referred as synchronization signal block (SSB), due to its 100MHz of instantaneous analysis bandwidth.

Wireless Interference Analysis

OneAdvisor 800 Interference Analyzer functions provides the most comprehensive measurement techniques to effectively identify, characterize and locate interfering signals.

Key interference analysis measurement functions:

- RFoCPRI interference analysis
- Received Signal Strength Indicator (RSSI)
- Interference Finder
- Spectrum Re-player

RFoCPRI Interference Analysis

RFoCPRI technology performs RF measurements through the fiber fronthaul which is the link between base band units and remote radio heads.

RFoCPRI verifies the control signals and extracts the RF (IQ) data transmitted between the BBU and RRH at the ground without the need to climb the tower. A key benefit of RFoCPRI is that it enables monitoring and analysis of uplink signals (mobile devices), and PIM detection, precisely when they are received by the cell site.

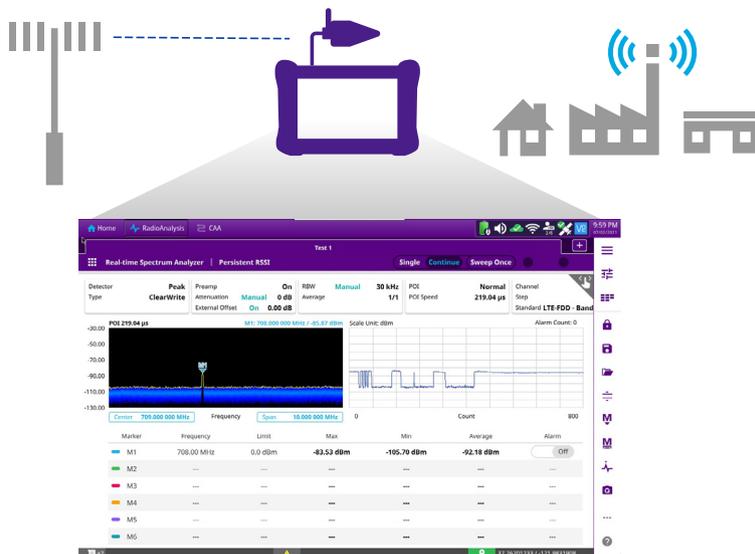


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OneAdvisor 800 RFoCPRI (MIMO 4x4)

Received Signal Strength Indicator (RSSI)

RSSI performs a multi-signal measurement (up to 6 simultaneously signals) in time, assessing the power-level variations of interference signals over time. In RSSI measurements power limits can be set for audible alarms and increase alarm counters every time a signal exceeds the defined limit line. For long-term analysis, the spectrogram and RSSI measurements can be saved into an external USB memory for post-analysis.



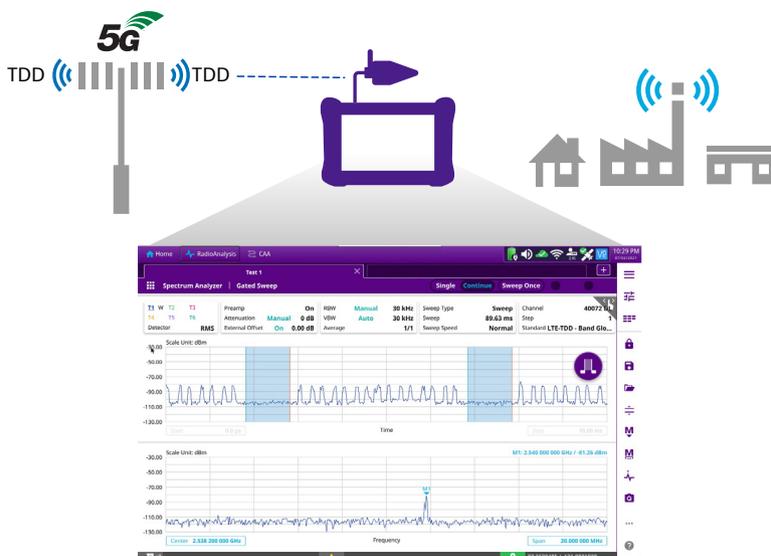
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OneAdvisor 800 Interference Analysis (RSSI)

TDD Interference Analysis (Gated Spectrum)

Interference analysis in TDD signals (LTE or 5G) requires a different measurement technique than conventional spectrum analysis, since the uplink and downlink signals are transmitted on the same frequency, but different timeslots.

OneAdvisor 800 performs single or dual gated sweep spectrum, effectively conducting spectrum measurements triggered only on the timeslots assigned for uplink transmission.



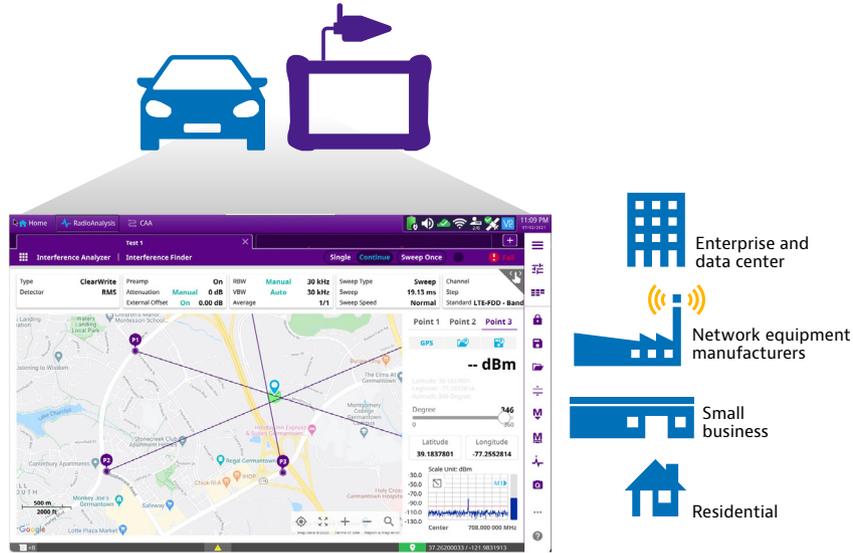
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OneAdvisor 800 Dual Gate Spectrum Analysis (TDD Interference)

Interference Finder

Interference Finder is an automatic triangulation algorithm performed by the OneAdvisor 800 that uses GPS to extract geo-coordinates in multiple test points to locate the source of interference.

The interference finder automatically calculates the interference locations using an inscribed or circumscribed area based on the measured intersection points.



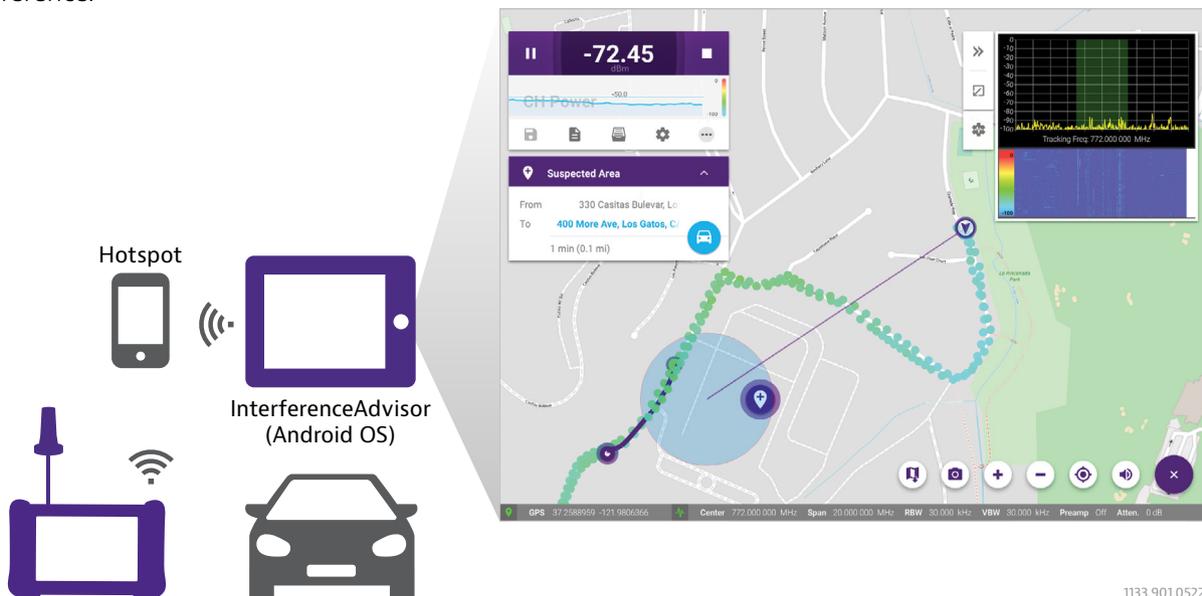
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OneAdvisor 800 Interference Finder

Interference Hunting

InterferenceAdvisor™ is a fully automated RF interference hunting solution. Easy to set up and simple to use, it allows one RF engineer to identify and locate an interference source in just hours, simply by following voice prompts on a familiar map-style application on an Android tablet.

The InterferenceAdvisor software communicates with OneAdvisor 800 to retrieve RF power measurements (Peak, RSSI, Channel) and creating a power heat-map during a drive test, and automatically detects the area of incidence with the highest presence of interference, giving optional navigation instructions to the detected location of interference.

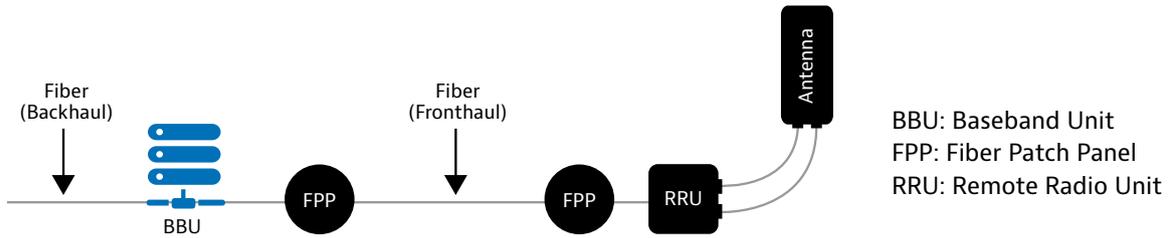


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InterferenceAdvisor – Interference Hunting

Cell Site Fronthaul Verification

Cell site's xhaul infrastructure is composed of fiber links from the switch into the base band unit, also referred as backhaul, as well as fiber links from base band unit to remote radio units, also referred as fronthaul, then the remote radio performs a digital to analog conversion setting the signal into a specific RF carrier with a specific center frequency, bandwidth, and power level through coaxial cables to the transmitting RF antennas.



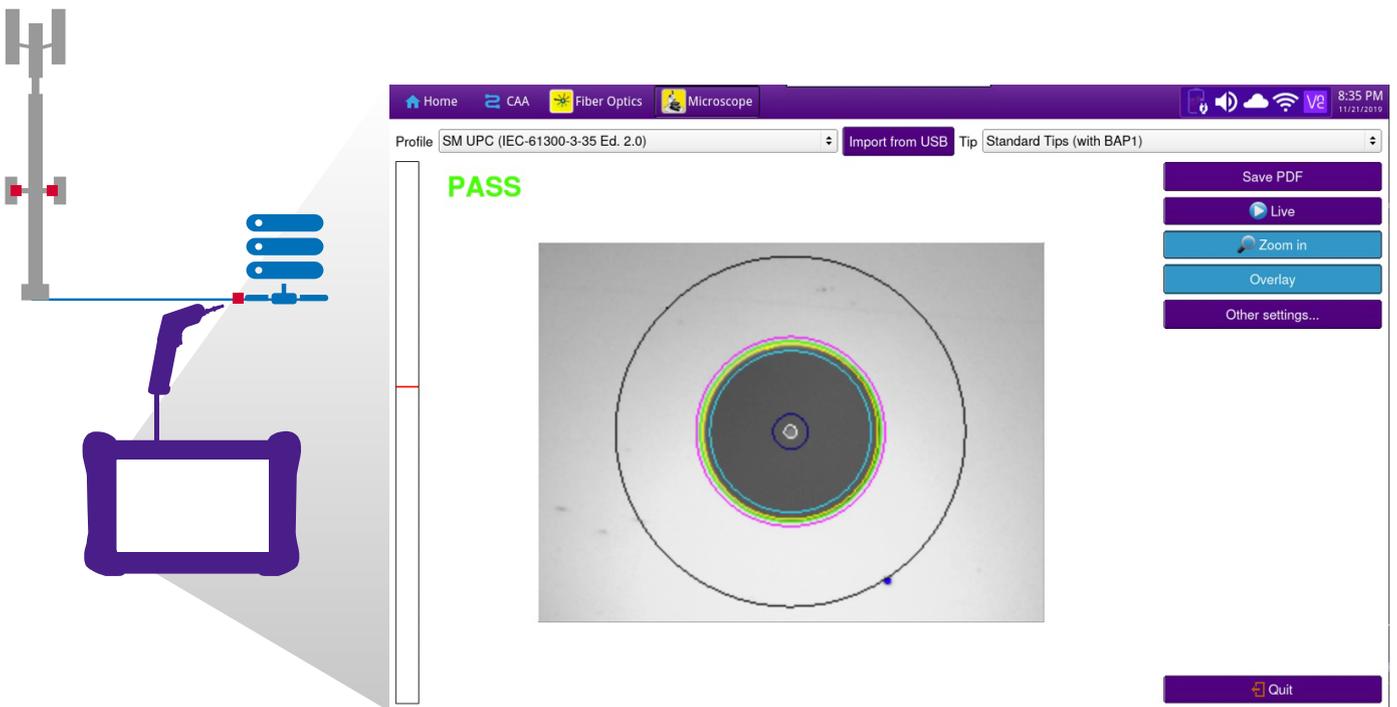
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Cell Site Infrastructure – Fiber to the Antenna

Fiber Inspection

The most common cause of signal degradation in an optical transmission system between transmitter, fiber link and receiver, is dirt on fiber connectors, which can get contaminated very easily when the connectors are exposed to the environment.

Therefore, the first step in achieving acceptable insertion- and return-loss in fiber link is by inspecting the fiber connector's end-faces with OneAdvisor 800 equipped with a fiber microscope, P5000i or FiberCheck, capable of performing standard-based PASS/FAIL measurements, collecting results and creating comprehensive close-out reports.



OneAdvisor 800 Fiber Inspection

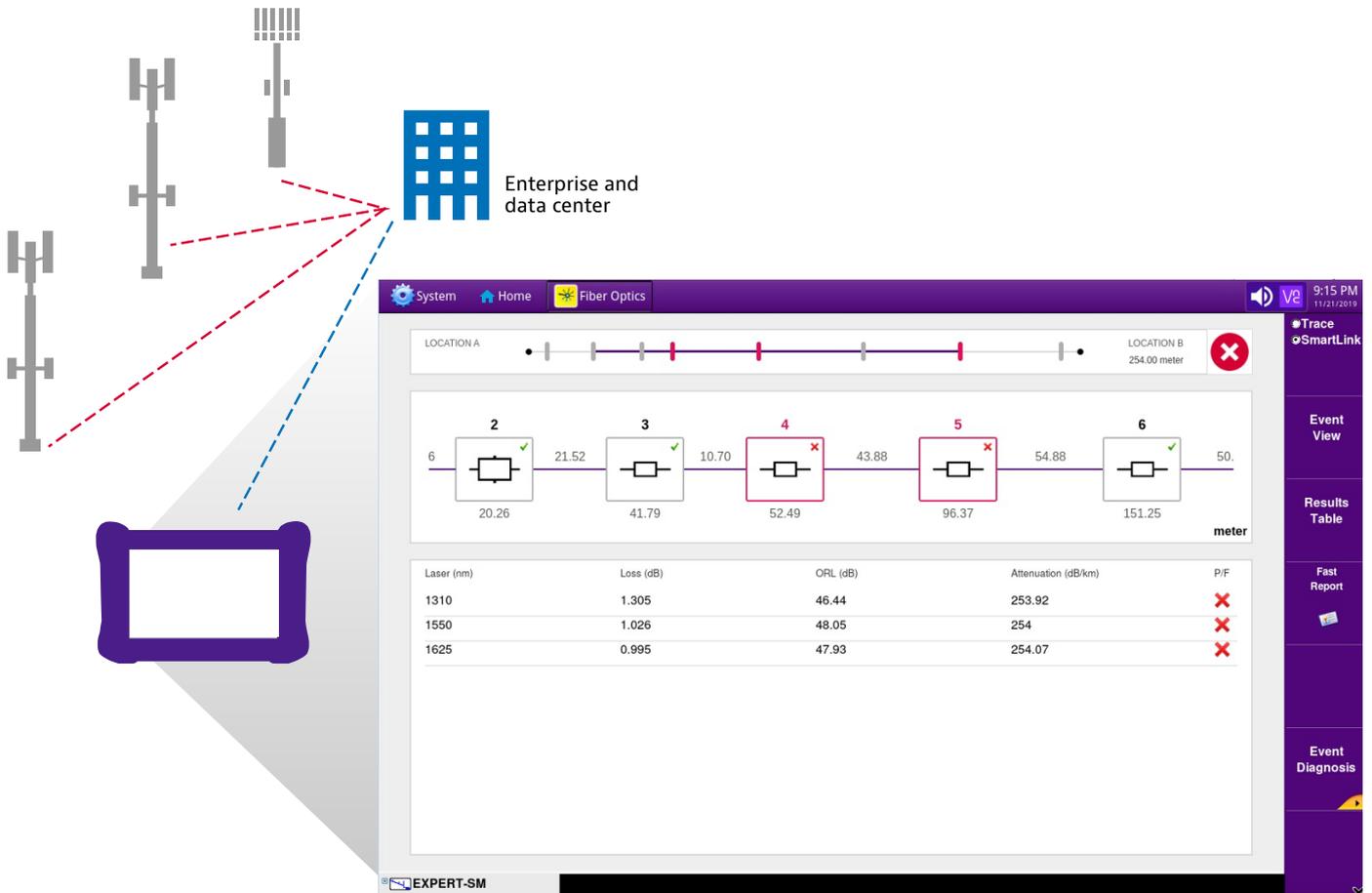
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Fiber Characterization

Fiber is more prevalent in cell sites of any kind, from small cells and macro cells, to distributed antenna systems (DAS) and centralized radio access network (C-RAN).

The most effective test to characterize a fiber link is with an optical time-domain reflectometer (OTDR).

OneAdvisor 800 can be equipped with an OTDR module capable of performing fiber testing for single-mode and/or multi-mode fibers in a simple, fast, and cost-effective manner.



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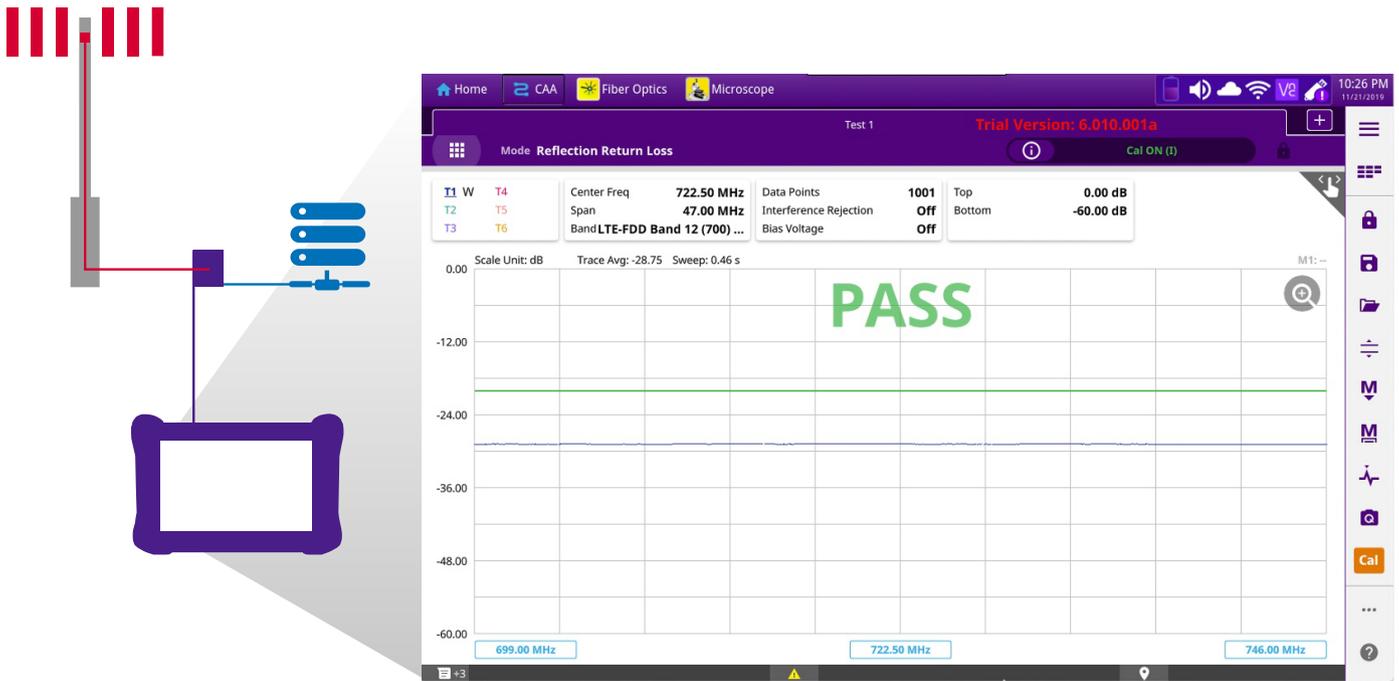
OneAdvisor 800 Fiber Characterization – OTDR

Cable and Antenna Analysis

OneAdvisor 800 can be equipped with a Cable and Antenna Analyzer module allowing cell technicians to verify the connectivity between the radio and antennas which are RF devices such as cables, jumpers, filters and duplexer, and the antenna, including:

- Return Loss and VSWR
- Distance to Fault
- Cable Loss

OneAdvisor 800 user-friendly GUI with intuitive PASS/FAIL results instantly identifies problems and enables technicians to easily determine if the cell site meets the coaxial transmission specifications.



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OneAdvisor 800 Coaxial Cable and Antenna Analysis – Return Loss

O-RAN Radio Verification

OneAdvisor 800 can be equipped with O-RAN radio verification, performing O-RAN distribution unit emulation (O-DU Emulation) allowing cell technicians to verification the connectivity and profile of the O-RAN radio units (O-RU), including:

- O-RU connectivity: communication, optical power Tx/Rx (SFP)
- O-RU profile: Radio model, serial number, software, MAC and IP Addresses, operating bands
- O-RU Synchronization and Timing: PTP and SyncE verification

Port 1 Rx Optic **-6.77 dBm** ● Link Rate **10312.5 Mbps**

NETCONF ● DHCP ● PTP ● Interface ●
User Name Password User Name Password User Name Password User Name Password
MAC Address 98:03:9b:9... IP Address IP Address IP Address
Clock Class Primary (6... Clock Accuracy Within 100 ns FEC Type RS(528

Summary		Ethernet - Summary		O-RU M-Plane - Bands	
Signal Present	●	Sync Loss Seconds	0	Band 1 Band Number	70
RS-FEC LOCWMS	●	Rx Local Fault Seconds	0	Band 1 Max Supported Freq DL (Hz)	2020000000
Sync Acquired	●	Rx Remote Fault Seconds	0	Band 1 Min Supported Freq DL (Hz)	1995000000
Link Active	●	LOCMWS Seconds	0	Band 1 Max Supported BW DL (Hz)	25000000
HI BER	●			Band 1 Max Num Carriers DL	2
Frame Detect	●			Band 1 Max Carrier BW DL (Hz)	25000000
ToD Sync	●			Band 1 Min Carrier BW DL (Hz)	5000000
1PPS Sync	●			Band 1 Max Supported Freq UL (Hz)	1710000000
				Band 1 Min Supported Freq UL (Hz)	1695000000
				Band 1 Max Supported BW UL (Hz)	25000000
				Band 1 Max Num Carriers UL	2

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OneAdvisor 800 O-RAN O-DU Emulation Verification

Wireless Signal Analysis

OneAdvisor 800 Signal Analysis functions provides the most comprehensive measurement techniques to effectively identify and characterize wireless signal quality. Including service cell site's identifier and key power indicators, as well as signal quality assessment of wireless control signals.

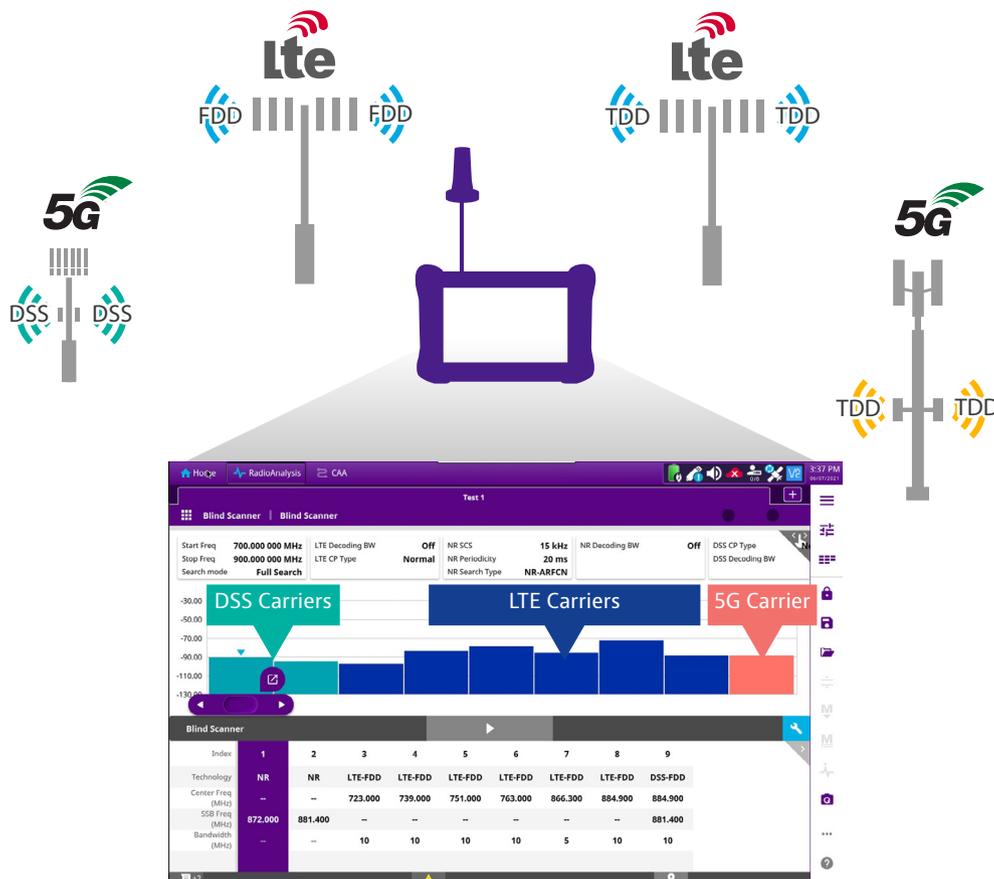
Key signal analysis measurement functions:

- LTE Signal Analysis
- 5G NR Signal Analysis
- DSS Signal Analysis
- NSA Signal Analysis
- Blind Scanner
- EMF Analysis

Blind Scanner

OneAdvisor 800 is capable of performing a blind scanner, searching and identifying any of the following signal types:

- LTE Frequency Division Duplex (FDD)
- LTE Time Division Duplex (TDD)
- 5G New Radio (NR)
- Dynamic Spectrum Sharing (DSS)



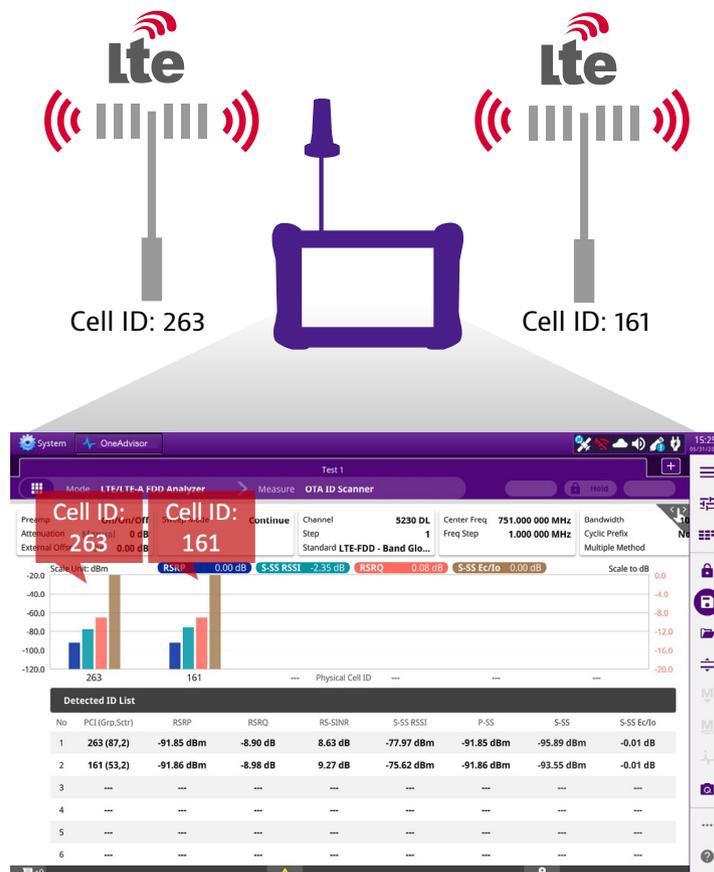
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OneAdvisor 800 RF Blind Scanner

LTE Signal Analysis

OneAdvisor 800 is capable of performing signal analysis in LTE-FDD and LTE-TDD signal formats, covering the following key measurements:

- RF Characterization: 3GPP conformance tests including, channel power, occupied bandwidth, adjacent channel leakage ratio, and spectrum emission mask
- LTE Over-the-Air: LTE carrier scanner for carrier aggregation validation; LTE ID scanner for multi-serving cell sites; LTE control channel for signal quality assessment; and LTE Route
- Map for service coverage verification



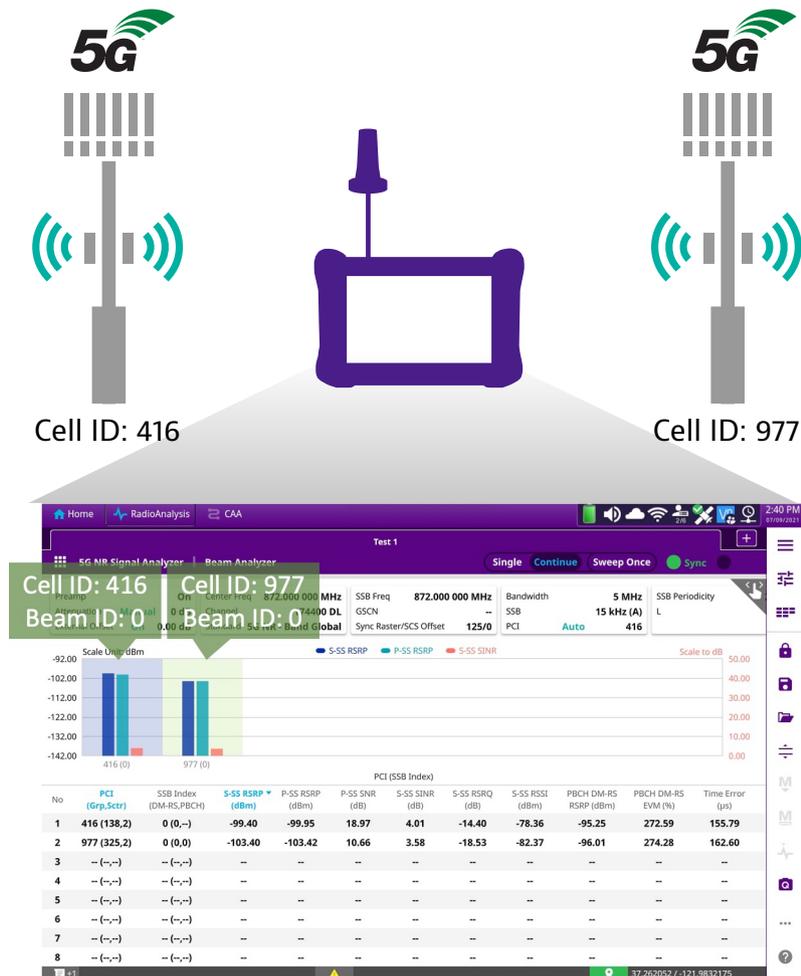
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OneAdvisor 800 LTE Signal Analysis

5G Signal Analysis

OneAdvisor 800 is capable of performing 5G signal analysis, covering the following key measurements:

- RF Characterization: 3GPP conformance tests including, channel power, occupied bandwidth, adjacent channel leakage ratio, and spectrum emission mask.
- 5G Over-the-Air: 5G carrier scanner for carrier aggregation validation and signal quality assessment; 5G Beam Analyzer, for beamforming assessment and multi-serving cell sites; and 5G Route Map for service coverage verification.



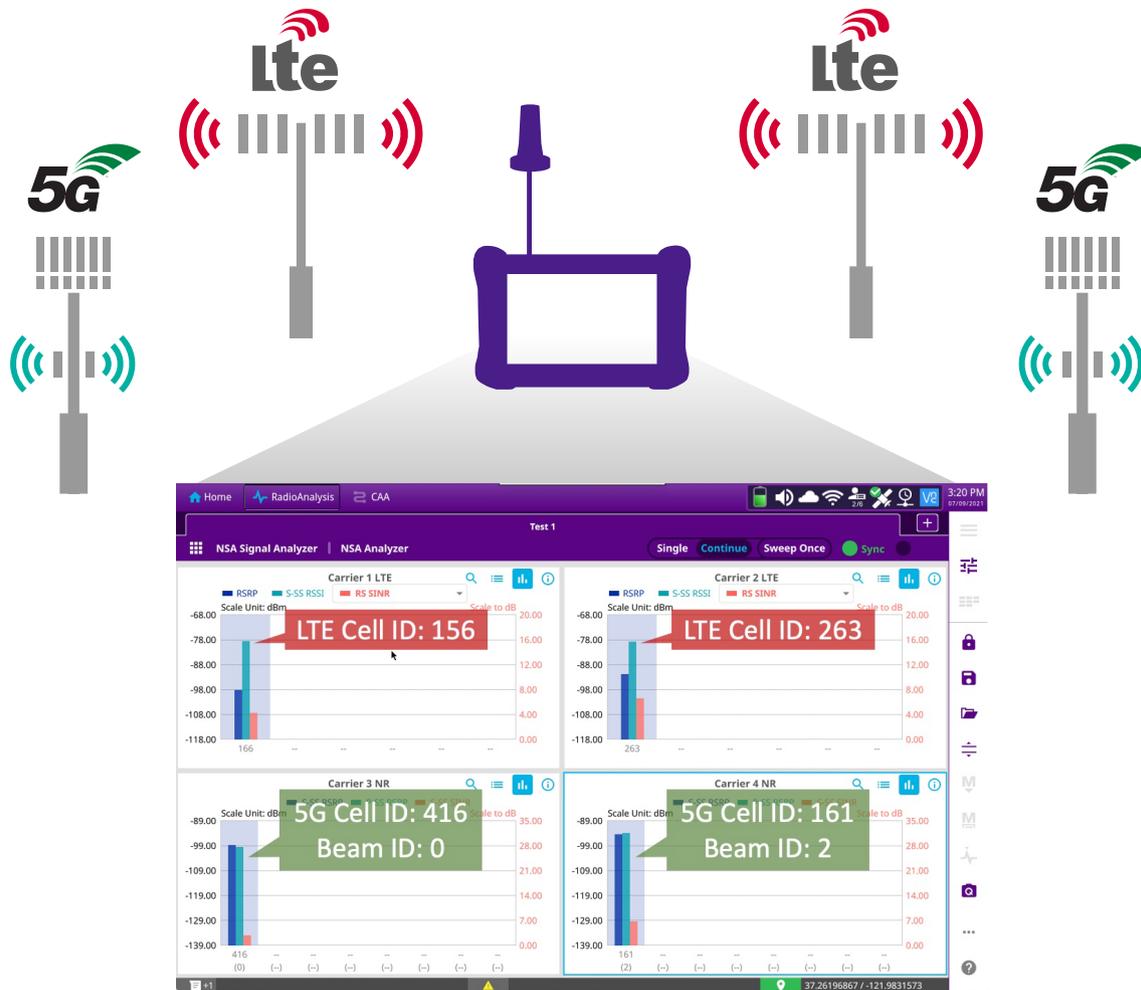
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OneAdvisor 800 5G Signal Analysis – Beamforming

NSA Signal Analysis

OneAdvisor 800 is capable of performing Non-Stand Alone (NSA) signal analysis, analyzing up to 8 different carriers at the same time, of either LTE and/or 5G at any band of any channel bandwidth, covering the following key measurements:

- NSA Analyzer: multi-serving cell and beamforming assessment and power levels.
- NSA Scanner: multi-servicing cell, power levels and signal quality (constellation and EVM)
- NSA Route Map: Service coverage verification.



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OneAdvisor 800 Non-Stand Alone (LTE and 5G) Signal Analysis

DSS Signal Analysis

OneAdvisor 800 is capable of performing Dynamic Spectrum Sharing (DSS) signal analysis, including the ability to scan multiple DSS carriers, multiple DSS radios transmitting on the same frequency, of either LTE and/or 5G at any band of any channel bandwidth, covering the following key measurements:

- RF Characterization: 3GPP conformance tests including, channel power, occupied bandwidth, and power vs. time (frame and slot)
- DSS Over-the-Air: channel scanner, analyzing multiple DSS carriers; ID scanner, measuring multiple cells (PCI); control channel, validating DSS pilot signals (LTE and 5G), and signal quality; and DSS route map for service coverage verification



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OneAdvisor 800 Dynamic Spectrum Sharing (DSS) Signal Analysis

Test Process Automation with Job Manager and StrataSync

VIAVI Test Process Automation allows cell technicians to perform installation and maintenance tests with confidence:

- In accordance with mobile operator's test criteria
- Covering all radio 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

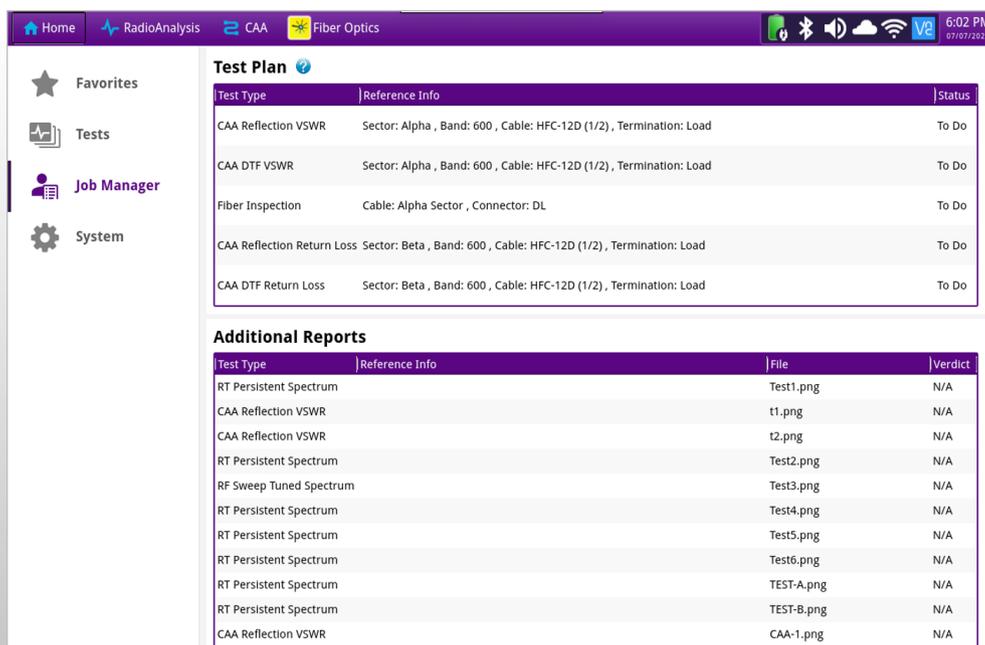
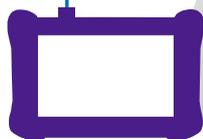
Job Manager

The VIAVI Job Manager automates test processes, offering mobile network operations and cell site construction teams a self-guided test solution, improving efficiency in the field for cell-site installation and maintenance.

Job Manager's automates the entire process ensuring the proper test sequence is executed according to mobile operator's requirements, configuration test time is minimized, and results are consistent and consolidated.



Job Manager



Test Type	Reference Info	Status
CAA Reflection VSWR	Sector: Alpha , Band: 600 , Cable: HFC-12D (1/2) , Termination: Load	To Do
CAA DTF VSWR	Sector: Alpha , Band: 600 , Cable: HFC-12D (1/2) , Termination: Load	To Do
Fiber Inspection	Cable: Alpha Sector , Connector: DL	To Do
CAA Reflection Return Loss	Sector: Beta , Band: 600 , Cable: HFC-12D (1/2) , Termination: Load	To Do
CAA DTF Return Loss	Sector: Beta , Band: 600 , Cable: HFC-12D (1/2) , Termination: Load	To Do

Test Type	Reference Info	File	Verdict
RT Persistent Spectrum		Test1.png	N/A
CAA Reflection VSWR		t1.png	N/A
CAA Reflection VSWR		t2.png	N/A
RT Persistent Spectrum		Test2.png	N/A
RF Sweep Tuned Spectrum		Test3.png	N/A
RT Persistent Spectrum		Test4.png	N/A
RT Persistent Spectrum		Test5.png	N/A
RT Persistent Spectrum		Test6.png	N/A
RT Persistent Spectrum		TEST-A.png	N/A
RT Persistent Spectrum		TEST-B.png	N/A
CAA Reflection VSWR		CAA-1.png	N/A

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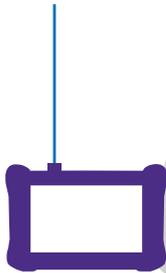
OneAdvisor 800 Job Manager

StrataSync

VIAMI StrataSync is a 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.

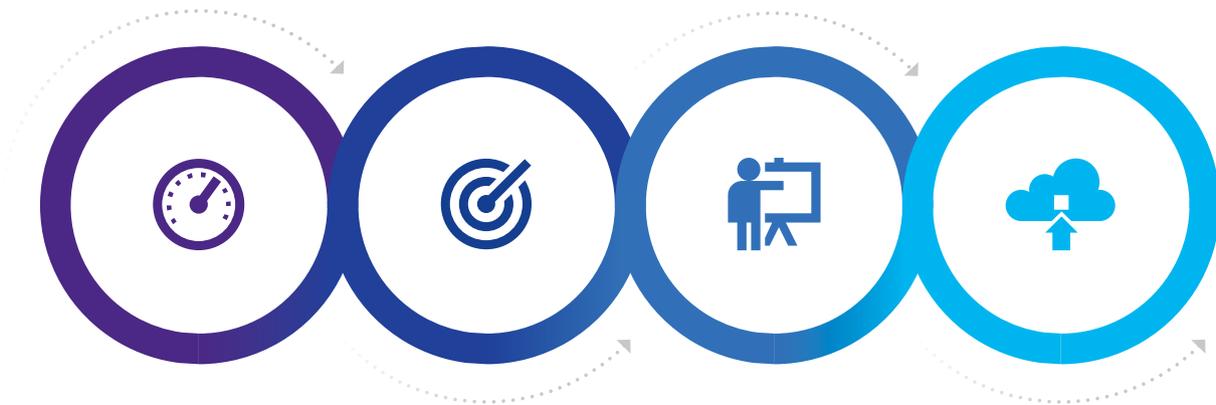
VIAMI StrataSync enabled



Asset class	Asset Type	Model	Serial No	Tech ID	Asset Status	Firmware	HW Version
Syncable	CellAdvisor CAA	JD723C	BEF31099	rfest1234	Active	1.066.001	1.000
Syncable	CellAdvisor BSA	JD745B	EFA41184	rfest1234	Active	3.110.023	4.000
Syncable	CellAdvisor BSA	JD745B	GAH41968	rfest1234	Active	3.110.025	4.000
Syncable	CellAdvisor 5G	CA5000	CASN003	rfest1234	Active	5.055.025v-1	004
Module	CellAdvisor 5G-module	Advisor SHIM	WHAK0041490005	rfest1234	Active		004
Module	CellAdvisor 5G-module	4136 MA3FCO	00791	rfest1234	Active		16
Module	CellAdvisor 5G-module	Advisor SHIM	WHAK0052090001	rfest1234	Active		005
Module	CellAdvisor 5G-module	4146 QJAD	34208	rfest1234	Active		27
Syncable	ONA-800	ONA-800	WMSR0011600010	rfest1234	Active	1.2.0-79d5204.	008
Module	ONA-800-module	4146 QJAD	36061	rfest1234	Active		27
Module	ONA-800-module	IDB-SA	WMSG0042000020	rfest1234	Active		004
Module	ONA-800-module	ONA-800A-DISPL	WMS0021600010	rfest1234	Active		002

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StrataSync – Asset Management



Faster Work Speed
Eliminate wasted time trying to remember which tests to run and how to run them

Greater Consistency
Drive consistent, repeatable results, regardless of technician skill or experience

Lower Training Costs
New technicians get up to speed quickly with easy-to-follow prompts

Peace of Mind
Test results automatically saved to StrataSync cloud

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