

Brochure

VIAMI

OneAdvisor 800 EMF Analyzer

Mobile service providers and regulatory agencies must continuously perform measurements to ensure compliance and personal safety of the public. VIAMI OneAdvisor 800 EMF Analyzer performs simple, effective, and accurate radiation and emissions measurements of radio signals.

Fast evolution of wireless technology accelerates the densification of cellular networks in line with the increasing demand for higher data throughputs. The evolution of these cellular networks and proliferation of transmitting antennas everywhere is significantly increasing human exposure to electromagnetic fields (EMF) from radio cellular signals.

VIAMI OneAdvisor 800 Wireless test set has been adopted by major mobile operators worldwide due to its comprehensive measurement capabilities of the radio access network (RAN) including the operation and performance of cell sites and the radio frequency (RF) environment, dealing with transmission, interference issues and EMF analysis.

OneAdvisor 800 EMF analyzer option detects the RF field strength and EMF levels of radio signals over the air. With the use of an isotropic antenna, it can perform simple and accurate radiation measurements on site, with clear PASS/FAIL indications based on a comparison of the radiation levels to different standardized permissible limits.

Besides the traditional frequency selective method, in spectrum view and scanner mode, the OneAdvisor 800 EMF Analyzer also features a code selective method capable of 5G NR Beam Analysis that shows the EMF power of the control beams over a multiple PCI measurement including extrapolation with full matching factor for the entire 5G channel width.

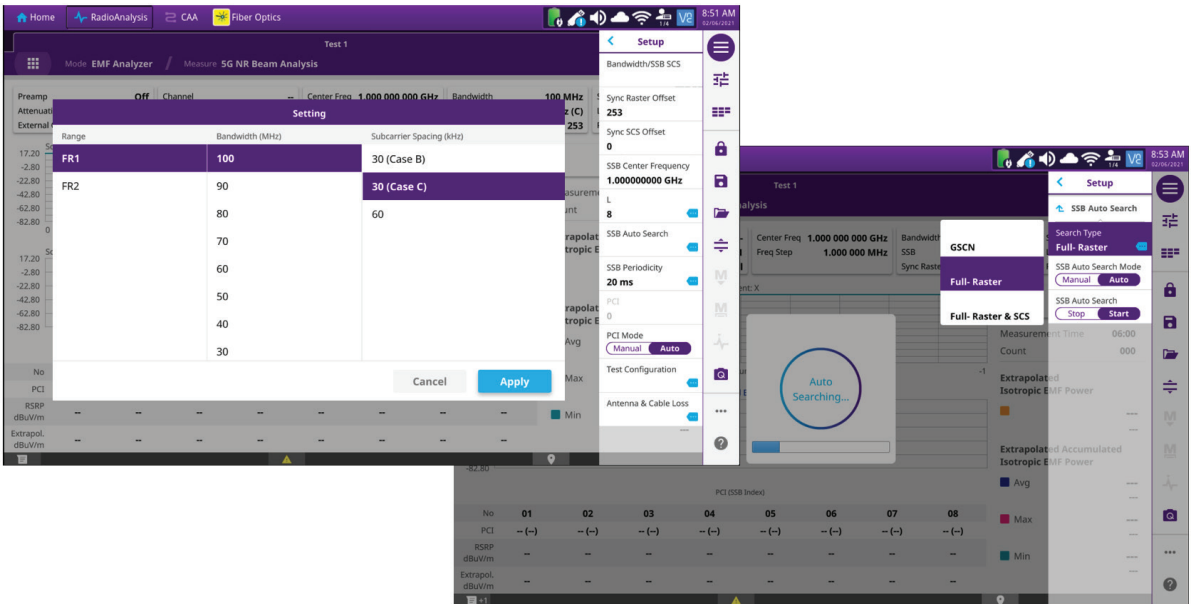
Furthermore, VIAMI has introduced a new variant of the code selective method for 5G NR EMF verification. This allows now to also verify the power emission levels of the traffic or user beams, which may increase the level of radiation onto the user during a high-speed data session.



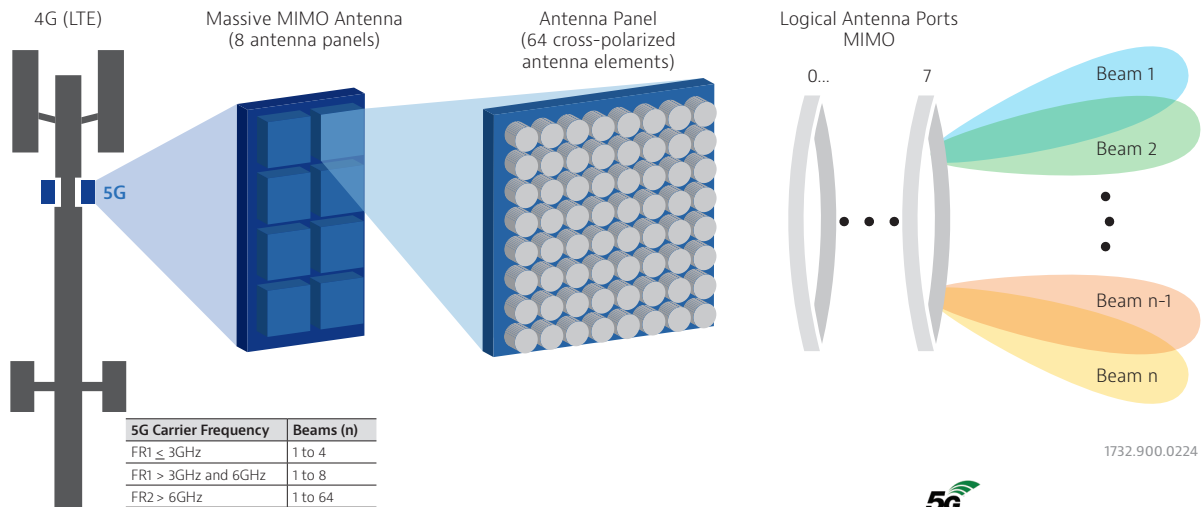
OneAdvisor 800 EMF Analyzer

Benefits

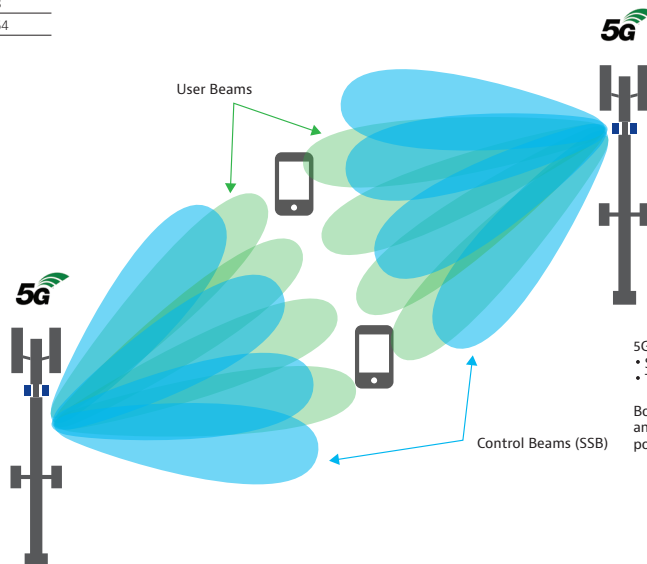
- The VIAVI OneAdvisor 800 Wireless platform combines in a single solution a general-purpose EMF spectrum selective analysis method with an additional 5G EMF code selective beam analysis method for 5G NR networks



5G NR Carrier Configuration and SSB Auto Search



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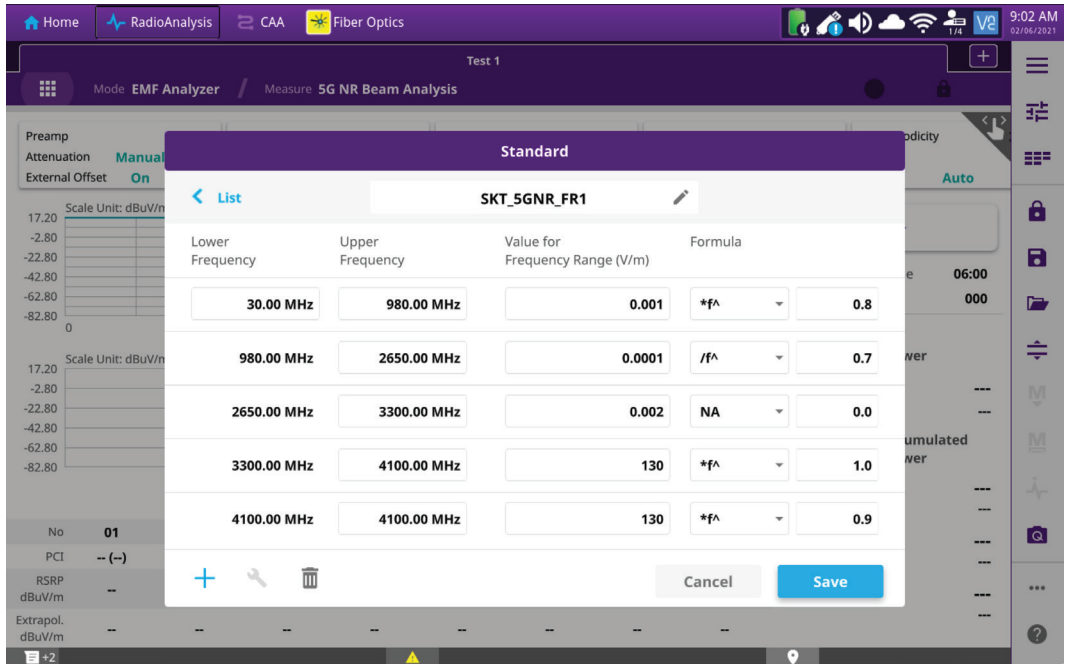
5G transmits two types of beams:

- SSB or Reference Beams (for coverage)
- Traffic Beams (for user data)

Both types of beam originate from the same 5G antenna, but traffic beams may carry more power than control beams.

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- Compliant with the Independent Commission on Non-ionizing Radiation Protection (ICNIRP) reference limits (other standards also supported, user configurable)



EMF Limit edit screen

- Supports 3GPP 36.113 standards for Base Station and Repeater Electromagnetic compatibility
- Effective PASS/FAIL and Alarm settings to identify any excess of radiation
- Supports a variety of isotropic and directional antenna model options, pre-defined in the instrument settings

Antenna List		
Model	Frequency Range (MHz)	Antenna Type
G700050381	30.00 - 6000.00	Isotropic E Field (AGOS)
USLP_9143	300.00 - 7000.00	Log Periodic Broadband (Schwarzbeck)
USLP_9143B	450.00 - 8000.00	Log Periodic Broadband (Schwarzbeck)
G700050366	200.00 - 4000.00	Log Periodic Broadband (VIAVI)
G700050367	300.00 - 6000.00	Log Periodic Broadband (VIAVI)
USLP_9142	800.00 - 5000.00	Log Periodic Broadband (Schwarzbeck)

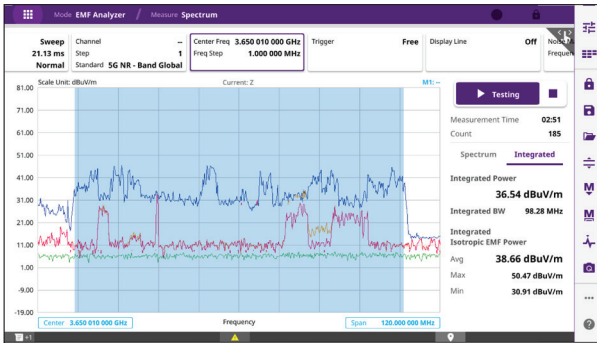
Standard Antenna List

- The OneAdvisor 800 EMF testing solution can be combined with other measurement capabilities, including an effective Real-time Spectrum Analyzer (RTSA) with 100 MHz/110 MHz of analysis bandwidth, integrated in the same tool

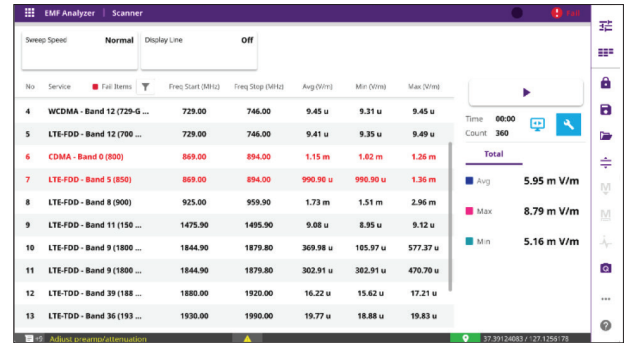
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Features

- Frequency selective EMF emission measurement with Trace statistics including Average, Max, and Min Isotropic EMF power accumulated over a measurement period of selectable duration. Spectrum and Scanner views are supported

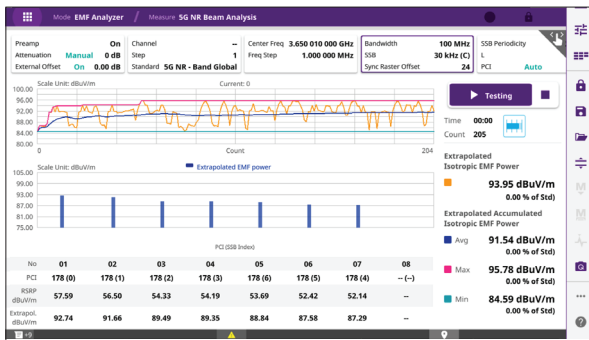


Spectrum view EMF power measurements



Scanner view EMF power measurements

- Code selective EMF emission measurements on control (SSB) beams or traffic (user) beams. Supports multi-beam analysis and multi-PCI decoding, showing EMF levels of RSRP for multiple beams with an extrapolated value to the full 5G channel.



EMF power measurements on 5G NR Beam Analysis (SSB)



EMF power measurements on 5G NR Traffic Analysis (user)

The Frequency selective method has been a traditional methodology, commonly used to verify radiation levels of any type of network technologies, including non-cellular ones. This methodology remains valid also, especially for FDD signals in the cellular industry. With the use of an isotropic antenna, this method in spectrum mode allows for a very complete analysis of the radiation levels of any frequency range – and in scanner mode it allows for a detailed comparison of the radiation levels produced by multiple frequency ranges, down to a single cellular band or individual channel.

The Code selective method addresses the shortcomings of the frequency-based methodology for certain types of signals like TDD ones and is particularly suitable for 5G NR channels that operate in high-frequency ranges with beamforming through the SSB transmission. This method requires demodulation of 5G reference signals and makes use of a signal synchronization mode, based on the individual transmission of a single radio identified by its PCI number. While this methodology has been typically applied to verify EMF emissions from SSB beams, also known as control, reference or coverage beams, VIAVI has introduced a new variant of this method. It allows to verify the power emission levels of traffic or user beams, which may increase the level of radiation onto the user during a high-speed data transfer from the radio base-station down to the user equipment, i.e., a phone or any other type of user equipment.

Ordering Information

Description	Part Number
OneAdvisor 800 Wireless Mainframe integrated with one of the VIAVI Radio Analysis modules, available in a choice of frequencies from 9kHz to 6GHz, 9GHz, 18.5GHz, 32GHz and 44GHz.	ONA-800A SPA06MA or SPA06MA-O RA09MA-O RA18MA-O RA32MA-O RA44MA-O
EMF Analysis (Spectrum Analysis base)	ONA-SP-EMF-SA
EMF Analysis (NR Beam Analysis base, incl. Traffic beam analysis)	ONA-SP-EMF-NR
Isotropic Antenna (400 MHz – 6 GHz), usable from 30MHz	G700050381

G700050381 Isotropic Antenna Specification (supplied by AGOS)

Parameter	
Antenna Type	Isotropic E Field
Frequency range	400 MHz to 6 GHz (usable from 30MHz)
Frequency correction factors	Stored in EEPROM
Transducer type	Isotropic transducer with 3 orthogonal dipole antennas, with RF absorbing boom
Polarization	Linear, tri-axial polarization selection by means of internal electronic solid state RF switch
Axis selection	By PC via USB axis selection SDSW-03 interface
Linear dynamic range	0.2mV/m to 200 V/m (1dB compression point)
Sensitivity	<0.3 mV/m (depend of RBW and noise quality of spectrum analyzer)
Max applicable field strength	300 V/m
Linear dynamic range	Up to 200V/m (1dB compression point)
Isotropic error on rms total electric field	±1.5 from 400 MHz to 1500 MHz
	±2.0 from 1500 MHz to 2000 MHz
	±2.5 from 2000 MHz to 3500 MHz
	±3.5 from 3500 MHz to 6000 MHz
Dimension	Antenna radome ø130 mm, total length 390 mm
Antenna Weight	0.6 kg
RF connector	N type Male, 50Ω
Protection class	IP 45
Temperature range	-20°C to +55°C
Humidity	Max 95% at 40°C without condensation
Recommended calibration interval	2 years
Standard Accessories	
Included with the isotropic antenna	SDSW-03, USB to UART converter
	1.7 m composite cable, ferritized, with calibration certificate of attenuation and return loss
	Vertical support for fixing to ¼" thread
	Hard carrying case

Typical Antenna factors

Individual calibration data. Paper calibration certificate enclosed

Frequency (MHz)	Antenna factor (dB/m) typical	Frequency (MHz)	Antenna factor (dB/m) typical	Frequency (MHz)	Antenna factor (dB/m) typical
400	51.9	1400	43.2	4400	46.5
600	50.2	2600	42.2	4600	47.7
800	46.5	2800	42.2	4800	46.8
1000	45.1	3000	43.5	5000	49.0
1200	43.1	3200	43.3	5200	47.6
1400	44	3400	45.0	5400	48.8
1600	41.8	3600	44.1	5600	49.0
1800	43.3	3800	45.9	5800	48.5
2000	43.9	4000	45.1	6000	49.6
2200	42.9	4200	46.7		



For more information, visit our [OneAdvisor 800 Wireless](#) page.



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