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Technological Solutions Experts

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Bogotá, D.C. - Colombia

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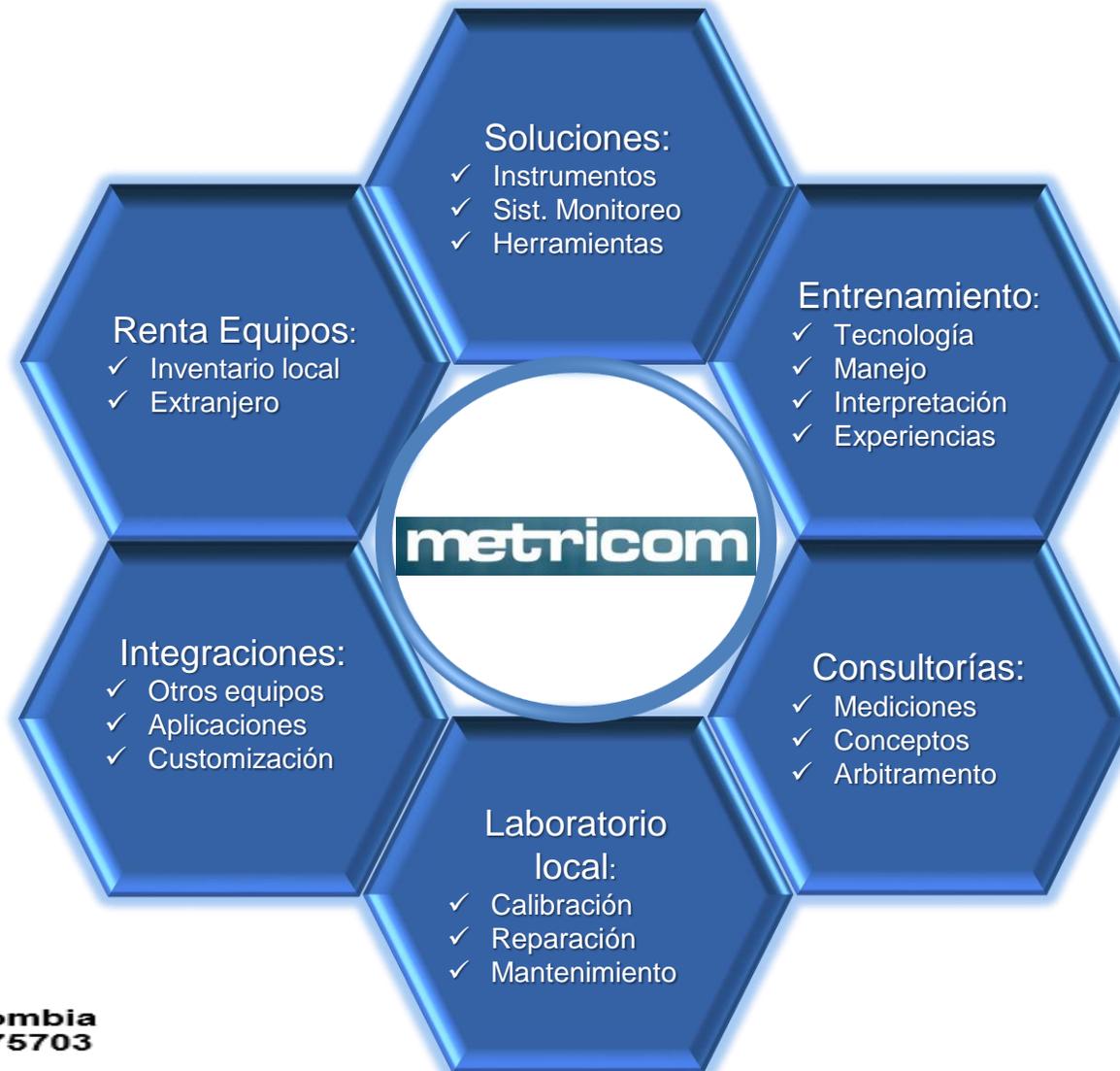


SC3457-1



1

# Portafolio



## Tecnologías y aplicaciones



# Fabricantes Representados

Anritsu

PAT FLEX

ETS-LINDGREN  
An ESCO Technologies Company

SIGLENT

WAVECONTROL  
Safety, Quality, Service

KEYSIGHT Ixia

metricom®

FITEL

VeEX  
The Verification Experts

WENS

TriBrer®

RADCOM

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KEYSIGHT  
Nemo Wireless  
Network Solutions



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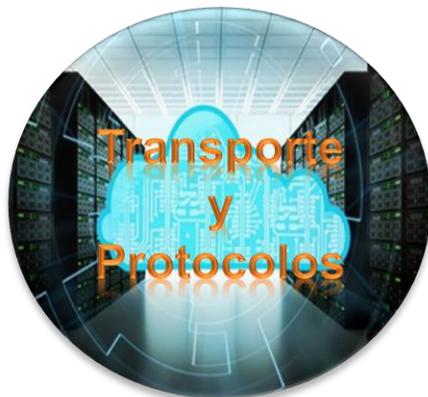


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# Índice

## Portafolio Equipos

Hacer click en el círculo de interés



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# Portafolio para óptica



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# OTDRs

- Amplia gama de longitudes de onda:
  - 850, 1300, 1310, 1490, 1550, 1625, 1650nm
- Diferentes rangos dinámicos
  - 28 a 50dB
- Aplicaciones en Metro, Long Haul y FTTx
- Opciones adicionales:
  - VFL, OPM, OLTS, LS, Microscopio, WiFi, BT

# OTDRs

	MODEL NUMBER	WAVELENGTH	FEATURES
	<b>MT9085</b> <b>OTDR - ACCESS Master</b>	Opt-053: 1310/1550 nm SM Opt-055: 1310/1550/1650 nm SM Opt-056: 1310/1490/1650 nm SM Opt-057: 1310/1550/1625 nm SM Opt-058: 1310/1490/1550/1625 nm SM Opt-063: 1310/1550 nm SM, 850/1300 nm MM	OTDR function, light source, optical power meter, and visual light source built into all-in-one tester plus externally connected fiberscope (VIP)
	<b>MT1000A</b> <b>Network Master Pro (Ethernet / FC / OTN / SDH / OTDR Test Equipment)</b>	MU100020A: 1310 nm/1550 nm SM  MU100021A: 1310 nm/1550 nm SM, 850 nm/1300 nm MM  MU100022A: 1310 nm/1550 nm/1625 nm SM  MU100023A: 1310 nm/1550 nm/1650 nm SM	Supporting 10/100G, OTDR, and CPRI tests, portable tester with superior operability and expandability
	<b>MW90010B</b> <b>Coherent OTDR</b>	1,527.60 — 1,567.13nm SM	Coherent OTDR for detecting faults in very long submarine cables (up to 20,000 km) with high measurement resolution of 10 m

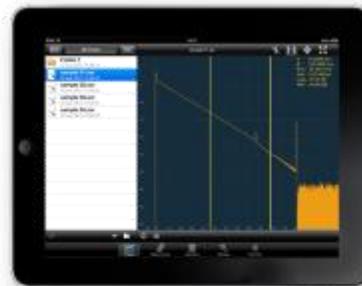
# OTDRs



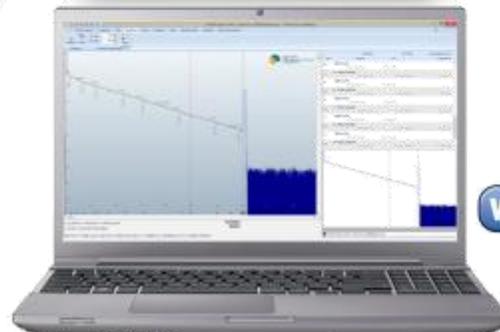
FX150+ OTDR



TX300 OTDR



OPXe+ OTDR



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# OTDRs

## FL150 FaultScout®



New

Fiber Optic Multimeter

Compact, rugged optical fiber multimeter for novice and service activation technicians to certify...

[Learn More](#)

## FX150+



PON or Point-to-Point Mini OTDR

Standard OTDR or PON optimized OTDR with up to 256,000 data points and 3 cm resolution, the...

[Learn More](#)

## MTTplus-410+



OTDR Module

The MTTplus-410+ Fiber Optics test module for the VeEX® MTTplus platform now has up to 500,000...

[Learn More](#)

## RXT-4113+



xWDM OTDR Module for RXT-1200

The new RXT-4113+ is our latest generation xWDM OTDR module. Users can now select CWDM,...

[Learn More](#)

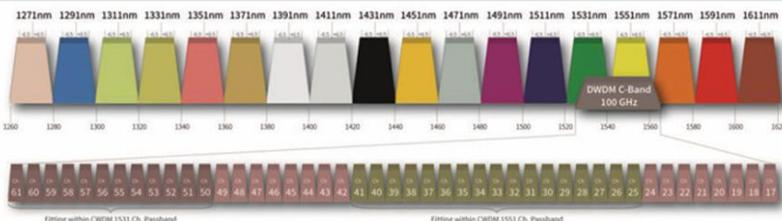
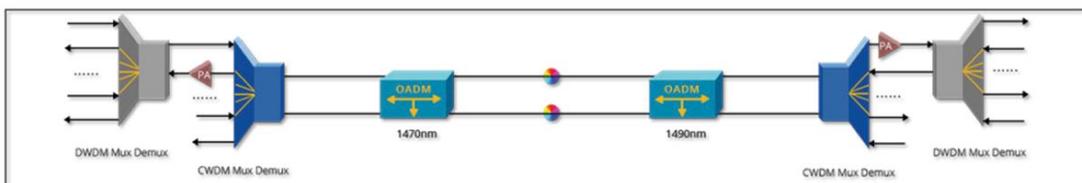
# OTDR xWDM

## Key Features



### Optical

- CWDM wavelengths per ITU-T G.694.2 (8, 10, or 18 channels)
- DWDM wavelengths per ITU-T G.694.1 (C-band, 1529.16 to 1563.86 nm, Channel #s 17-60) in 50, 100 or 200 GHz steps
  - Optional extended channel 14-62 available
  - TEC laser stabilization for hot and cold weather conditions
  - Built-in DWDM wavelength locker with  $\pm 2.5$  GHz stability
- Legacy wavelengths include 1310, 1550 and 1625 live testing
- PON up to 1:32 splitter
- Sampling resolution up to 500,000 points
- Event dead zone <0.85 m, attenuation dead zone <3.5 m
- High dynamic range for long haul fibers and testing through xWDM Mux/demux
- Telcordia GR-196 and SR-4731.sor file formats
- Optional V-Scout mode – Smart Link Mapping using intuitive icons derived from multiple test acquisitions
- Optional CWDM/DWDM/Legacy Light Source via OTDR port
- Optional broadband Optical Power Meter
- Optional VFL 650 nm light source
- Built-in G.657A2 launch fiber to characterize OTDR connections and short fiber spans
- Fixed connector or universal 2.5 mm optical interface with inter-changeable optical adaptors (SC/FC/LC)



# Accesorios para OTDR



## Microscopios para OTDR y PC

File(F) Setting(S) Process(P) Help(H)

Status: Captured Microscope: G0306C Tip: 2.5PC-M Profile: SM UPC>45

Live  
Export Image  
Analyze

vip\_20072021\_0000.vipi  
vip\_20072021\_0001.vipi  
vip\_20072021\_0002.vipi

Used VIP status  
Probe Name : G0306C  
Tip Name : 2.5PC-M

Show Overlays

**PASS**

Zone Name	Diameter (μ)	Result	Defects	Count	Scratches	Count
Core	25	PASS	PASS	0	PASS	0
Cladding	115	PASS	PASS	0	PASS	0
Adhesive	135	PASS	PASS	0	PASS	0
Contact	250	PASS	PASS	0	PASS	0

Auto Analyze | Auto Save | Current File:

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Bobina de Lanzamiento y Pruebas

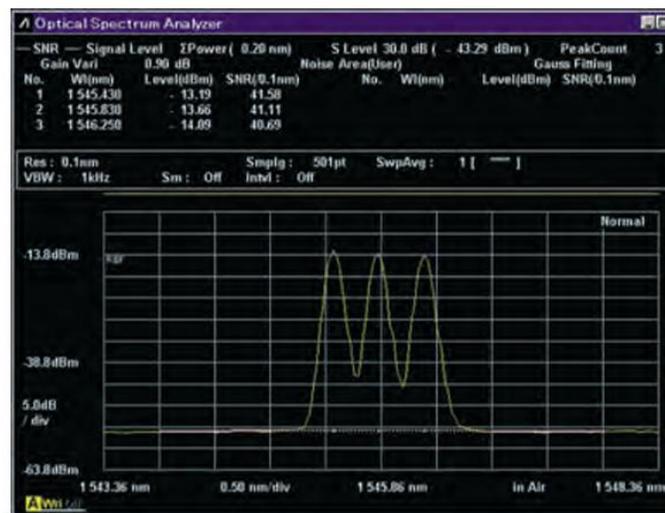
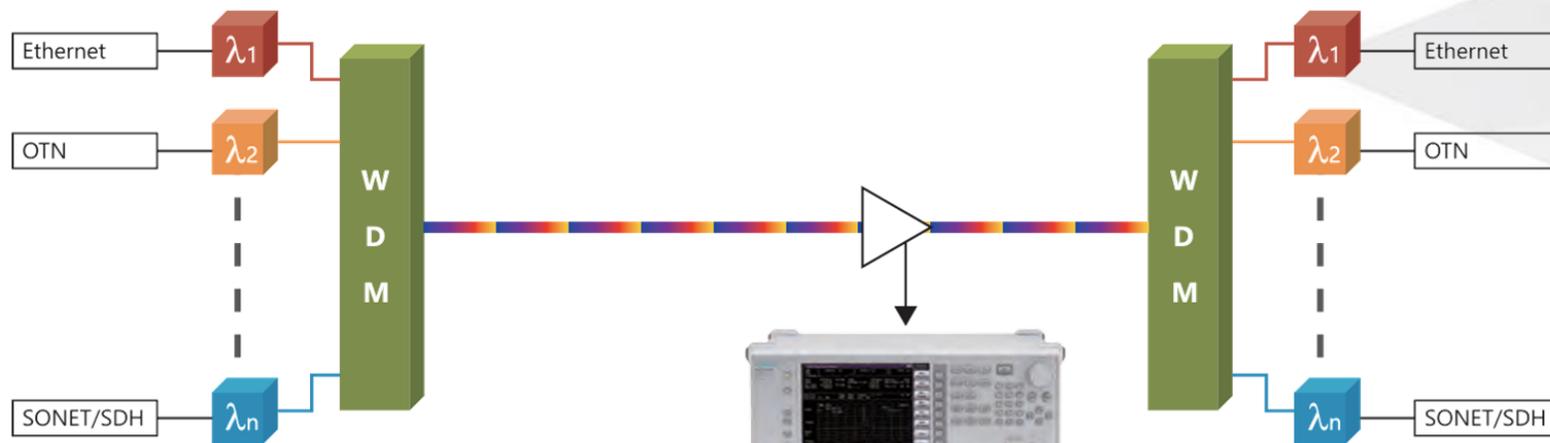


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# Analizador de espectro Óptico



MS9740B  
600nm to 1750nm



OSNR Measurement using Noise Fitting  
(Noise area specified by user)

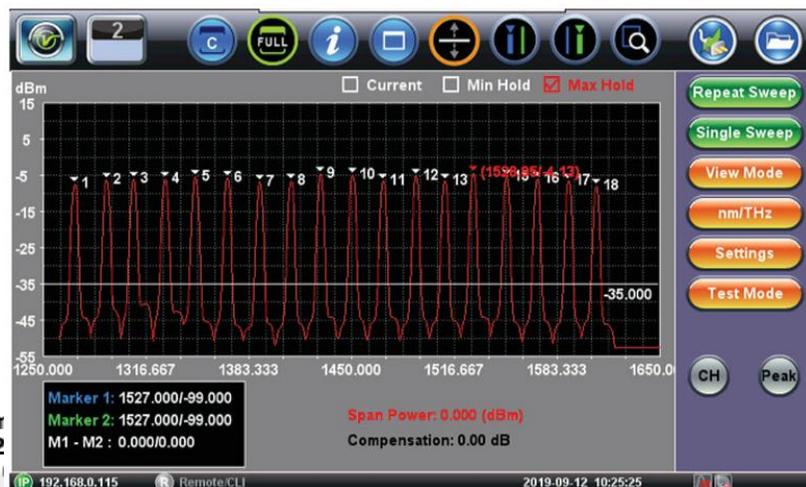
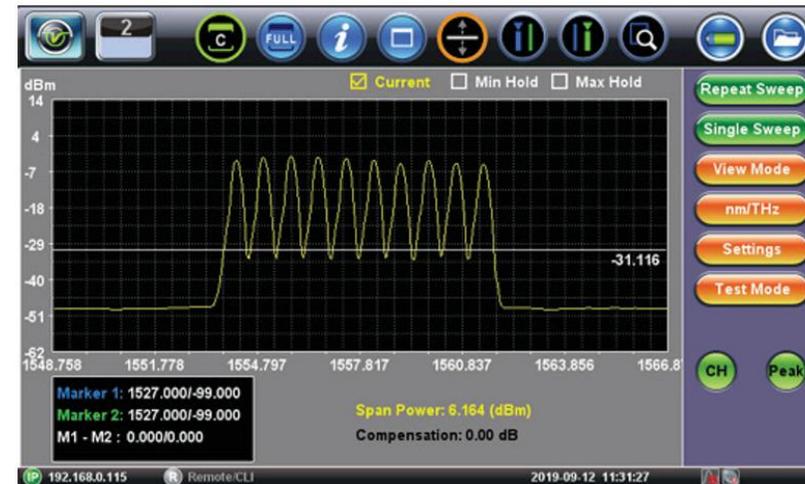
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# Analizador de espectro óptico



Ch#	Peak (nm)	Center (nm)	Delta(nm)	Power	OSNR	BW 3dB	/20dB(nm)
1	1270.429	1270.407	N/A	-7.266	N/A	N/A	N/A
2	1290.953	1290.995	N/A	-6.020	N/A	N/A	N/A
3	1308.527	1308.449	N/A	-5.648	N/A	N/A	N/A
4	1328.978	1329.065	N/A	-5.691	N/A	N/A	N/A
5	1348.637	1348.624	N/A	-5.160	N/A	N/A	N/A
6	1369.381	1369.387	N/A	-5.457	N/A	N/A	N/A
7	1390.482	1390.417	N/A	-6.500	N/A	N/A	N/A
8	1410.741	1410.800	N/A	-6.234	N/A	N/A	N/A
9	1429.901	1429.921	N/A	-4.312	N/A	N/A	N/A
10	1450.620	1450.617	N/A	-4.703	N/A	N/A	N/A
11	1470.561	1470.551	N/A	-6.199	N/A	N/A	N/A

Repeat Sweep  
Single Sweep  
View Mode  
nm/THz  
Settings  
Test Mode  
CH Peak

192.168.0.115 Remote:CLI 2019-09-12 10:28:31

www.n  
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# Verificador Canales Ópticos C / DWDM

## Key Features



FX180X OCC

- Easy operation
- Fast bootup time, 30 seconds
- Fast <3 seconds measurement time
- DWDM ITU-T G.694.1 Channels 14-62 or CWDM ITU-T G.694.2 from 1271 to 1611 nm
- Bar Graph or Table View modes
- Supports DWDM channel grid down to 50 GHz
- Ideal for Remote PHY Deployments
- Active Channel Pass/Fail detection
- Pass/Fail Level threshold
- A/B channel markers
- Built-in wavelength reference
- Continuous Testing
- Generate and save test results in HTML file format
- High wavelength accuracy
- Dynamic Measurement range:  $\geq 65$  dB
- Low Polarization Dependent Loss (PDL)

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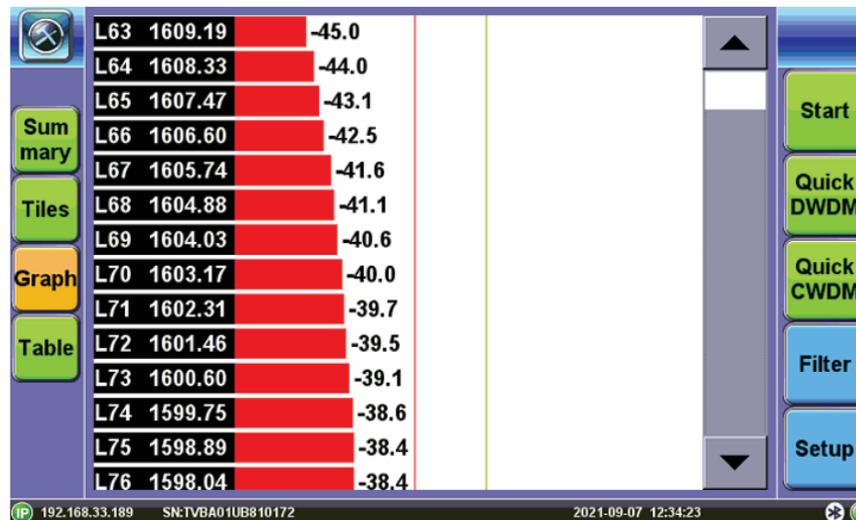
# Verificador Canales Ópticos

## xWDM



FX182X OCC

- Fast <3 seconds measurement time
- DWDM 100 GHz ITU-T G.694.1 C & L-Bands (1520nm to 1610nm)
- CWDM ITU-T G.694.2 from 1271 to 1611 nm
- 3 View Modes: Tiles\*, graph, and table view
- Measurement range: ≤65 dB
- Active channel Pass/Fail detection
- Programmable Pass/Fail Level threshold
- Programmable channel tables
- Built-in wavelength reference
- Continuous scanning of all channels



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# FX92 Verificador Canales Ópticos

NEW!!



## Key Features

- Fast scan speed, <1 second
- Continuous scanning of all channels (C-band)
- Viewing modes: Summary, Tile, Bar Graph, and Table
- Active channel detection
- Customizable channel plans to focus on expected wavelengths
- Programmable Pass/Fail level thresholds
- Max Hold feature helps identify channel level fluctuations and intermittent channel events
- 2-channel level comparison
- Test point attenuation compensation function
- Frequency spectrum: 191.00 – 196.25 THz
- Wavelength range: 1569.59 to 1527.60 nm
- Peak wavelength resolution: 0.01 nm
- DWDM channel grid: 100 GHz (50 GHz optional) ITU-T G.694.1
- Frequency accuracy\*:  $\pm 6.25$  GHz
- Channel input power\*: -40 to 0 dBm at 50 GHz
- Power measurement resolution: 0.1 dB
- Relative power accuracy\*: 0.9 dB
- Maximum channels composite power: 22 dBm

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# OPM, LS, OLTS, VFL



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# Equipos FTTx

PX90



New

PON Service Installation Meter

Residential & Business PON Internet Access Services Test Set

FX120/FX120 Lite



New

PON Analyzer and Multi-Gig Service Test Set/PON Analyzer

The Next Generation FX120 is an all-in-one advanced PON analyzer with a native RJ45 port and an SF...

[Learn More](#)

FX41xT



New

Selective PON Optical Power Meter for G-PON and XGS-PON

Provides fast, simple, and precise measurement of G-PON and XGS-PON downstream signals. Miniatur...

[Learn More](#)

FL150 FaultScout®



New

Fiber Optic Multimeter

Compact, rugged optical fiber multimeter for novice and service activation technicians to certify...

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FX81/FX81T



1G/10G/25G PON OPM

Optical power meter for installation, service activation and troubleshooting of B/GPON, XG(...

[Learn More](#)

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# PX90 PON Service Instalation Meter



## Key Features

- Simple and complete solution for residential PON services installation, activation and validation
- Terminated filtered Optical Power Meter for GPON and XGS-PON downstream signals
- Supports simultaneous GPON and XGS-PON optical power measurements
- ONT and OLT Pass/Fail thresholds with class selection
- Internet Access Speed Test, with Ookla® Speedtest® and iPerf support
- LAN 1000BASE-T speed tests
- WiFi 4/5/6E (802.11a/b/g/n/ac/ax) 2.4GHz, 5GHz and 6 GHz scan, coverage verification and speed test
- Intuitive graphical results presentation with easy to read performance metrics
- Supports customized test profiles, to address different types of services and test points
- Supports multiple user profiles for people sharing test sets

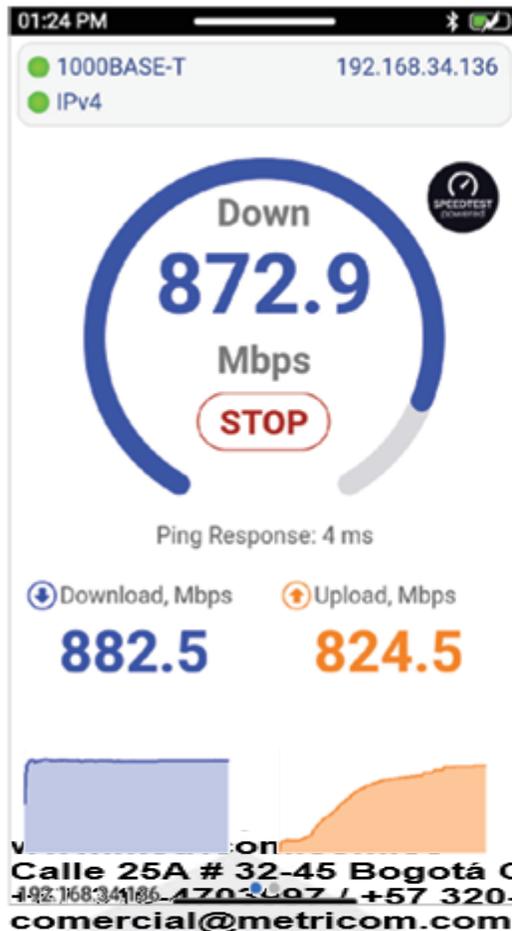
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# PX90PON Service Meter

## Ookla® Speedtest®

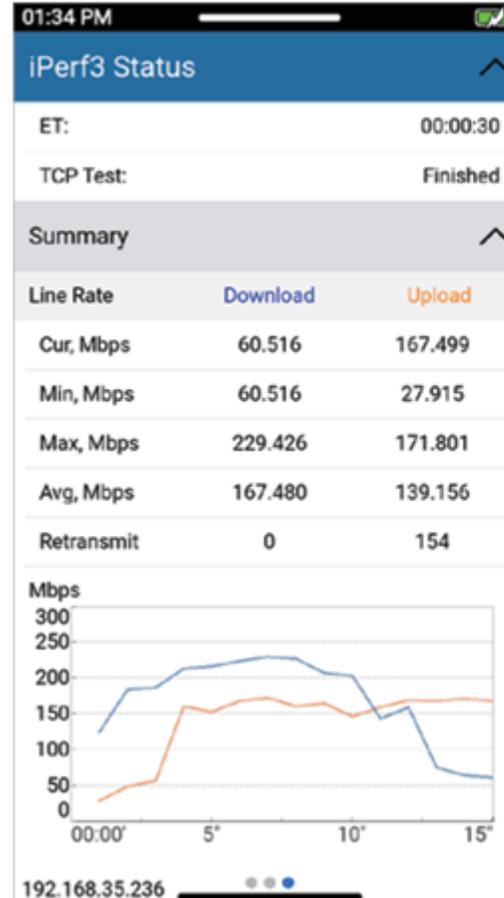


## WiFi 4/5/6E Channel Scan

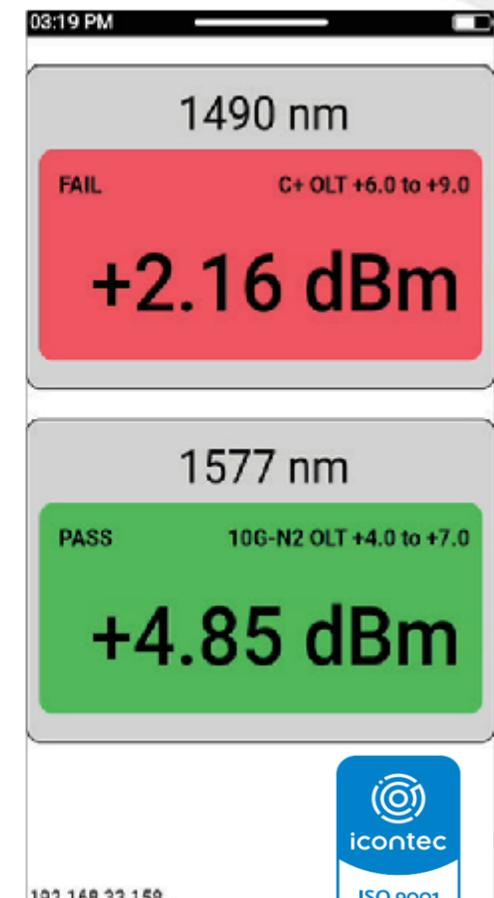
07:52

SSID	BSSID
16	50
AP Scan	
VeEX Office	Ch:149
-63dBm 2e:70:4e:31:62:fb 5GHz	a/n/ac/ax
6ghz-control	Ch:101
-70dBm 2a:70:4e:31:65:a8 6GHz	a/ax
ATT5gfI7KK	Ch:44
-71dBm e0:22:02:60:8c:da 5GHz	a/n/ac
ATT7qyaGGN	Ch:6
-78dBm ac:8fa9:42:c8:a4 2.4GHz	b/g/n
ATT7SxS85e	Ch:153
-60dBm e0:22:04:5a:94:ca 5GHz	a/n/ac
ATTc2SuVsj	Ch:36
-71dBm bc:9a:8e:cf:c4:48 5GHz	a/n/ac/ax
ATTHaWpPRC	Ch:60
-67dBm 6c:4b:b4:4f:43:08 5GHz	a/n/ac/ax
ATTQqfkcjg	Ch:153

## iPerf TCP/UDP Throughput Test



## Selective Optical Power Meter (PON-T OPM)





# Equipos OLTS

FX40



OPM / OLS

Fiberizer® software for Windows® Desktop, Android™, and/or Apple® mobile devices is...

[Learn More](#)

FX45/48



OPM / OLS / OLTS

Fiberizer® software for Windows® Desktop, Android™, and/or Apple® mobile devices is...

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FX82/82s



OPM

The FX82 features excellent measurement accuracy over a broad wavelength and wide...

[Learn More](#)

FX83



OLS

The FX83 OLS is equipped with high performance lasers offering excellent wavelength and power...

[Learn More](#)

FX84



OLTS | Uni-directional

The FX84 OLTS combines power meter and light source functions into a single test unit. Individual...

[Learn More](#)

# Equipos FTTx

## FX120

### XG(S)-PON Analyzer

- Herramienta ideal para la activación de servicios PON y búsqueda de fallas.
- Compatible con GPON y XG(S)-PON
- Pruebas 1G/2.5G/5G/10G Ethernet throughput, ping, trace route, Speedtest.
- Medidor de potencia pass-through
- Identificación PON-ID acorde ITU-T G.984.3 Amd 3
- Captura y decodificación PLOAM



# Microscopios ópticos

DI-1000



Fiber Inspection Microscope

The ergonomically designed DI-1000 connects directly to VeEX test sets through its USB 2.0 po...

[Learn More](#)

DI-1000MPO+



Fiber Inspection Microscope | MTP / MPO

Optimized for testing MTP/MPO connectors retaining backwards compatibility with existing singl...

[Learn More](#)

DI-3000



Fiber Inspection Microscope | Wireless

WiFi connectivity enables tether-free operation with Android or Apple iOS mobile devices...

[Learn More](#)

# Microscopios ópticos

SELECT ORDER ▼	MODEL NUMBER
	<b>G0382A</b> Autofocus Video Inspection Probe
NEW 	<b>G0306C</b> Video Inspection Probe



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# Kits de limpieza óptica



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# Empalmadoras



Kits de Herramientas



Empalmadora de alineación por núcleo FITEL S179



Empalmadora de alineación por Cladding FITEL NINJA



Cortadora de alta precisión



Herramientas e insumos de preparación

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# Empalmadoras Ribbon



## Features and Benefits

- Easily exchangeable fiber guide V-grooves
- Up to 12-fiber ribbon splicing
- 15-second-high speed splicing operation
- Applicable for both 250  $\mu$ m and 200  $\mu$ m pitch ribbon fiber
- Simple operation with touch panel and GUI
- 3 Bright LED's to illuminate the operation area
- Wi-Fi connectivity for smartphone data management and control



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# Sistema de monitoreo RFTS



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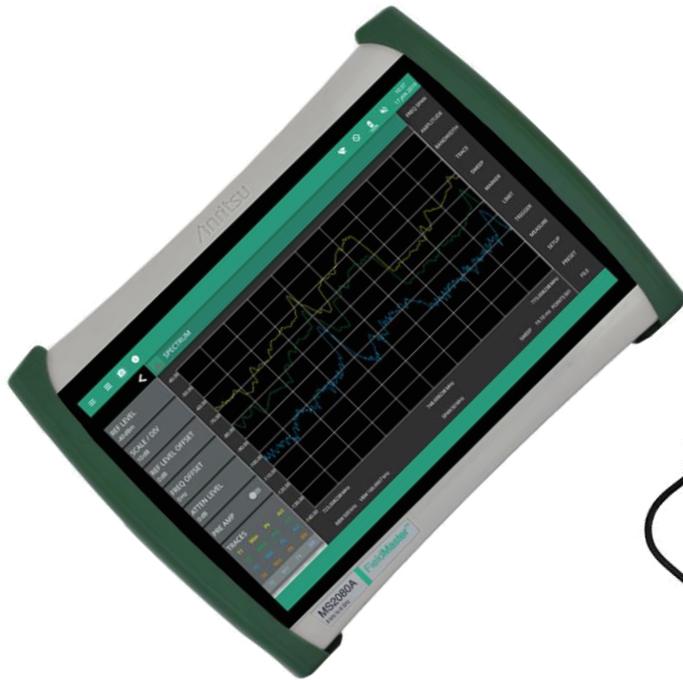
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**Anritsu** Advancing beyond

# Portafolio RF



Field Master Pro<sup>™</sup>  
MS2090A



Field Master<sup>™</sup>  
MS2080A



Field Master<sup>™</sup>  
MS2070A



LMR Master<sup>™</sup>  
S412E



Microwave Site Master<sup>™</sup>  
S820E



ShockLine<sup>™</sup> Vector Network Analyzer  
MS46xxxB



Remote Spectrum Monitor  
MS27103A



Rubidium<sup>™</sup> Signal Generator  
MG36221A



VectorStar<sup>™</sup>  
MS4640B Vector Network Analyzer



Power Master<sup>™</sup>  
MA245xxA



Spectrum Master<sup>™</sup>  
Ultraportable  
MS276xA



Site Master<sup>™</sup>  
S331P



ShockLine<sup>™</sup>  
ME7869A



USB Power Sensors  
MA24xxA



Power Meter  
ML2437xA



VNA Master<sup>™</sup>  
MS2036C



Spectrum Master<sup>™</sup>  
MS2720T



PIM Master<sup>™</sup>  
MW82119B

# Portafolio RF

## Bit Error Rate Testers (BERT)/Oscilloscope

BERT - Bit Error Rate Tester  
Sampling Oscilloscope

## Vector Network Analyzers

Vector Network Analyzers  
Vector Network Analyzers Handheld

## Components Accessories

Precision Microwave Components (leave  
Test and Measurement)

## RF Microwave Measuring Instruments

Power Meters  
Power Sensors

## Signal Generators

Signal Generators

## Signal/Spectrum Analyzers

Signal/Spectrum Analyzers  
Spectrum Analyzers Handheld  
Spectrum Monitoring  
Trace Management

## Mobile/Wireless Communications Measuring Instruments

Bluetooth and WLAN Testers  
Cable and Antenna Analyzers  
Channel Emulator/Fading Simulator  
Conformance Test Systems  
Handset One Box Testers  
Land Mobile Radio  
Passive Intermodulation Analyzers  
Shield Box/Chamber  
Signaling Testers (Base Station Simulators)  
Open RAN Testers

# Analizador redes WiFi

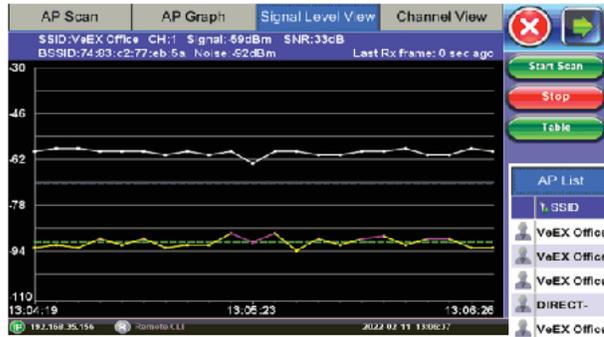
- Soporta detección y conexión a dispositivos 802.11a/b/g/n/ac
- Descubre redes y enumera Puntos de Acceso (APs) Clientes y Canales en formato tabular y gráfico
- Descubrimiento de capacidades detalladas por AP que incluyen SSID, canales, seguridad, tasas de datos soportadas, niveles de señal y ruido como APs adyacentes y clientes asociados
- Explorar problemas de cobertura con registro de niveles de señal y ruido
- Analizar uso de Canal por utilización y número de APs
- Descubre Clientes WiFi asociados y no-asociados presentes en la red
- Auto-Prueba de una tecla evalúa la salud de la red WiFi con análisis de seguridad, cobertura, interferencia, *top-talkers* y conectividad con una lista configurable de AP
- Prueba de conectividad por DHCP a APs por Ping, Trace Route y ARPWiz
- Verificar desempeño de red en ambos extremos con pruebas de Throughput por V-Perf TCP/UDP Carga/Descarga
- Puertos 10/100/1000-T y 1000-X para verificar desempeño de throughput extremo-a-extremo
- Prueba de conectividad Ethernet y PoE
- Analizador de Espectro opcional de doble banda 2.4 GHz y 5 GHz para descubrir e identificar fácilmente interferencia WiFi y no-WiFi



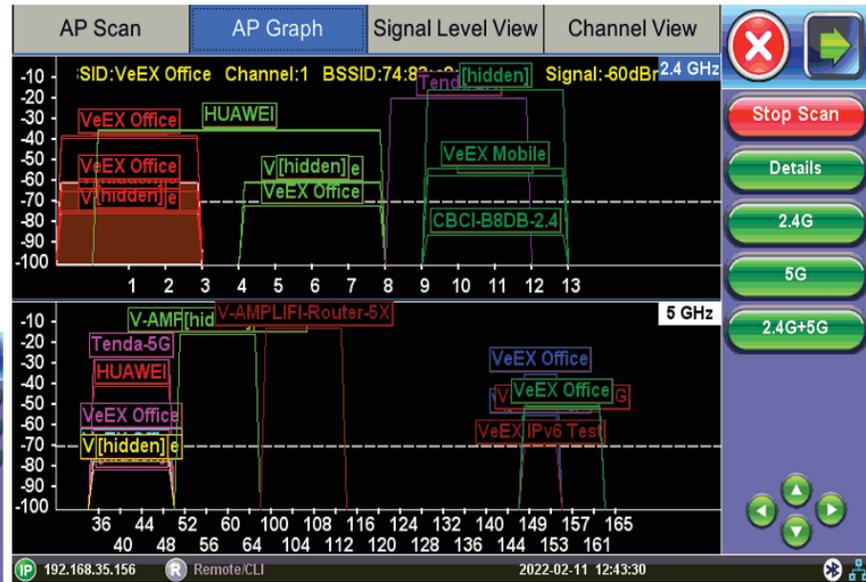
# Analizadores de Redes WiFi

## WX150 WiFi 6

### WiFi 6 Air Expert Test Set



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MAC	Associated AP SSID	Max AP Rate	Chl
✓ 32:D2:6C:6F:33:30	VeEX Mobile	216Mb/s	11
✓ F8:4D:89:65:8D:48	VeEX Office	1733Mb/s	48
✓ F4:5C:89:85:E3:C3	VeEX Office	800Mb/s	149
⚠ 4E:DC:C6:21:A9:1A	VeEX Office	1733Mb/s	40
✓ F6:3B:25:9A:66:14	VeEX Office	1733Mb/s	44
✓ A0:AF:BD:3D:B1:0C	VeEX Mobile 5G	1299Mb/s	153
⚠ 72:5F:BE:E6:2C:15	VeEX Office	346Mb/s	1
⚠ 0E:8A:F4:C9:26:D1	VeEX Office	1733Mb/s	161
⚠ 60:57:18:FF:4D:03	VeEX Office	1733Mb/s	161
⚠ F8:4D:89:63:E8:C9	VeEX Office	1733Mb/s	161
✓ 3C:06:30:5A:50:87	VeEX Office	1733Mb/s	161
✓ 28:39:5E:51:80:14	VeEX Mobile	216Mb/s	11



# Analizadores de Cables y Antenas

SELECT ORDER ▼	MODEL NUMBER	VNA FREQUENCY	SPA FREQUENCY	SWEEP SPEED
	<b>MS2085A-MS2089A</b> Site Master Handheld Cable And Antenna Analyzer with Spectrum Analyzer	5 kHz — 4 GHz 5 kHz — 6 GHz	9 kHz — 4 GHz 9 kHz — 6 GHz	350 μs/data point
	<b>S331P</b> Site Master Ultraportable Cable and Antenna Analyzer	150 kHz to 4 GHz 150 kHz to 6 GHz	N/A	< 500 μs/data point typical
	<b>S331L</b> Site Master Handheld Cable and Antenna Analyzer	2 MHz — 4 GHz	N/A	1.5mS/pt
	<b>S820E</b> Microwave Site Master Handheld Cable and Antenna Analyzer	1 MHz — 40 GHz		550 μs/data point

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# Land Mobile Radio LMR



## S412E

9 kHz to 1.6 GHz Spectrum Analyzer  
500 kHz to 1.6 GHz Vector Network Analyzer

### Land Mobile Radio Signal Analyzer Highlights

- Analyzes Narrowband FM analog systems
- Analyzes P25 (TIA-102.CAAA-C), P25 Phase 2 (TIA-102.CCAA), DMR (MOTOTRBO™)<sup>a</sup>, NXDN™, dPMR, PTC-ITCR, PTC-ACSES, and TETRA digital systems
- 100 kHz to 1.6 GHz frequency coverage (Optional extension to 6 GHz)
- Internal signal generator: 0.1 dB resolution, 0 dBm to -130 dBm (spec to -120 dBm)
- 2.0 dB signal generator accuracy (typical)
- P25/P25p2, NXDN, and ETSI DMR BER test patterns including 1011, 1031, and V.52/O.153
- Duplex test: Simultaneous analysis and generation of analog or digital LMR signals
- Independent control of both receive/transmit frequencies and test patterns
- TETRA Base Station Receiver Sensitivity Measurements

a.Supports those features compliant with the ETSI DMR standard.

# LMR Master™ S412E

Land Mobile Radio Modulation Analyzer, Signal Generator,  
Cable & Antenna Analyzer, Spectrum Analyzer

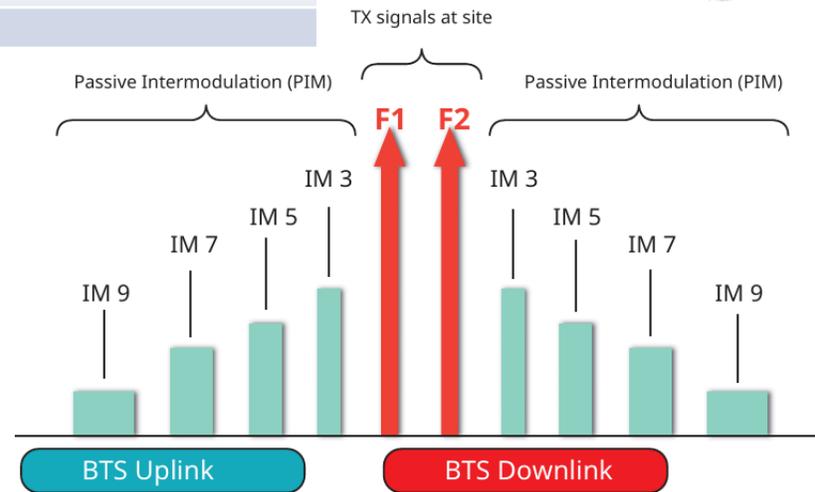
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# Analizadores de PIM

Option	Description
MW82119B-0600	LTE 600 MHz with 1900 MHz
MW82119B-0700	LTE 700 MHz (North America, Upper and Lower)
MW82119B-0701	APT 700 MHz
MW82119B-0800	LTE 800 MHz
MW82119B-0850	Cellular 850 MHz
MW82119B-0900	E-GSM 900 MHz
MW82119B-0180	DCS 1800 MHz
MW82119B-0194	PCS/AWS 1900/2100 MHz
MW82119B-0210	UMTS 2100 MHz
MW82119B-0260	LTE 2600 MHz
MW82119B-0331	Site Master Cable and Antenna Analyzer option 2 MHz – 3 GHz, Return Loss, VSWR, Cable Loss, Distance-to-Fault, Smith Chart, 1-Port Phase
MW82119B-0019	High Accuracy Power Meter (requires USB power sensor)
MW82119B-0031	GPS Receiver (requires GPS antenna)



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# Analizadores de Espectro

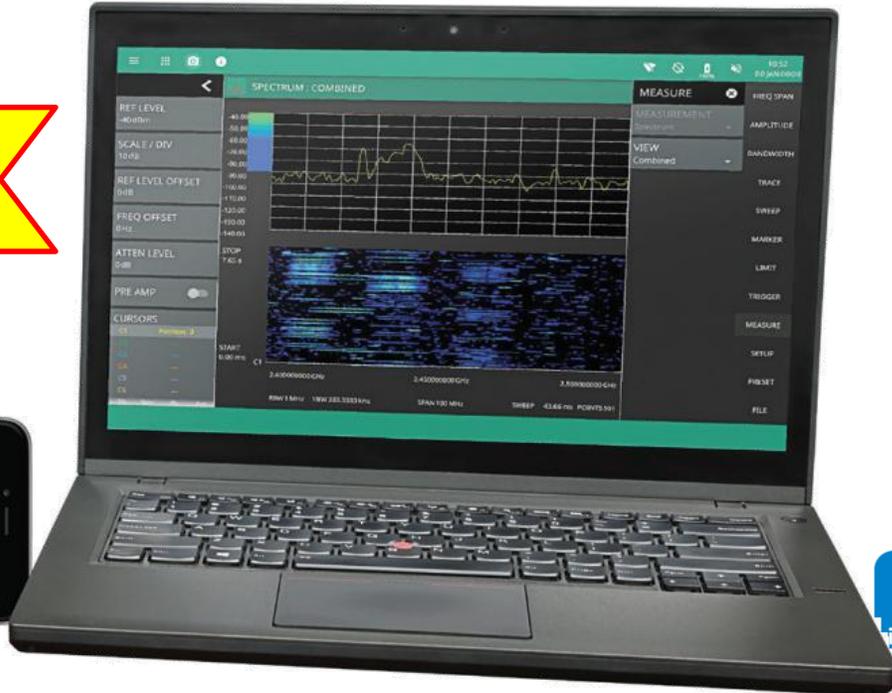
SELECT ORDER ▼	MODEL NUMBER	FREQUENCY	RBW	AVERAGE DISPLAY NOISE LEVEL	TOI
	<b>MS2070A</b> <b>Field Master™</b>	9 kHz to 3 GHz	1 Hz to 3 MHz	-160 dBm (with preamp option)	+11 dBm (2 GHz)
	<b>MS2080A</b> <b>Field Master™</b>	9 kHz — 4 GHz 9 kHz — 6 GHz	1 Hz to 5 MHz	-160 dBm (Pre amp on)	+14 dBm (2 GHz)
	<b>MS2090A</b> <b>Field Master Pro™</b>	9 kHz — 9 GHz 9 kHz — 14 GHz 9 kHz — 20 GHz 9 kHz — 26.5 GHz 9 kHz — 32 GHz 9 kHz — 43.5 GHz 9 kHz — 54 GHz	1 Hz to 10 MHz	-164 dBm/Hz (typ.) (1 GHz, preamp ON)	+20 dBm

# Analizadores de Espectro

SELECT ORDER ▼	MODEL NUMBER	FREQUENCY	RBW	AVERAGE DISPLAY NOISE LEVEL	TOI
	<b>MS2760A</b> <b>Ultraportable Spectrum Analyzers</b>	9 kHz – 170 GHz 6 GHz – 170 GHz	1 Hz – 3 MHz	-132 dBm/Hz (typ.) to 70 GHz -141 dBm/Hz (typ.) to 90 GHz	+35 dBm (18 GHz) +22 dBm (18 GHz)
	<b>MS2720T</b> <b>Spectrum Master</b>	9 kHz — 9 GHz 9 kHz — 13 GHz 9 kHz — 20 GHz	1 Hz — 10 MHz	-164 dBm/Hz (typ.) (1 GHz, preamp ON)	+20 dBm (typ.)
	<b>S412E</b> <b>LMR Master Land Mobile Radio Modulation Analyzer</b>	VNA: 500 kHz — 1.6 GHz  SPA: 9 kHz — 1.6 GHz	10 Hz — 3 MHz	-162 dBm/Hz (typ.) (1 GHz, preamp ON)	+25 dBm (typ.)

# MS2070A MS2080A

9 kHz to 3 GHz  
9 kHz — 4 GHz  
9 kHz — 6 GHz

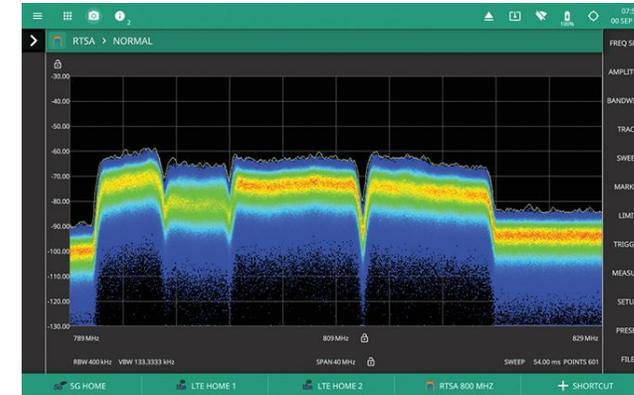


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# Analizadores de Espectro



5G Ready!!!



**MS2080A**  
9 kHz a 4/6 GHz



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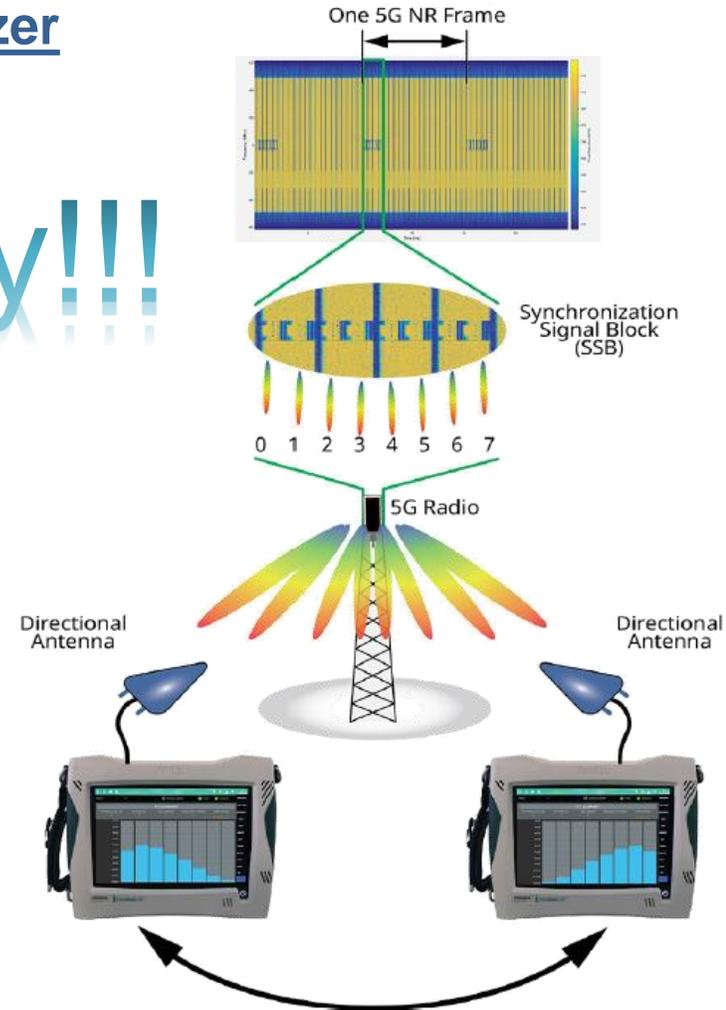
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# MS2090A

High-Performance RF Spectrum Analyzer  
9 kHz to 9/14/20/26.5/32/44/54 GHz

## 5G Ready!!!



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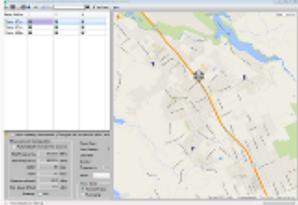
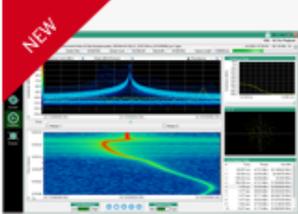
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# Monitoreo de Espectro

SELECT ORDER ▼	MODEL NUMBER	PROFILE
	<b>MS27200A</b> <b>Microwave Spectrum Monitor Module</b>	<p>The MS27200A is an OEM module designed to be integrated into any system for various applications. Starting at 9 kHz and up to 54 GHz with up to 110 MHz of analysis bandwidth, the MS27200A can provide a powerful spectrum analysis for any system. Only SCPI commands are needed to control the module so it can be easily integrated.</p>
	<b>MS2720xA</b> <b>Remote Spectrum Monitor</b>	<p>MS27201A provides remote spectrum monitoring to 54 GHz in a compact 19 inch 2U rack case. 110 MHz measurement bandwidth with IQ streaming delivers benchtop instrument performance for long term monitoring applications. A supplied PC remote GUI acts as the spectrum display and configuration interface.</p>
	<b>MS27101A</b> <b>Remote Spectrum Monitor</b>	<p>The MS27101A is a half-rack spectrum monitor designed for interference mitigation and geo-location for signals of interest. Its small form factor makes the MS27101A the ideal solution for indoor rack-mount systems where size is an important consideration.</p>
	<b>MS27102A</b> <b>Remote Spectrum Monitor</b>	<p>MS27102A spectrum monitor is rated to IP67 standards for outdoor deployment. Key applications include detection of illegal or unlicensed transmissions, radio surveillance and interference mitigation.</p>
	<b>MS27103A</b> <b>Remote Spectrum Monitor</b>	<p>MS27103A remote spectrum monitor provides 12 RF input ports (optional 24 ports) for multiple antenna configurations. This is the ideal solution for measuring multiple sectors and multiple carriers per sector.</p>

# Monitoreo de Espectro

SELECT ORDER ▼	MODEL NUMBER	PROFILE
	<b>MS27100A</b> <b>Spectrum Monitor Module</b>	The MS27100A is designed for OEM solutions for monitoring the spectrum and geo-locating signals of interest. Its small form factor allows the MS27100A to be placed in rack mount systems or in enclosures where space is a primary consideration.
	<b>MX280001A</b> <b>Vision™ Remote Spectrum Monitoring Software</b>	Vision Monitor software application automates process of collecting measurement data. Vision Locate provides the capability to geo-locate signals of interest.
	<b>MX280005A</b> <b>IQ Signal Master Vector Signal Analysis Software</b>	Provides a comprehensive suite of measurements that deliver post processing and analysis of IQ data files captured on handheld spectrum analyzers
	<b>MX280007A</b> <b>Mobile InterferenceHunter</b>	Mobile solution for finding interference efficiently and accurately. User friendly system allows one-person operation. Frequency ranges from 9 kHz to 110 GHz possible.

# Analizadores de Señales

SELECT ORDER ▼	MODEL NUMBER	FREQUENCY	AVERAGE DISPLAY NOISE LEVEL	PHASE NOISE	TOI
	<b>MS2850A</b> <b>Spectrum Analyzer/Signal Analyzer</b>	9 kHz — 32 GHz 9 kHz — 44.5 GHz	-164 dBm/Hz (1 GHz, preamp ON)	-123 dBc/Hz @ 1 GHz (10 kHz Offset)	+16 dBm (1 GHz)
	<b>MS2840A</b> <b>Spectrum Analyzer/Signal Analyzer</b>	9 kHz — 3.6 GHz 9 kHz — 6 GHz 9 kHz — 26.5 GHz 9 kHz — 44.5 GHz	-164 dBm/Hz (1 GHz, preamp ON)	-123 dBc/Hz @ 1 GHz (10 kHz Offset): Std. -138 dBc/Hz @ 1 GHz (10 kHz Offset, meas.): Opt. -140 dBc/Hz @ 150 MHz (10 kHz Offset, meas.): Opt.	+16 dBm (1 GHz)
	<b>MS2830A</b> <b>Spectrum Analyzer/Signal Analyzer</b>	9 kHz — 3.6 GHz 9 kHz — 6 GHz 9 kHz — 13.5 GHz 9 kHz — 26.5 GHz 9 kHz — 43 GHz	-162 dBm/Hz (1 GHz, preamp ON)	-115 dBc/Hz @ 500 MHz (100 kHz Offset)	+15 dBm (1 GHz)

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# VNAs portátiles

SELECT ORDER ▼	MODEL NUMBER	FREQUENCY	DYNAMIC RANGE	SWEEP SPEED	DIRECTIVITY
	<b>MS2036C</b> VNA Master + Spectrum Analyzer	VNA: 5 kHz — 6 GHz SPA: 9 kHz — 9 GHz	≥ 90 dB (Transmission @ 6 GHz)	350 μsec/point	≥ 42 dB
	<b>MS2024B</b> VNA Master	500 kHz — 4 GHz	≥ 100 dB (Transmission)	850 μsec/point	≥ 42 dB
	<b>MS2025B</b> VNA Master	500 kHz — 6 GHz	≥ 100 dB (Transmission)	850 μsec/point	≥ 42 dB
	<b>MS2034B</b> VNA Master + Spectrum Analyzer	VNA 500 kHz — 4 GHz SPA 9 kHz — 4 GHz	≥ 100 dB (Transmission)	850 μsec/point	≥ 42 dB
	<b>MS2035B</b> VNA Master + Spectrum Analyzer	VNA 500 kHz — 6 GHz SPA 9 kHz — 6 GHz	≥ 100 dB (Transmission)	850 μsec/point	≥ 42 dB

# VNAs Benchtop

SELECT ORDER ▼	MODEL NUMBER	FREQUENCY	DYNAMIC RANGE	SWEEP SPEED	DIRECTIVITY	NOISE FLOOR
 	<b>ME786xA</b> Distributed Modular 2-port Vector Network Analyzer	1 MHz — 8 GHz 1 MHz — 20 GHz 1 MHz — 43.5 GHz	100 dB maximum	170 µs/point typical	50 dB maximum	N/A
 	<b>ME7848A</b> VectorStar™ Opto-Electronic Network Analyzers	70 kHz – 40, 70, 110 GHz 850, 1310, 1550 nm Wavelengths	99 dB maximum	N/A	N/A	-91 dBm minimum
 	<b>ME7838 Series</b> VectorStar Broadband VNA ME7838/AX/EX/D/G	70 kHz — 110 GHz 70 kHz — 125 GHz 70 kHz — 145 GHz 70 kHz - 220/226 GHz  mmWave Bands 170 GHz to 1.1 THz	124 dB max 124 dB max 125 dB max 120 dB max 100 dB max	30 µsec/point	40 dB max 40 dB max 40 dB max 40 dB max 30 dB max	-114 dBm min -114 dBm min -114 dBm min -119 dBm min -100 dBm min
 	<b>ME7838x4 Series</b> VectorStar 4-Port Broadband VNA ME7838E4X/A4X/D4/G4	70 kHz — 110/125/145/220 GHz	123 dB maximum	30 µsec/point	40 dB maximum	-113 dBm minimum

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# VNAs Benchtop

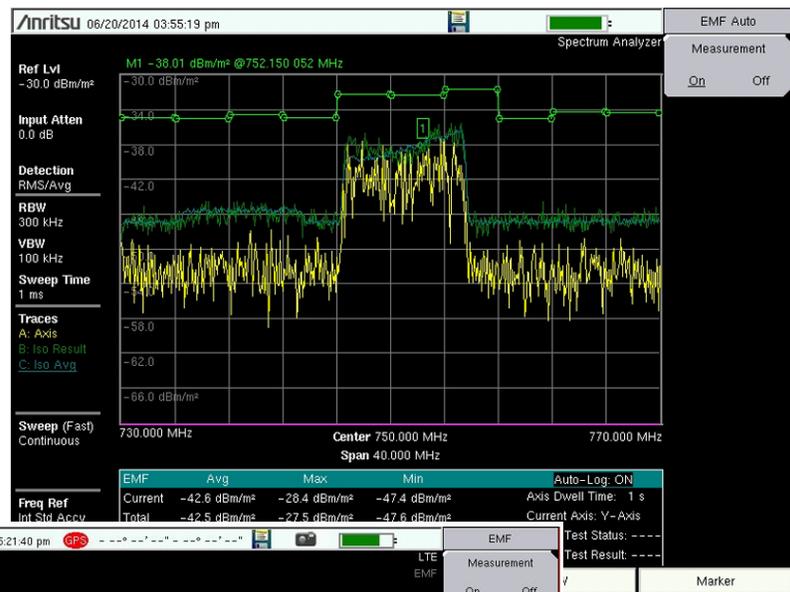
SELECT ORDER ▼	MODEL NUMBER	FREQUENCY	DYNAMIC RANGE	SWEEP SPEED	DIRECTIVITY	NOISE FLOOR
	<b>MS4640B Series</b> <b>VectorStar Family of RF, μW, mmW VNAs</b>	70 kHz — 70 GHz	142 dB maximum	20 μsec/point	50 dB maximum	-129 dBm minimum
	<b>MS46121B</b> <b>1-Port USB Vector Network Analyzer</b>	150 kHz — 6 GHz	N/A	120 μs/point, typical	42 dB, typical	N/A
	<b>MS46131A</b> <b>Modular 1-Port Vector Network Analyzer</b>	1 MHz — 8 GHz 1 MHz — 20 GHz 1 MHz — 43.5 GHz	N/A	230 μs/point, typical	50 dB maximum	N/A
	<b>MS46122B</b> <b>Compact USB Vector Network Analyzer</b>	1 MHz — 8 GHz 1 MHz — 20 GHz 1 MHz — 43.5 GHz	100 dB maximum	130 μs/point, typical	50 dB maximum	N/A

# VNAs Benchtop

SELECT ORDER ▼	MODEL NUMBER	FREQUENCY	DYNAMIC RANGE	SWEEP SPEED	DIRECTIVITY	NOISE FLOOR
	<b>MS46322B</b> Economy Vector Network Analyzer	1 MHz — 8 GHz 1 MHz — 20 GHz 1 MHz — 43.5 GHz	100 dB maximum	130 $\mu$ s/point, typical	50 dB maximum	N/A
	<b>MS46522B</b> ShockLine 2-Port Performance VNA	50 kHz — 8.5 GHz 50 kHz — 20 GHz 50 kHz — 43.5 GHz 55 GHz — 92 GHz	140 dB maximum	30 $\mu$ sec/point	50 dB maximum	N/A
	<b>MS46524B</b> ShockLine™ 4-Port Performance VNA	50 kHz — 8.5 GHz 50 kHz — 20 GHz 50 kHz — 43.5 GHz	140 dB maximum	30 $\mu$ sec/point	50 dB maximum	N/A

# Campos Electromagnéticos y RNI

**Anritsu**  
Discover What's Possible®



02/24/2015 05:21:40 pm

Center Freq: 751.000 MHz

Channel	Index	Cell ID (Grp, Sec)	RS (Avg/Meas)	P-SS (Avg/Meas)	S-SS (Avg/Meas)	Measurement Time
Reference Source	1	6 (2, 0)	302.87 uV/m	33.05 uV/m	129.08 uV/m	1 min
Power Offset	2	204 (68, 0)	798.11 uV/m	157.03 uV/m	898.44 uV/m	Number of Measurements: 3
Auto Range	3	348 (116, 0)	307.73 uV/m	75.88 uV/m	75.76 uV/m	Auto Logging: On
BW	4	381 (127, 0)	76.26 uV/m	24.16 mV/m	173.21 uV/m	Measurement: On
Cyclic Prefix	5	434 (144, 2)	266.39 uV/m	37.91 mV/m	294.70 uV/m	Parameters: Normal
EVM Mode	6	455 (151, 2)	227.94 uV/m	19.38 mV/m	206.67 uV/m	EMF Units: dBm/m², V/m, W/m²
Sync Type	Total		1.98 mV/m	81.71 mV/m	1.78 mV/m	Limits: 6.00 V/m
	Field Strength(Avg)		6.90 mV/m			Back
	Field Strength(Total Avg)		6.48 mV/m			Measurement Time: 01:00
	Current Axis	X-Axis		Auto-Log: OFF		Current Test Status: Pass
	Measurement Num	3/3				Final Test Status: Pass



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ISO 9001

CERTIFIED MANAGEMENT SYSTEM

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# Campos Electromagnéticos y RNI



**Medidor de Campos Electromagnéticos**

Para medir la exposición de las personas a los CEM y otros estándares.



**Monitorización Continua de CEM**

Medición de niveles de exposición a radiación no ionizante.



**Monitor Personal de CEM**

Para la monitorización continua de la exposición de los trabajadores a los CEM.



**Sondas de Campo Compatibles**

Sondas de Campo para E&H, E, H (300 kHz – 1000 MHz), y H (DC – 40 kHz).

# Campos Electromagnéticos y RNI



**E**

100 kHz - 60 GHz



- WPF3
- WPF6
- WPF8
- WPF18
- WPF40
- WPF60/60s



**H**

DC - 1 GHz



- WPH-DC
- WPH60
- WPH1000



**E H**

1 Hz - 10 MHz



- WP400
- WP400c
- WP400-3
- WP400-3H
- WP50
- WP10M



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# Monitores Personales



- WaveMon LF-400: monitorea el campo H en DC y desde 10 Hz hasta 400 kHz;
- WaveMon RF-8: monitorea el campo E hasta 8 GHz y el campo H hasta 1 GHz;
- WaveMon RF-60: monitorea el campo E hasta 60 GHz y el campo H hasta 1 GHz.



Advertencia de sobreexposición  
Alarma audible, visual y de vibración



ICNIRP, 2013/35/UE, FCC y SC6 (2015)  
Respuesta ponderada a cualquier estándar



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# Medidores de Potencia

SELECT ORDER ▼	MODEL NUMBER	FREQUENCY	VIDEO BANDWIDTH	CHANNELS
	<b>ML2437A</b> Power Meter	100 kHz — 65 GHz	100 kHz	1 channel
	<b>ML2438A</b> Power Meter	100 kHz — 65 GHz	100 kHz	2 channels



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# Sensores de potencia

SELECT ORDER ▼	MODEL NUMBER	FREQUENCY	VIDEO BANDWIDTH
	<b>MA2410xA</b> Inline Power Sensor	350 MHz — 4 GHz	RMS and 4 MHz
	<b>MA24400A</b> USB Peak Power Sensors	50 MHz – 40 GHz	195 MHz / 350 kHz 70 MHz / 350 kHz 6 MHz / 350 kHz
	<b>MA245xxA</b> Power Master Millimeter-Wave (mmWave) Power Analyzer	MA24507A: 9 kHz — 70 GHz MA24510A: 9 kHz — 110 GHz	N/A
	<b>MA24330A</b> Microwave CW USB Power Sensor	10 MHz — 33 GHz, K(m) Connector	50 kHz
	<b>MA24340A</b> Microwave CW USB Power Sensor	10 MHz — 40 GHz, K(m) Connector	50 kHz
	<b>MA24350A</b> Microwave CW USB Power Sensor	10 MHz — 50 GHz, V(m) Connector	50 kHz

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# Sensores de potencia

SELECT ORDER ▼	MODEL NUMBER	FREQUENCY	VIDEO BANDWIDTH
	<b>MA24218A</b> Microwave Universal USB Power Sensor	10 MHz — 18 GHz	RMS
	<b>MA24208A</b> Microwave Universal USB Power Sensor	10 MHz — 8 GHz	RMS
	<b>MA24126A</b> Microwave USB Power Sensor	10 MHz — 26 GHz	RMS
	<b>MA24118A</b> Microwave USB Power Sensor	10 MHz — 18 GHz	RMS
	<b>MA24108A</b> Microwave USB Power Sensor	10 MHz — 8 GHz	RMS
	<b>MA24106A</b> USB Power Sensor (Average)	50 MHz — 6 GHz	RMS

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# Sensores de potencia

SELECT ORDER ▼	MODEL NUMBER	FREQUENCY	VIDEO BANDWIDTH
	<b>MA2400xA</b> Thermal Sensors	10 MHz — 50 GHz	N/A
	<b>MA247xD Series</b> Standard Diode Sensors (CW)	10 MHz — 50 GHz	100 kHz
	<b>MA244xD Series</b> High Accuracy Diodes Sensors (CW)	10 MHz — 50 GHz	100 kHz
	<b>MA248xD Series</b> Universal Power Sensors (Average)	10 MHz — 18 GHz	RMS
	<b>MA249xA Series</b> Wideband Power Sensors (Peak and Average)	50 MHz — 18 GHz	20 MHz
	<b>MA2411B</b> Pulse Sensor	300 MHz — 40 GHz	50 MHz

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# Inline Peak Power Sensors

## MA24103A

25 MHz to 1 GHz

## MA24105A

350 MHz to 4 GHz



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# Contadores de Frecuencia



- Rangos de frecuencia desde 0,02Hz hasta 27, 40, 46 o 60 GHz
- Mide en RF pulsante hasta 30 ns
- Velocidad: 250k mediciones
- Resolución: 14 dígitos
- Bases de tiempo con 0.01 ppm/mes o 0.003 ppm/mes

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pendulum



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# Contadores de Frecuencia



CNT-104R  
Multi-channel Rubidium Frequency Calibrator / Analyzer



CNT-104S  
Multi-Channel Frequency Analyzer



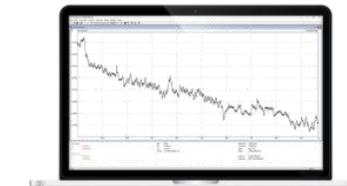
CNT-91/91R CNT-91R/AF  
Advanced Frequency & Time Interval Analyzer



CNT-102  
Multi-Channel Frequency Analyzer



CNT-90  
Frequency Counter/Analyzer



TimeView™  
TimeView™ Modulation Domain Analyzer SW

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# Bases de Tiempo



## Frequency Stability

Stability	6688 (Oven)	6689 (Rubidium)
Aging/month	$3 \times 10^{-9}$	$5 \times 10^{-11}$
Aging/year; aging/10 years	$2 \times 10^{-8}$ (1 year)	$1 \times 10^{-9}$ (10 years)
Temperature (0 to +50°C)	$2.5 \times 10^{-9}$	$3 \times 10^{-10}$
Short term (Root Allan variance)	$5 \times 10^{-12}$ t = 1s $5 \times 10^{-12}$ t = 1s	$1 \times 10^{-11}$ t = 10 s $3 \times 10^{-11}$ t = 1s
Warm up (at +25°C):	10 min to $5 \times 10^{-9}$	5.4 min to lock 11 min to $4 \times 10^{-10}$

- Trazabilidad NIST
- Rubidio
- Alta Estabilidad y desempeño
- Disciplinado GNSS

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# Cámaras aisladas de medición

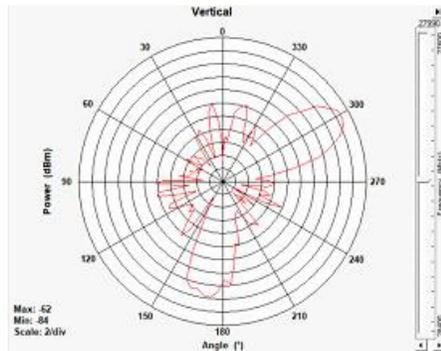
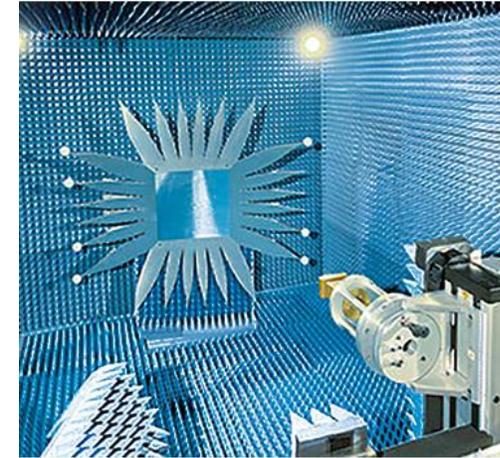


Figure 1. Typical 2-dimensional antenna performance pattern

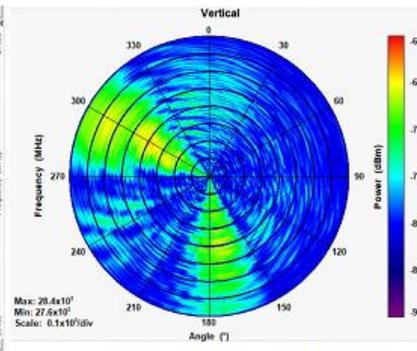
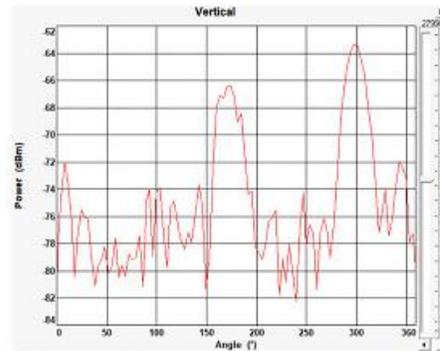
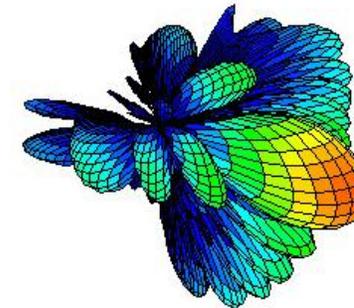


Figure 2. Typical analysis graphs for wide bandwidth signals through 3-dimensional measurements.



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# Cámaras aisladas de medición

SELECT ORDER ▼	MODEL NUMBER	FREQUENCY	SYSTEM
 	<b>MA8172B</b> <b>CATR Anechoic Chamber 2</b>	600 MHz - 87 GHz	5G NR
 	<b>MA8172A</b> <b>CATR Anechoic Chamber</b>	600 MHz - 87 GHz	5G NR
	<b>MA8171A</b> <b>RF Chamber</b>	800 MHz - 3.8 GHz, 24 GHz - 40 GHz	5G NR
	<b>MA8161A</b> <b>Shield Box</b>	600 MHz - 43.5 GHz	5G NR

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# Amplificadores de potencia

8100-020 High Power Pulsed TWT Amplifier



8100-022 High Power Pulsed TWT Amplifier



8100-027 High Power Pulsed TWT Amplifier



8100-028 High Power Pulsed TWT Amplifier



8100-068 High Power Pulsed TWT Amplifier



8100-083 High Power Pulsed TWT Amplifier



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# Antenas

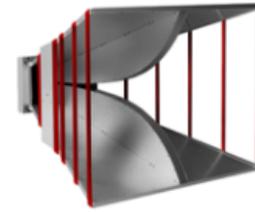
3102 Conical Log Spiral Antenna



3104C Biconical Antenna



3106B Double-Ridged Guide Antenna



3109 Biconical Antenna



3110C Biconical Antenna



3112 Double-Ridged Guide Antenna



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# Drive Testing y Optimización



**Nemo Industry Probe**



**Nemo Active Probe**



**Nemo Handy Handheld Measurement Solution**



**Nemo Walker Air In-Building Measurement Solution**



**Nemo IoT Meter Network Coverage Verification Solution**



**Nemo Outdoor 5G NR Drive Test Solution**



**Nemo Backpack Pro 5G In-Building Benchmarking Solution**



**Nemo Network Benchmarking Solution**



**Nemo Cloud Remote Management Solution**



**Nemo Analyze Drive Test Post Processing Solution**



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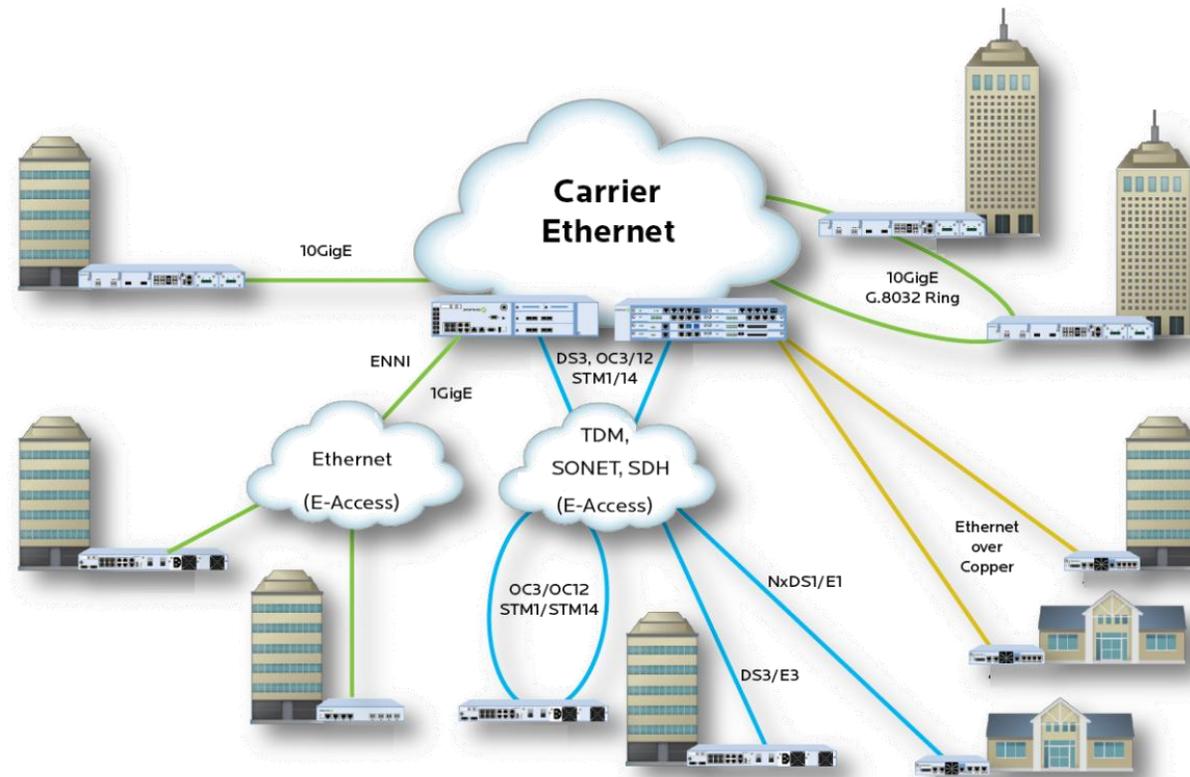


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# Portafolio Transporte



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# Instrumentos redes de Transporte

RXT-1200 Family



**VeExpress**

**Modular Test Platform**

The RXT® is the industry's most flexible, compact, and future-proof hand-held test solution for core,...

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TX300s Family



**VeExpress**

**Multi-Service Test Platform**

VeEX® VePAL TX300s Family is a fully-integrated and self-contained multi-service test solution for OT...

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MTTplus Family



**VeExpress**

**Modular Test Platform**

The MTTplus platform builds on the legacy of the legendary MTT®, providing a compact, powerful an...

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MTX150x



**Ethernet Test Set**

The MTX150x is a fully-integrated and self-contained Ethernet services test solution for Layer 1-to-4+...

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# Instrumentos redes de Transporte

MPA-HD®



New

## High Density Test System

Advanced traffic generation and analysis platform specifically designed for the demands of R&...

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MPA® Multi-Protocol Analyzer



## Advanced Packet Generator & Analyzer

The MPA® Multi-Protocol Analyzer is an advanced packet optical transport traffic generation and...

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RTU-300+



New

## Centralized Modular Test Platform

Network service providers and data center operators know how important it is to ensure the qual...

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MTX150



## Multi-Service Test Set

The MTX150 is a fully integrated and self-contained 10G multi-service test solution for Internet,...

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# Instrumentos redes de Transporte

PX90



New

PON Service Installation Meter

Residential & Business PON Internet Access Services Test Set

MTX150x Lite



Multi-Gigabit Internet Service Analyzer

The MTX150x Lite is an optimized Quality of Experience (QoE) test solution (Layer 4+ applications) fo...  
[Learn More](#)

WX150 WiFi 6



WiFi Air Expert® Test Set

VeEX's WiFi Air Expert® provides the tools for reliable, repeatable install procedures that go beyond...  
[Learn More](#)

MLX100



Ethernet Loopback Device

VeEX™ MLX100 Metro Loopback Expert is an intelligent Ethernet loopback device developed as a...  
[Learn More](#)

# Instrumentos redes de Transporte

SELECT ORDER ▼	MODEL NUMBER	STANDARD	BIT RATE	INTERFACE
	<b>MT1040A</b> <b>Network Master Pro (400G Tester)</b>	Ethernet eCPRI/RoE CPRI/OBSAI OTN/SDH/SONET Fibre Channel	10 Mbit/s — 400 Gbit/s	QSFP-DD OSFP QSFP28/QSFP+ SFP28/SFP+/SFP RJ45
	<b>MT1000A</b> <b>Network Master Pro (Ethernet / FC / OTN / SDH / OTDR Test Equipment)</b>	Ethernet eCPRI/RoE CPRI/OBSAI OTN/SDH/SONET Fibre Channel	10 Mbit/s — 100 Gbit/s	QSFP28/QSFP+ CFP4 SFP28/SFP+/SFP RJ45
	<b>MU909060A</b> <b>Gigabit Ethernet Modules</b>	Ethernet	10 M/100 M/1 Gbit/s	Electrical Optical

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# Pruebas en 1GE a 800GE



- Configuraciones disponibles para pruebas desde 1GE hasta 800GE
- Diferentes módulos de pruebas
- Soporte de múltiples formatos de Transceivers
- Pruebas especializadas de Transceivers
- Pruebas especializadas de Cables AOC y DAC
- Soporte IPv4 e IPv6
- RFC2544, RFC6349, Y.1564, SpeedTest, BERT, etc.

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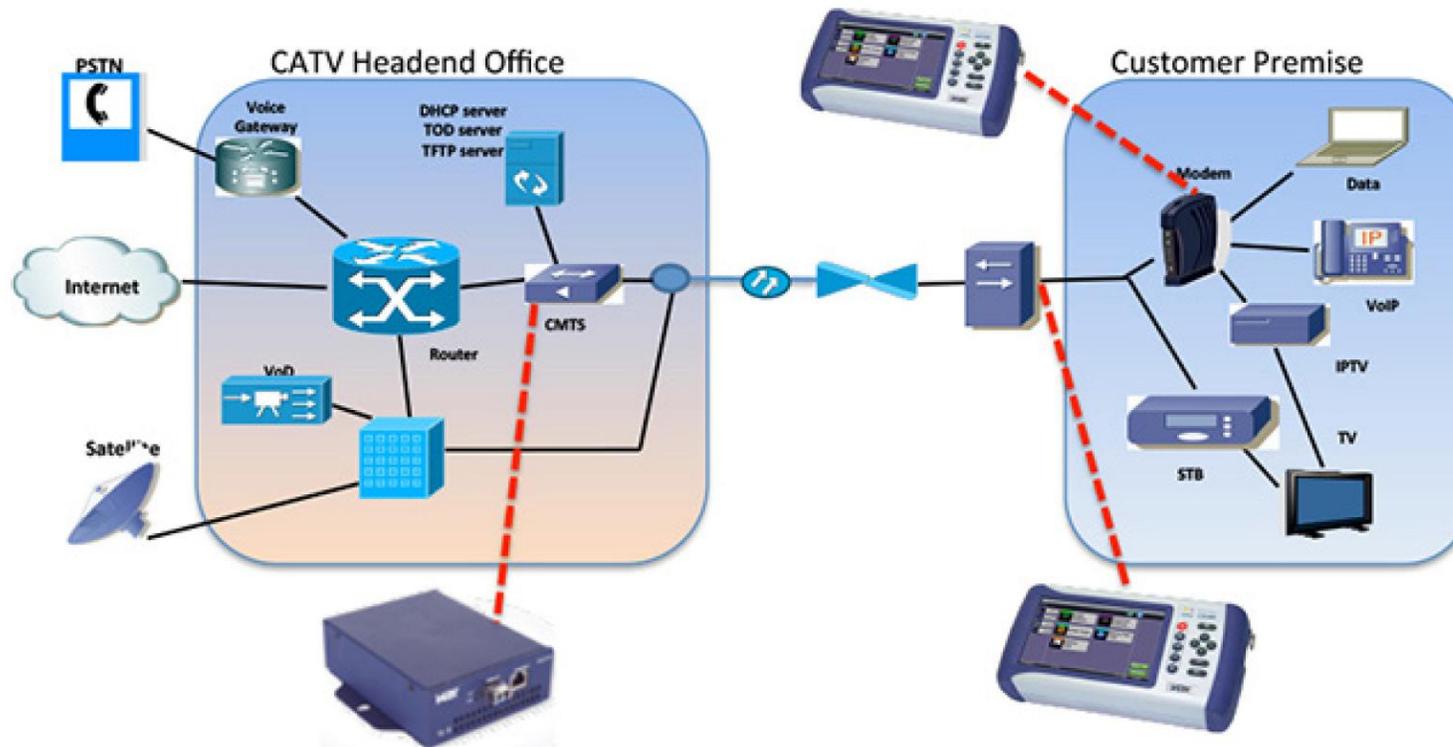


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# Portafolio HFC



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# Medición en Cabecera

AT2500-3G



DOCSIS 3.X/4.0

3 GHz Advanced Spectrum Analyzer

AT2500-3G is the industry's most complete 3 GHz advanced spectrum analyzer and multi...

[Learn More](#)

CX310



DOCSIS 3.X

DOCSIS 3.1 Installation Test Set

The CX310 is equipped with a true DOCSIS 3.1 / 32x8 Cable Modem supporting OFDM...

[Learn More](#)

CX380C



DOCSIS 3.X/4.0

Advanced Plant Maintenance

The CX380C features fast 1.8 GHz Spectrum Analysis and Sweep, DOCSIS 3.1 OFDM, Fu...

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CX280X



VeSion

CATV RF Monitoring Probe

The CX280X features all-in-one RF Monitoring with QAM, DOCSIS 3.1, and Fast MPEG...

[Learn More](#)

# Medición en Cabecera

CX180R+



VeSion

Return Path Monitoring System

The VeSion® Return system monitors the return path for noise, UCD and ingress that interfere wit...

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SWP-BOX™



DOCSIS 3.X/4.0

Field Portable Sweep Transmitter for DOCSIS® 4.0

Rugged, battery operated device for qualification and maintenance of CATV Plant Spectrum Expansion t...

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CaLan 3010H+



DOCSIS 3.X/4.0

DOCSIS 3.1 Sweep System

The CaLan 3010H+ Sweep System is designed for prequalification, installation, and maintenance of...

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AT1700/AT1600



RF Switch Multiplexers

The AT1700M/AT1600E series multiplexer is a high performance cost-effective broadband RF...

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CERTIFIED  
MANAGEMENT  
SYSTEM

# Medición en Campo

CX310



DOCSIS 3.X

DOCSIS 3.1 Installation Test Set

The CX310 is equipped with a true DOCSIS 3.1 / 32x8 Cable Modem supporting OFDM measurements as well as VeTest throughput capabilities. Comprehensive SLM features include Single Channel, VeCheck Full Band Scan, Tilt and Ingress. These key capabilities are the basis of the Home Installation Process (HIP) Auto test, enabling Home Certification conformance testing.

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CX380C



DOCSIS 3.X/4.0

Advanced Plant Maintenance

The CX380C features fast 1.8 GHz Spectrum Analysis and Sweep, DOCSIS 3.1 OFDM, Full SLM, V-Test Speedtest, OPM and TDR/DMM. Fully compatible with VeEX's new SWP-BOX, together comprising a portable 1.8 GHz Sweep System.

[Show Less](#)

SWP-BOX™



DOCSIS 3.X/4.0 | New

Field Portable Sweep Transmitter for DOCSIS® 4.0

Rugged, battery operated device for qualification and maintenance of CATV Plant Spectrum Expansion to 1.8 GHz. Comprises a complete field Sweep System with the CX380C Field Maintenance Meter.

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# Sistema de Monitoreo Unificado

## Cloud-Based One System Platform



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# Portafolio Sistemas de estresamiento y ATP

  
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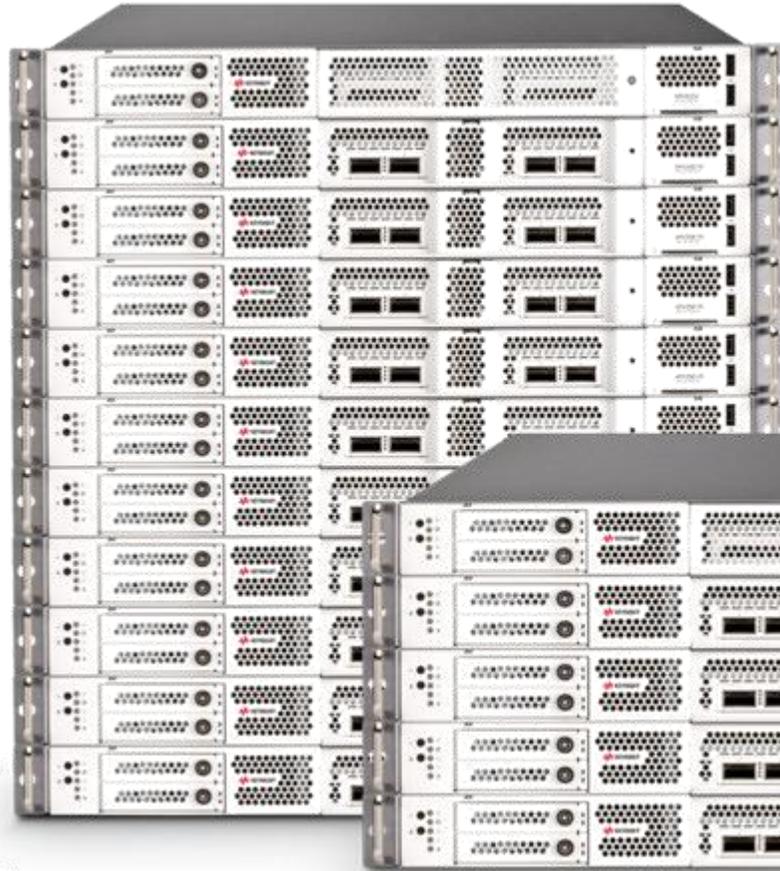


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# Estresadores de redes y equipos



 KEYSIGHT Ixia

- Delivers a native 400GE application and security testing platform.
- Employs a modular approach allowing users to stack APS-ONE-100 appliances to scale up to 16 compute nodes all managed by a single APS-M8400 appliance.
- Creates a hyperscale system capable of driving 5.1 billion concurrent TCP connections and generating 3.2 Tbps of L47 traffic through BreakingPoint.
- Meets data center and service provider demands (i.e., mobile 5G) to balance security and performance to effectively test hyperscale network infrastructure consisting of NextGen firewalls (NGFW) and application delivery controllers (ADC).
- Delivers unparalleled TLS performance to significantly improve the transmission of realistic application mixes over TLS connections. (see chart for details).
- Supports a flexible 'pay-as-you-go' model, enabling you to build a test system supporting 200Gbps today and scaling up to support 3.2 Tbps as your needs grow.



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# Visibilidad de Red



 **KEYSIGHT Ixia**



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# Prueba y Seguridad de Redes



## Cloud Test

Ensure high-performing devices, networks, and applications

KEYSIGHT Ixia



## Test Hardware

Enterprise-wide application and security testing from anywhere, anytime



## Protocol and Load Test

Test and validate your device, network, and service performance at scale



## Network Modeling

Model and visualize communication networks and cyber threats

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# Aplicaciones de Prueba Seguridad

## Hack yourself before others do with safe breach and attack simulation (BAS)

- Simulate attacks safely on your live network, measure and optimize SecOps spend, while continuously monitoring your security posture.
- Support Software-as-a-Service (SaaS) and on-premise deployment options.
- Utilize over two decades of network security testing expertise, supported by the Keysight Application and Threat Intelligence (ATI) research center.
- Validate security controls against a library of 50,000+ tactics, techniques, and procedures (TTPs) with direct mapping to MITRE ATT&CK.
- Identify and rectify misconfigurations and gaps through real-time SIEM correlations and vendor-specific recommendations.
- Measure network, email, and endpoint security posture.
- Detect and remediate environmental and configuration drift.
- Save money by maximizing existing security controls and processes before purchasing new tools.
- Also available through managed security service providers (MSSPs).

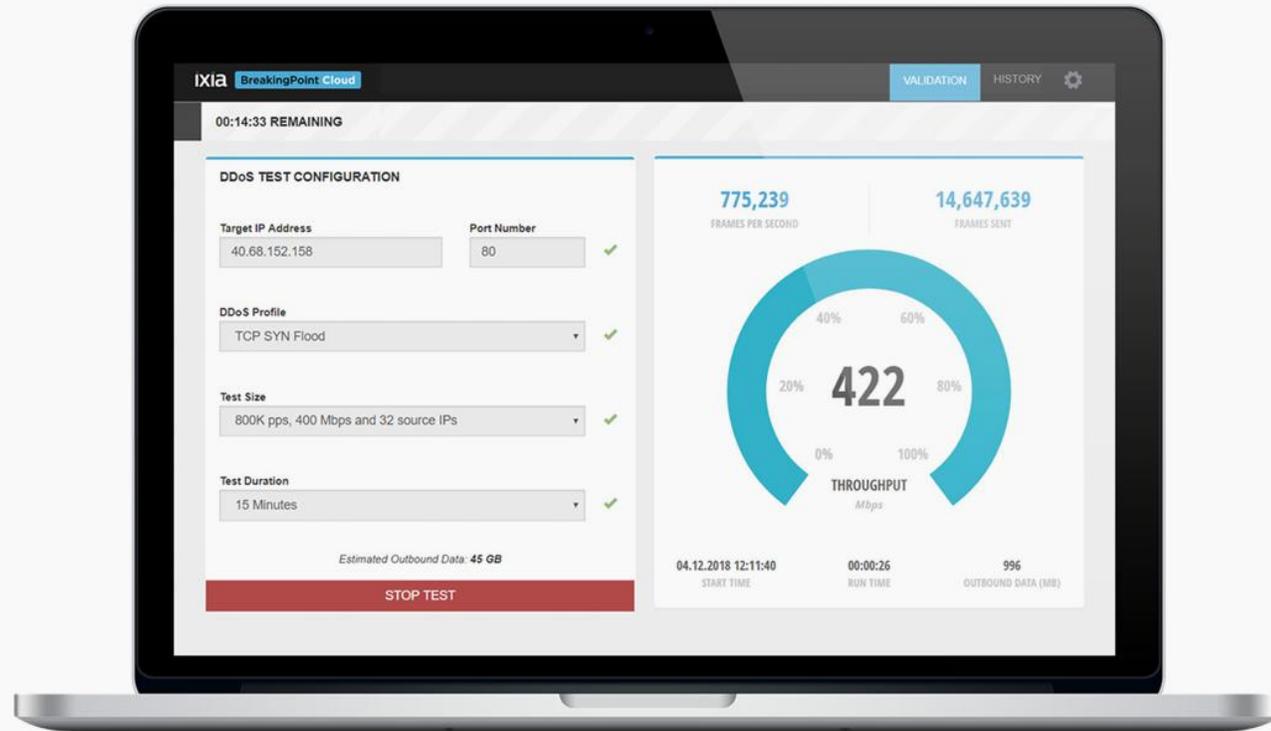


# Aplicaciones de Prueba Seguridad

## BreakingPoint Cloud

### Microsoft Azure DDOS protection validation

- Provides validation-as-a-service through a software-as-a-service (SaaS), allowing you to consume it via a simplified, browser-based user interface, which means there's no software to install and it is always up to date.
- Offers built-in safety features to validate that the Azure account owns the target IP address executing the DDoS validation. Pre-defined DDoS test sizing and test duration profiles eliminate the potential of configuration errors.
- Elastically scales DDoS simulation agent.
- Offers a flexible pay-per-use model to grow validations as your business and network expand.
- Delivers the resources and expertise to provide large-scale DDoS validation available with assistance from Microsoft Azure and Keysight.

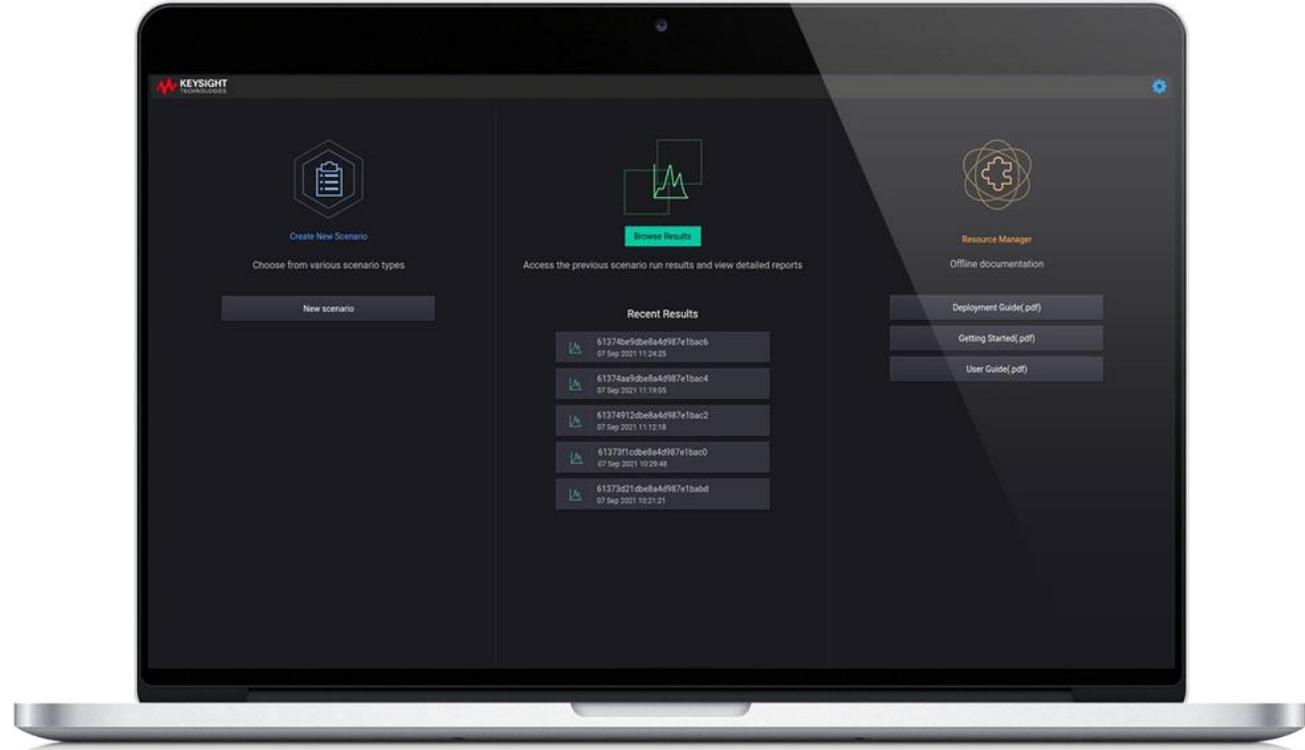


# Aplicaciones de Prueba Seguridad

## IoT Security Assessment

### Comprehensive, automated security testing for IoT devices

- Finds security flaws in connected devices quickly with an intuitive UI.
- Integrates security testing into CI/CD pipeline with complete REST API management.
- Discovers unknown network stack and chipset weaknesses with protocol fuzzing.
- Hardens security with comprehensive vulnerability assessment and OWASP IoT Top 10 coverage.
- Broadens scope with testing for consumer, healthcare, automotive, and other connected devices.
- Validates Wi-Fi, cellular, Ethernet, CAN bus, Bluetooth, and BLE connected devices.
- Supports link-layer, application-layer, and firmware security analysis.





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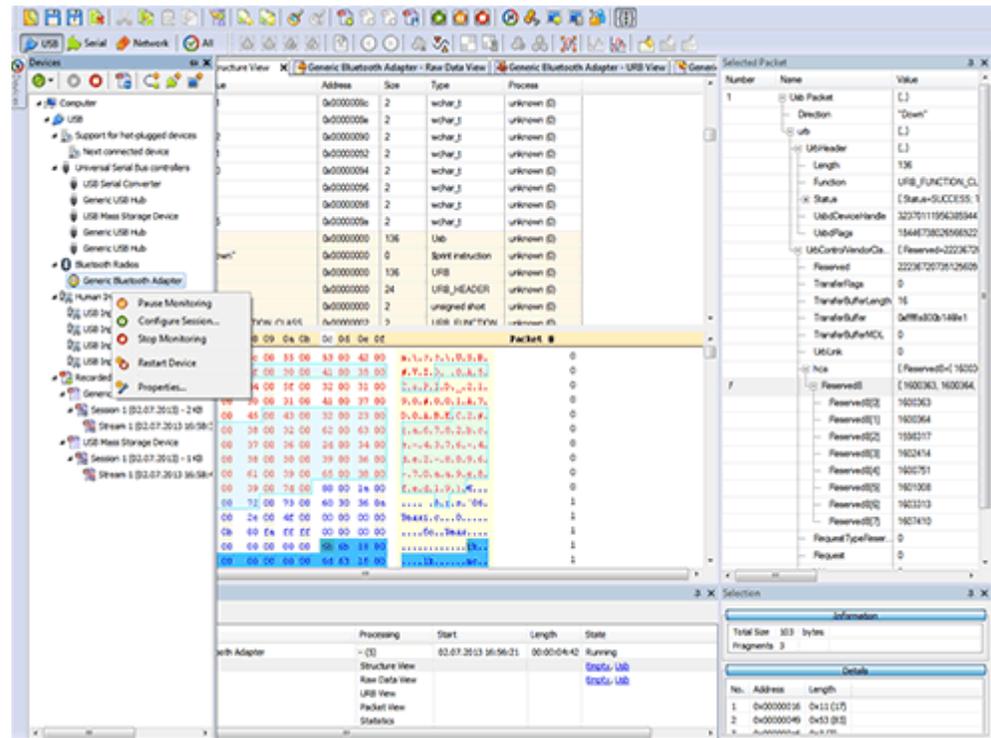


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# Análisis y Monitoreo Redes y Protocolos



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# RADCUM Service Assurance



## SLA Assurance

Ensure private 5G network quality  
from RAN to core



## Roaming Assurance

Ensure quality for inbound and  
outbound roaming services



## RAN Analytics

Optimize RAN, vRAN, and Open RAN  
performance across multiple vendors



## VoLTE/VoNR Quality Assurance

Proactively improve service quality  
across 5G and 4G networks

# Aseguramiento

## 5G Service Assurance

Ensure great 5G customer experiences and troubleshoot issues before they impact your business. Built-in AI/ML-powered analytics filter out the noise, provide automated insights, and drive network automation.



Gain real-time subscriber analytics

Understand the customer experience and E2E troubleshooting



Benefit from a complete CI/CD development pipeline

Rapid deployments of change requests and customizations



Smartly monitor your 5G network

From the lab to full commercial launch and ongoing rollouts



Achieve complete 5G network visibility

Covers multiple services, cloud agnostic and E2E (RAN to Core)



Fully containerized and automated

Automated lifecycle, efficient scaling, and high availability



Proactively optimize your network

Uses AI/ML-powered analytics for automated real-time insights

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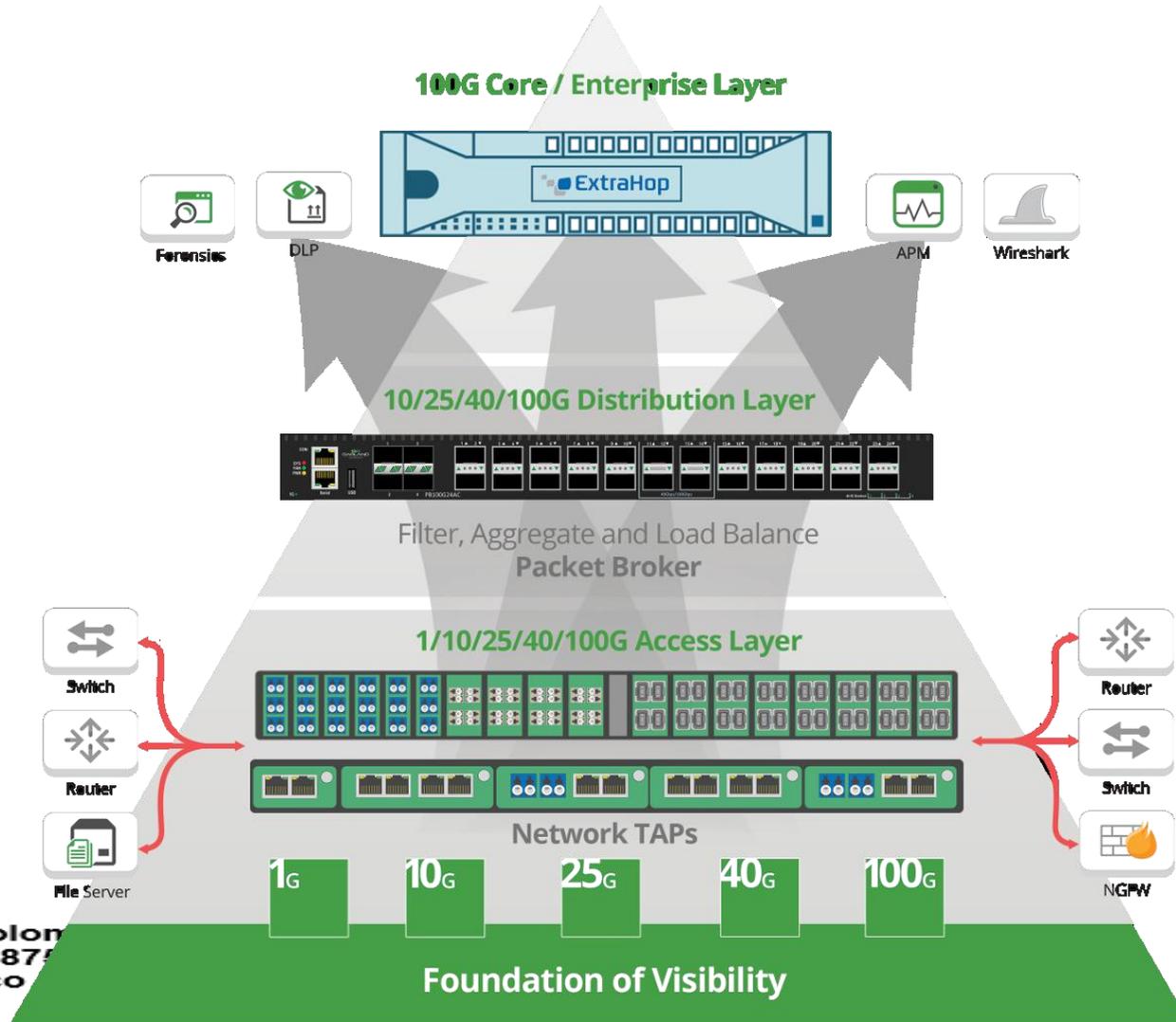


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# Network TAPs



# Sistema de monitoreo RFTS



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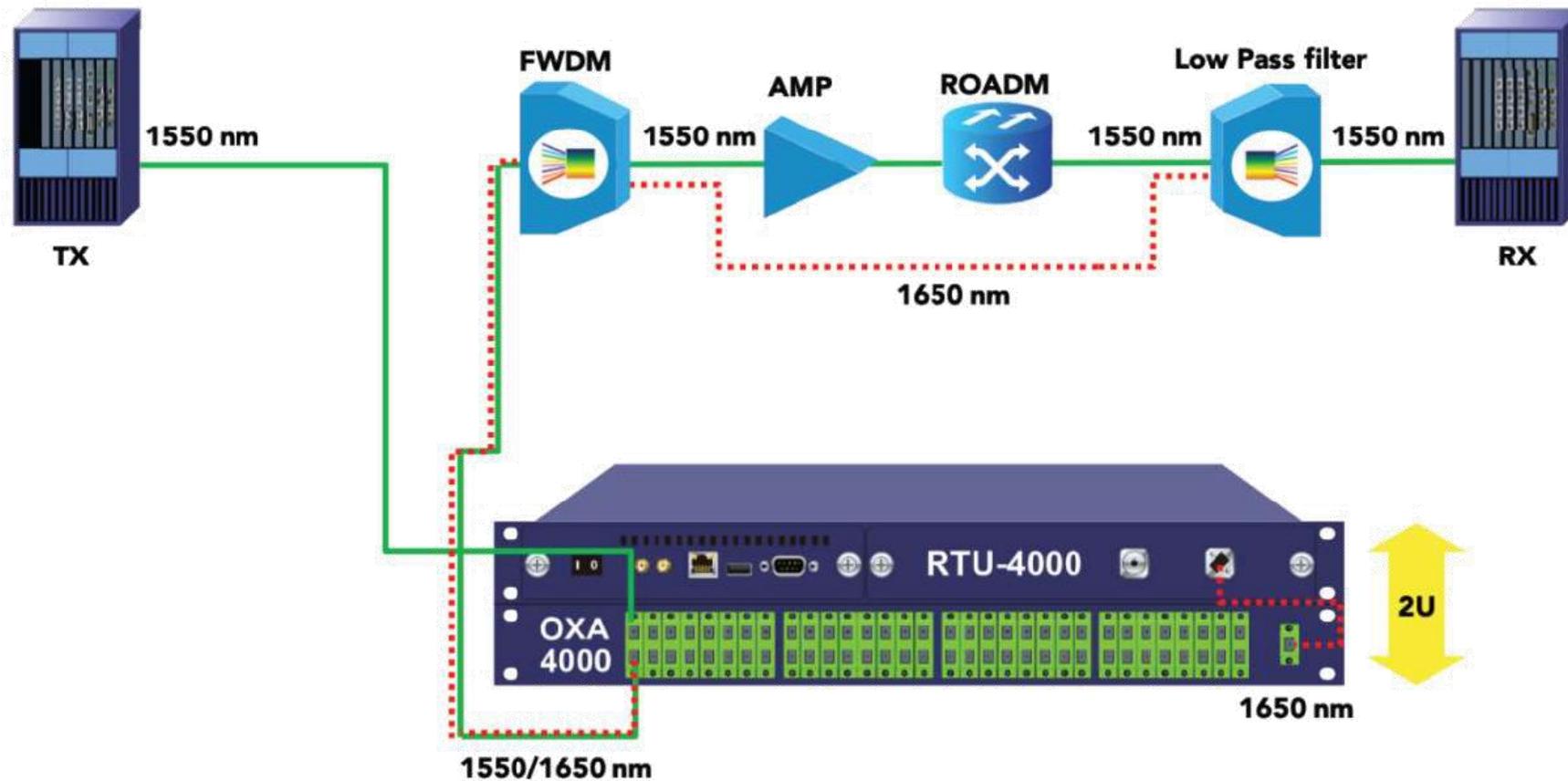


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# Sistema de monitoreo RFTS



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- Sistema de monitoreo de fibra óptica

**Ascentac**

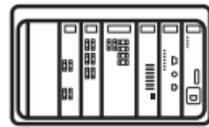
**Remote Fiber Test System**

Ascentac OCAMS2000



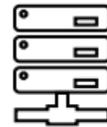
Test System Controller

- Installed in the system controlling center
- Manage all RTUs



Remote Test Unit

- Installed in equipment rooms to monitor fibers
- RTU can operate independently without connecting to TSC



Work Station

- Installed in maintenance unit
- Access system data and information through connecting to TSC Server by IP network

- Localización precisa de falla
- Notificación en tiempo real
- Funciones de prueba avanzadas
- Administración de información de cables
- Interface gráfica intuitiva
- Análisis histórico de fallas y degradación
- Reportes automatizados

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**+57 316-47**  
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- Gateways, SBC y Switches para sistemas de conmutación de Voz

## Gateways de VoIP y conversores de señalización

TMG800 VoIP Media Gateway



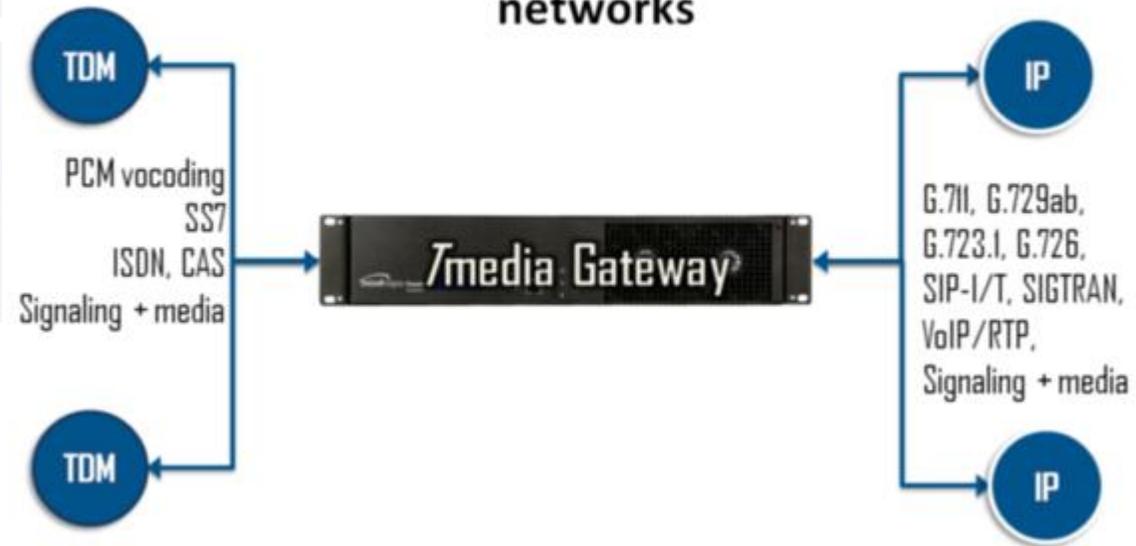
TMG3200 VoIP Media Gateway



TMG7800 VoIP Media Gateway



### Adapts media formats between different networks



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# Portafolio Equipos eléctricos y otros

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# Herramientas para instalación



## Fiber Optic Tools

Every tool you need to access, clean, connect, and prepare fiber cables.



## Cable & Wire Stripping

Slit, strip, and ring cut any type of cable or wire of all sizes.



## Test Equipment

Install and maintain your equipment properly with Jonard test equipment for all cable types....



## Tool Kits & Cases

Jonard makes kit combinations for all applications. Whether you need a pouch for your tool b...

Alignment, Adjustment, & Burnishers

Cable & Wire Stripping

Cable Installation & Fishing

Coming Soon!

Compression & Crimping Tools

Distributor Display

Electrical Connector Tools

Electronic Work Bench Tools

Fiber Optic Tools

Force Gauges

Insulated Tools

Jonard Outdoors Category

Merchandise & Accessories

Networking & IT

Pliers

Punchdown Tools

Safety Accessories

Scissors & Knives

Screwdrivers & Nut Drivers

Solar Tools

Termination, Locking & Unlocking Tools

Test Equipment

Tool Kits & Cases

Wire

Wire Wrap Tools

Wrenches

## • PROBADORES INSTALACIÓN Y MANTENIMIENTO DE REDES



DSX CableAnalyzer™  
Series Copper Cable  
Certifiers

Accelerates every step of the copper  
certification process



FI-3000 / FI2-7300  
FiberInspector™ Ultra  
Camera

Get a Grip on the Most Efficient, Most  
Complete Inspection Solution



OptiFiber® Pro OTDR  
Family

Makes novices into experts and  
experts faster



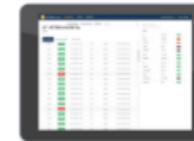
CertiFiber® Pro Optical  
Loss Test Set

Accelerates every step of the fiber  
certification process



FI-7000 FiberInspector™  
Pro

1-second automated PASS/FAIL  
certification of fiber optic connector  
end-faces



LinkWare™ Live –  
Copper/Fiber cable testing  
and certification  
management service

Upload and consolidate fiber and  
copper certification test results from  
remote sites and manage projects  
from smart devices

- **PROBADORES INSTALACIÓN Y MANTENIMIENTO ELÉCTRICO**



Digital multimeters



Thermal cameras



Electrical testers



Accessories



Process tools



IR Thermometers



Power quality



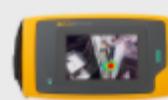
Clamp meters



Industrial ethernet testers



Insulated tools

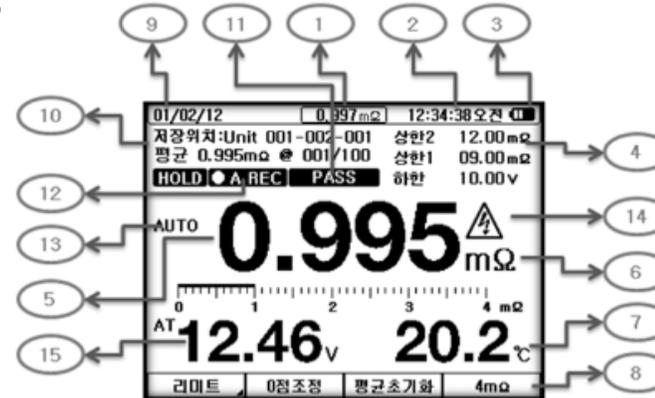


Leak detection



Portable handheld  
oscilloscopes

## Analizadores de calidad de baterías



### LCD Display

- ① AH : auto-hold function is on.
- ② Replay : Recording Data Replay
- ③ Battery Remain Sign
- ④ Limit : Upper1, 2(Impedance), Lower(Voltage) Value Setting
- ⑤ Battery Connection State : Serial, Parallel, Battery Number
- ⑥ Impedance Value Display
- ⑦ Temperature Value Display
- ⑧ Restart : Function Restart
- ⑨ Measurement Date Display
- ⑩ Record Number : Storage Date Recording Number
- ⑪ Pass, Warning, Fail : Indicates that the tested battery result
- ⑫ Average, Minimum, Maximum value display
- ⑬ Auto : auto, manual ranging
- ⑭ Warning : Over voltage warning(60V)
- ⑮ Battery voltage measurement

# Equipos de laboratorio



Osciloscopios Digitales



Generadores Forma de Onda



Fuentes DC



Multímetros de Banco

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# Gracias!

*No dude en  
contactarnos*

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