

**Anritsu** envision : ensure

# World's Most Trusted Family of RF and Microwave Handheld Analyzers

Now in our tenth generation – field-proven since 1995





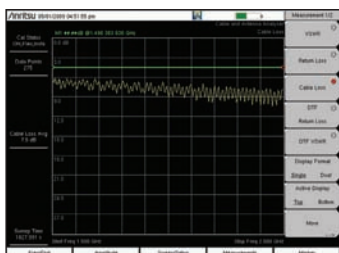
# Site Master

## Handheld Cable and Antenna Analyzers

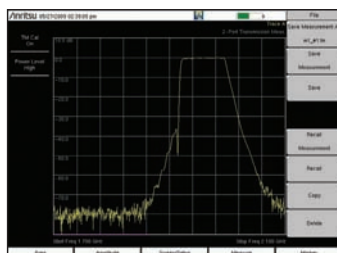
Since 1995, the Site Master™ family has been the leader in handheld cable and antenna analyzers for installers, contractors, and wireless service providers worldwide. With its unsurpassed measurement uncertainty and best-in-class sweep speed, Site Master products give you extremely accurate and fast measurements that you can trust, whenever and wherever.

The Site Master product family has several models to meet a variety of needs. They all can make traditional line sweep measurements such as Return Loss, VSWR, Cable Loss, and Distance-to-Fault (DTF). To increase productivity, the Site Master product family completes sweeps quickly, performs calibrations promptly with InstaCal™, provides fast trace naming, and comes with automatic report generating capabilities.

The 2-port transmission measurement option, with its excellent dynamic range, allows you to measure gain, insertion loss, or isolation of critical RF devices including tower-mounted amplifiers (TMA), repeaters, and passive RF components, such as filters and antennas. Models with spectrum analyzers can make RF channel measurements and hunt down interference. All Site Master models can be upgraded to CPRI RF. Get the most trusted name in cable and antenna analyzers – the worldwide standard – the Site Master.



Cable Loss



2-port Transmission Measurement

# LMR Master

## Handheld Land Mobile Radio Analyzer

The LMR Master™ S412E is a single instrument that combines all of the tools for technicians and engineers required to install, maintain, and certify analog and digital Land Mobile Radio (LMR) networks in the shop or in the field.

The LMR Master S412E combines the functionality of a 100 dB dynamic range VNA-based cable and antenna analyzer, spectrum analyzer, interference analyzer, power meter, and signal analyzers and generators (P25 and P25 Phase 2, DMR/MotoTRBO, TETRA, NXDN, dPMR, PDT, NBFM, and LTE), as well as an internal GPS receiver for coverage analysis. All of this in a portable, handheld, battery-operated touchscreen package.

The LMR Master S412E features a built-in signal generator for analysis of analog and digital radio receivers, and support for indoor and outdoor coverage analysis with RSSI/BER/ModFid/EVM measurements tagged by GPS location or indexed to an on-screen floorplan. GPS-tagged information can be exported in KML format for use in popular mapping tools, and in CSV text for custom post-processing. It also features a large internal flash memory to store thousands of measurements and quick save/recall of commonly used setups.

The LMR Master S412E is the only handheld LMR signal analyzer that offers an LTE analyzer to support FirstNet 700 MHz public safety broadband. It is also the only battery-operated handheld instrument capable of making TETRA base station receiver sensitivity measurements.



Over-the-Air Coverage Mapping



Interference hunting with the LMR Master S412E and Handheld InterferenceHunter™ MA2700A



Site Master S820E Microwave Cable and Antenna

### FEATURES and OPTIONS (not available on all models)

- ▶ Cable & Antenna Analyzer
  - ▶ 2 MHz to 4 GHz, S331L
  - ▶ 2 MHz to 4/6 GHz, S331E/S361E
  - ▶ 150 kHz to 4/6 GHz, S331P
  - ▶ 1 MHz to 8, 14, 20, 30, or 40 GHz, S820E
- ▶ Cable & Antenna Analyzer w/ Spectrum Analyzer
  - ▶ 2 MHz to 4 GHz / 9 kHz to 4 GHz, S332E
  - ▶ 2 MHz to 6 GHz / 9 kHz to 6 GHz, S362E
- ▶ InstaCal™, FlexCal™, OSL, and TOSL Calibration
- ▶ 2-port Transmission Measurement
- ▶ 2-port Swept Cable Loss
- ▶ Internal Bias Tee
- ▶ Internal GPS Receiver
- ▶ Internal Power Meter
- ▶ High-Accuracy Power Meter with Power Sensor
- ▶ Interference Analyzer
- ▶ Coverage Mapping
- ▶ Channel Scanner
- ▶ CW Signal Generator
- ▶ CPRI RF
- ▶ AM/FM/PM Signal Analyzer
  - ▶ 250 x 61 x 177 mm (9.8 x 2.4 x 7.0 in) (S331L)
  - ▶ 273 x 91 x 199 mm (10.7 x 3.6 x 7.8 in)
  - ▶ 52 x 148 x 36 mm (2 x 5.8 x 1.4 in) (S331P)



LMR Master S412E

### FEATURES and OPTIONS

- ▶ Cable and Antenna Analyzer
  - ▶ 500 kHz to 1.6 GHz (6 GHz extension optional)
- ▶ Spectrum Analyzer
  - ▶ 9 kHz to 1.6 GHz (6 GHz extension optional)
- ▶ 1-path, 2-port Vector Network Analyzer w/100 dB Transmission Dynamic Range and 42 dB Directivity
- ▶ Internal Bias Tee
- ▶ Internal GPS Receiver
- ▶ Internal Power Meter
- ▶ High-Accuracy Power Meter with Power Sensors
- ▶ Interference Analyzer Including Support for the New MA2700A
- ▶ Channel Scanner
- ▶ Coverage Mapping
- ▶ Distance-to-Fault
- ▶ Spectrum Analyzer w/-152 dBm DANL and +16 dBm TOI
- ▶ Signal Analyzers
  - ▶ P25 (Phase 1 FDMA and Phase 2 TDMA)
  - ▶ DMR/MotoTRBO
  - ▶ TETRA
  - ▶ NXDN
  - ▶ dPMR
  - ▶ PTC
  - ▶ PDT
  - ▶ NBFM
  - ▶ FirstNet LTE
  - ▶ IEEE 802.16 Fixed WiMAX, Mobile WiMAX
- ▶ 273 x 91 x 199 mm (10.7 x 3.6 x 7.8 in)



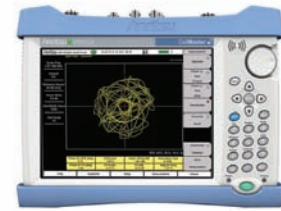
# Cell Master

## Compact Handheld Base Station Analyzer

The Cell Master™ handheld multi-function base station analyzers are the smallest, lightest, and most economical solution for 2/3/4G base station and digital broadcast testing during installation and commissioning, and for maintenance and troubleshooting.

The Cell Master product family combines the functionality and the capabilities of a cable and antenna analyzer, spectrum analyzer, interference analyzer, signal analyzers, backhaul analyzer, CPRI RF, and power meter into one instrument, making it the most full-featured, compact base station analyzer on the market.

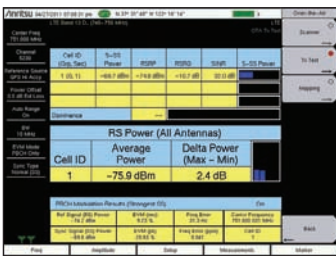
This optimal combination of base station test capabilities eases the job of the user by eliminating the need for several independent test instruments, reducing the number of tools the user must carry and learn to operate. Whether it's sweeping cables, making power measurements, finding interference, troubleshooting 2/3/4G base station signal quality, or verifying backhaul performance, the Cell Master MT8212E and MT8213E are the ideal all-in-one instruments.



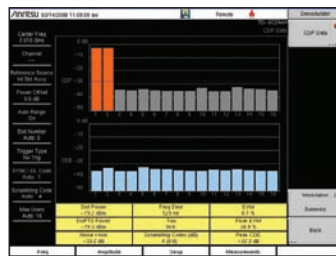
Cell Master MT8212E

### FEATURES and OPTIONS

- ▶ Cable and Antenna Analyzer
  - ▶ 2 MHz to 4 GHz (MT8212E)
  - ▶ 2 MHz to 6 GHz (MT8213E)
- ▶ Spectrum Analyzer
  - ▶ 9 kHz to 4 GHz (MT8212E)
  - ▶ 9 kHz to 6 GHz (MT8213E)
- ▶ 2-port Transmission Measurement
- ▶ Internal Bias Tee
- ▶ Internal GPS Receiver
- ▶ Internal Power Meter or High Accuracy with Power Sensor
- ▶ Interference Analyzer
- ▶ Channel Scanner
- ▶ Coverage Mapping
- ▶ CW Signal Generator
- ▶ Signal Analyzers (up to 20 MHz demodulation)
  - ▶ GSM/GPRS/EDGE and W-CDMA/HSPA+
  - ▶ TD-SCDMA/HSPA+
  - ▶ LTE, TD-LTE
  - ▶ CDMA2000 1X and CDMA2000 1xEV-DO
  - ▶ Fixed WiMAX, Mobile WiMAX
  - ▶ DVB-T/H (SFN, BER), ISDB-T (SFN, BER)
- ▶ CPRI RF
- ▶ Backhaul Analyzers – E1, T1, T3/T1
- ▶ 273 x 199 x 91 mm (10.7 x 3.0 x 7.8 in)



LTE Over-the-Air MIMO Measurement



TD-SCDMA Demodulation

# BTS Master

## High-Performance Handheld Base Station Analyzer

The BTS Master™ MT8220T is Anritsu's third generation, high-performance handheld base station analyzer that has been specifically developed to advance the support for 4G wireless networks as well as installed 2G, 3G, and WiMAX networks.

The BTS Master MT8220T base station analyzer is the essential, multi-function instrument for senior wireless technicians and RF engineers. It provides all required capability for field testing of cellular base transceiver stations ensuring key network performance indicators are consistently met.

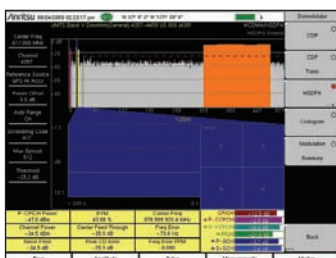
Utilizing easy-to-use, touchscreen technology, the BTS Master MT8220T includes support for: multiple technology standards; comprehensive over-the-air (OTA) testing for remote radio heads (RRH) and MIMO installations; low-cost signal analysis, providing all necessary measurements for each technology in a single option for convenience and economy; 2-port cable and antenna analysis; sophisticated interference analysis and tracking; and, CPRI RF and BBU emulation. All of this functionality is backed by a standard 3-year warranty.



BTS Master MT8220T

### FEATURES and OPTIONS

- ▶ Cable and Antenna Analyzer
  - ▶ 400 MHz to 6 GHz
- ▶ Spectrum Analyzer
  - ▶ 150 kHz to 7.1 GHz
- ▶ Internal Bias Tee
- ▶ Standard Internal GPS Receiver with Miniature Antenna
- ▶ Internal Power Meter or High Accuracy with Power Sensor
- ▶ Interference Analyzer
- ▶ Channel Scanner
- ▶ Gated Sweep
- ▶ Vector Signal Generator
- ▶ Zero-Span IF Output
- ▶ I/Q Waveform Capture
- ▶ Signal Analyzers (up to 20 MHz demodulation)
  - ▶ GSM/GPRS/EDGE
  - ▶ W-CDMA/HSPA+
  - ▶ TD-SCDMA/HSPA+
  - ▶ LTE FDD/TDD
  - ▶ CDMA2000 1X and CDMA2000 1xEV-DO
  - ▶ Fixed WiMAX, and Mobile WiMAX
- ▶ CPRI RF
- ▶ BBU Emulation Nokia/Alu
- ▶ 315 x 77 x 211 mm (12.4 x 3.0 x 8.3 in)



W-CDMA/HSPA+ Demodulation - EVM



LTE Over-the-Air On-screen Mapping



# RF & Microwave Handheld Analyzers Solutions

Models				Cable and Antenna Analyzers					Base Station	
				Site Master™			LMR Master™	Cell Master™		
Options (See Specifications for a complete list of measurements)	Option Numbers	Value		Mid-Level Performance		High Performance	Mid-Level Performance			
		S331P	S331L	S331E S361E	S332E S362E	S820E	S412E	MT821 MT821P		
Cable & Antenna Analyzer										
Frequency Range		150 kHz to 4/6 GHz	2 MHz to 4 GHz	2 MHz to 4 / 6 GHz	2 MHz to 4 / 6 GHz	1 MHz to 40 GHz	500 kHz to 1.6 GHz	2 MHz 4 / 6 GHz		
1-port Measurements		Standard	Standard	Standard	Standard	Standard	Standard	Standard		
2-port 1-path Measurements						Standard	Standard			
2-port Transmission Measurement	0021			*	*	Standard		*		
2-port Swept Cable Loss Measurement (external USB sensor required)			Standard			Standard				
USB Sensor Transmission Measurement		*				*				
SkyBridge Tools™ Trace Manager Empowered MX002001B-TL101			*	*	*					
Spectrum Analyzer										
Frequency Range					9 kHz to 4 / 6 GHz		9 kHz to 1.6 GHz	9 kHz 4 / 6 GHz		
Preamplifier	0008				Standard		Standard	Standard		
Interference Analyzer / Channel Scanner	0025 / 0027				*		*	*		
AM/FM/PM Measurements	509				*		*	*		
Gated Sweep	0090				*			*		
Zero-Span IF Output / IQ Waveform Capture	0089 / 0024						*			
EMF Measurements	0444				*		*	*		
Interference Analyzer/Channel Scanner										
Handheld InterferenceHunter™	MA2700A				*		*	*		
Mobile InterferenceHunter	MX280007A				*		*	*		
Coverage Mapping (Indoors and Outdoors)	0431				*		*	*		
TRX NEON® Signal Mapping (3D In-Building)	MA8100A				*		*	*		
Vector Network Analyzer										
Frequency Range							500 kHz to 1.6 GHz see Frequency Opt.			
S-Parameters							S <sub>11</sub> , S <sub>21</sub>			
Vector Voltmeter	0015						*			
Time Domain and Distance Domain	0002									
Distance Domain only	0501						*			
Balanced/Differential S-Parameters, 1-port	0077									
Frequency Options										
6 GHz (for Spectrum Analyzer Mode)	0006						*			
6 GHz (for Cable and Antenna and VNA Analyzer Mode)	0016						*			
8 GHz	0708					*				
9 GHz	0709									
13 GHz	0713									
14 GHz	0714					*				
20 GHz	0720					*				
30 GHz	0730					*				
32 GHz	0732									
40 GHz	0740					*				
43 GHz	0743									
Signal Generators										
Tracking Generator (TG) 3, 4, or 6 GHz	0020									
Tracking Generator (TG) 9 GHz	0809									
Tracking Generator (TG) 13 GHz	0813									
Tracking Generator (TG) 20 GHz	0820									
CW Generator	0028				*		Standard	*		
Vector Signal Generator (VSG)	0023									
Power Meters										
Power Meter	0029			Standard		*	Standard	Standard		
High-Accuracy Power Meter Support (requires USB power sensor)	0019			Standard	*	*	Standard	*		
Wireless Signal Measurements	RF	Mod.	OTA				RF, MOD, OTA			
Demodulation Hardware		0009					Standard	Standard		
GSM/GPRS/EDGE Measurements	0040	0041						*		
W-CDMA/HSPA+ Measurements	0044	0065	0035					*		
TD-SCDMA/HSPA+ Measurements	0060	0061	0038					*		
LTE Measurements	0541	0542	0546				*	*		
TD-LTE Measurements	0551	0552	0556					*		
CDMA2000 1X Measurements	0042	0043	0033					*		
CDMA2000 1xEV-DO Measurements	0062	0063	0034					*		
Fixed WiMAX Measurements	0046	0047					*	*		
Mobile WiMAX Measurements	0066	0067	0037				*	*		
Digital TV Signal Measurements	Analyzer	SFN	BER							
DVB-T/H Measurements	0064	0078	0057					*		
ISDB-T Measurements	0030	0032	0079					*		
Land Mobile Radio Measurements	Analyzer	Coverage								
NBFM Measurements							Standard			
P25 and P25 Phase 2 Measurements	0521	0522					*			
NXDN Measurements	0531	0532					*			
DMR2 Measurements	0591	0592					*			
PTC Measurements	0721	0722					*			
TETRA Measurements	0581	0582					*			
Backhaul Analyzer Measurements	T1	E1	T3/T1							
T1 , E1, T3/T1 (Mutually Exclusive)	0051	0052	0053					*		
General Options										
GPS Receiver	0031			2000-1723-R	*	*	2000-1723-R	*		
Bias Tee (built-in)	0010				*	*		*		
Secure Data Operation	0007									
Ethernet Connectivity	0411				*	*	Standard			
K Test Port Connectors	0011						Standard ≥ 20 GHz			
Standard / Premium Calibration	0098 / 0099	*	*	*	*	*	*	*		



Analyzers		Spectrum Analyzers			Vector Network Analyzers				PIM Analyzers
Master™	BTS Master™	Spectrum Master™			VNA Master™				PIM Master™
	High Performance	Value	Mid-Level Performance	High Performance	Mid-Level Performance		High Performance		High Performance
2E 3E	MT8220T	MS2711E	MS2712E MS2713E	MS2720T	MS2024B MS2025B	MS2034B MS2035B	MS2026C MS2027C MS2028C	MS2036C MS2037C MS2038C	MW82119B
to 400 MHz	400 MHz to 6 GHz				500 kHz to 4 / 6 GHz	500 kHz to 4 / 6 GHz			2 MHz to 3 GHz
rd	Standard				Standard	Standard			Option 331
	Standard				Standard	Standard			
		In Option 0020	In Option 0020	In TG Option					
									*
to 150 kHz	150 kHz to 7.1 GHz	9 kHz to 3 GHz	9 kHz to 4 / 6 GHz	9 kHz to 43 GHz		9 kHz to 4 / 6 GHz		9 kHz to 9 / 15 / 20 GHz	
rd	Standard	*	Standard	Standard		Standard		Standard	
	*	*	*	*		*		*	
	*		*	*		*			
	*		*	*					
	*	*	*	*		*		*	
	*	*	*	*		*		*	
	*	*	*	*		*		*	
	*	*	*	*		*		*	
	*	*	*	*		*		*	
	*	*	*	*		*		*	
					500 kHz to 4 / 6 GHz	500 kHz to 4 / 6 GHz	5 kHz to 6 / 15 / 20 GHz	5 kHz to 6 / 15 / 20 GHz	
					S <sub>11'</sub> , S <sub>21</sub>		S <sub>11'</sub> , S <sub>21'</sub> , S <sub>12'</sub> , S <sub>22</sub>		
					*	*	*	*	
							*	*	
					*	*	*	*	
							*	*	
									LTE Bands
									12, 13, 14, 17
									28
									20
									5
				*					8
				*					3
				*					2,4
				*					1
				*					7
				*					
		*	*	*					
				*					
				*					
	In VSG Option	In TG Option	In TG Option	In TG Option					
	*								
rd	Standard	*	*	*					
	*	*	*	*	*	*	*	*	*
rd	ALL		RF, MOD, OTA	ALL					
	Standard		*	*					
	*		*	*					
	*		*	*					
	*		*	*					
	*		*	*					
	*		*	*					
	*		*	*					
	*		*	*					
	*		*	*					
			*						
			*						
	Standard	*	*	*	*	*	*	*	*
	*		*	*	*	*	*	*	*
			*	*	*	*	*	*	*
	Standard		*	Standard	*	*	Standard	Standard	Standard
				Standard ≥ 32 GHz			Optional ≥ 15 GHz	Optional ≥ 15 GHz	
	*	*	*	*	*	*	*	*	*



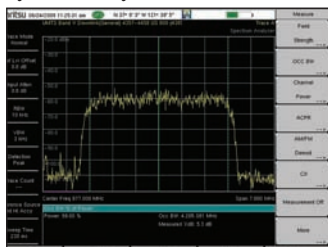
# Spectrum Master (( ))

## Handheld Spectrum Analyzers

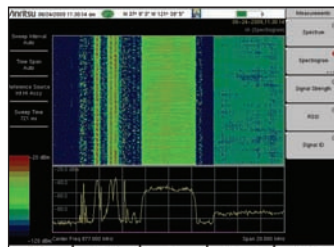
Anritsu's Spectrum Master™ handheld spectrum analyzers provide excellent flexibility in field environments for locating, identifying, recording, and solving communication systems problems without sacrificing measurement accuracy. There are five models to choose from, including our ultraportable Spectrum Master MS2760A, to meet a variety of needs. Some models include Burst Detect to see bursty signals that are 200  $\mu$ s or wider.

Our handheld units have dedicated routines for simple, one-button measurements including field strength, channel power, occupied bandwidth, Adjacent Channel Power Ratio (ACPR), Carrier-to-Interference ratio (C/I), and AM/FM/SSB demodulator. Interference analyzers feature spectrogram, RSSI, signal strength, and interference mapping for efficient interference monitoring, detection, and location.

Compact models include 3, 4, and 6 GHz models while high-performance models go to 43 GHz (or even our 110 GHz in our ultraportable MS2760A) — offering benchtop quality measurements in dynamic range, sensitivity, and phase noise. With advanced marker and limit line capabilities, the Spectrum Master spectrum analyzers' flexibility and power is available to meet all types of field measurement needs. Whether it is for spectrum monitoring, interference analysis, RF and microwave measurements, broadcast proofing, Wi-Fi and wireless network measurements, or CPRI RF measurements (for MS2712/13E), the Spectrum Master is the ideal instrument for making fast and reliable measurements — anytime or anywhere.



Occupied Bandwidth



Spectrogram

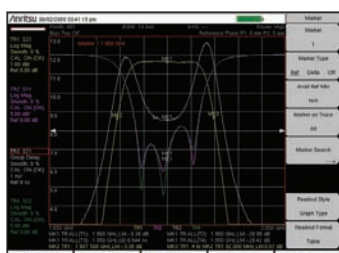
# VNA Master

## Handheld Vector Network Analyzers

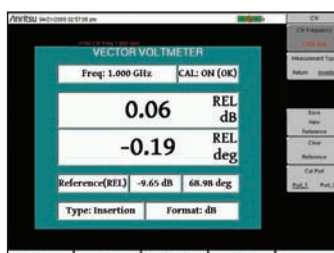
The VNA Master™ MS202xC/3xC models are advanced, full-reversing, 2-path, 2-port vector network analyzers for demanding wireless backhaul, aerospace, defense, and general purpose applications. With frequency coverage from 5 kHz to 20 GHz, the VNA Master models are cable and antenna analyzers that specialize in S-parameter measurements of isolators, circulators, filters, and phase-matched cables. The MS203xC models add a powerful spectrum analyzer up to 20 GHz with industry-leading low noise floor for accurate small signal measurements. The MS202xB/3xB models are compact, affordable, 1-path, 2-port VNAs. MS203xB models add integrated spectrum analysis up to 6 GHz.

The MS202xC/3xC models are true 2-port VNAs that can measure and display all four S-parameters simultaneously at 350  $\mu$ sec/point sweep speeds. Ideally suited for the field, the VNA Master series is also an attractive, low-cost solution for passive measurements in manufacturing and R&D lab environments.

The VNA Master models are viable alternatives to obsolete vector voltmeters, scalar tracking generators, and laboratory-grade vector network analyzers. With battery-powered operation, field personnel can do on-site analysis and maintenance tasks that used to require returning the component to a depot or lab. This freedom enables swift and precise measurements to phase match cables, troubleshoot critical system faults, and perform routine installation and maintenance tasks — anytime, anywhere.



Overlay 4 S-parameters of Filters



Phase match cables using Vector Voltmeter



Spectrum Master MS2720T



Spectrum Master Ultraportable MS2760A

### FEATURES and OPTIONS (not available on all models)

- ▶ Spectrum Analyzer
    - ▶ 9 kHz to 3/4/6/9/13/20/32/43 GHz
    - ▶ 9 kHz to 32/44/50/70/110 GHz (MS2760A)
  - ▶ Burst Detect Full Band Preamplifier
  - ▶ Internal GPS Receiver
  - ▶ Internal Power Meter or High Accuracy with Power Sensor
  - ▶ Interference Analyzer
  - ▶ Channel Scanner
  - ▶ Coverage Mapping
  - ▶ Tracking Generator
  - ▶ Zero Span IF Output
  - ▶ I/Q Waveform Capture
  - ▶ Signal Analyzers (up to 20 MHz demodulation)
    - ▶ GSM/GPRS/EDGE and W-CDMA/HSPA+
    - ▶ TD-SCDMA/HSPA+
    - ▶ LTE, TD-LTE
    - ▶ CDMA2000 1X and CDMA2000 1xEV-DO
    - ▶ Fixed WiMAX, Mobile WiMAX
    - ▶ DVB-T/H (SFN, BER), ISDB-T (SFN, BER)
    - ▶ AM/FM/PM
  - ▶ CPRI RF for MS2712E and MS2713E
  - ▶ 273 x 91 x 199 mm (10.7 x 3.6 x 7.8 in) (MS271xE)
  - ▶ 315 x 211 x 77 mm (12.4 in x 8.3 in x 3.0 in)
  - ▶ 155 x 84 x 27 mm (6.1 x 3.3 x 1.1 in) (MS2760A)
- (Not all options are available in all models)



VNA Master MS2038C – Quad-Trace View

### FEATURES and OPTIONS

- ▶ Vector Network Analyzer
  - ▶ 500 kHz to 4/6 GHz (MS202xB)
  - ▶ 5 kHz to 6/15/20 GHz (MS202xC)
- ▶ Vector Network Analyzer + Spectrum Analyzer
  - ▶ 500 kHz to 4/6 GHz (MS203xB - VNA)
  - ▶ 9 kHz to 4/6 GHz (MS203xB - SPA)
  - ▶ 5 kHz to 6/15/20 GHz (MS203xC - VNA)
  - ▶ 9 kHz to 9/15/20 GHz (MS203xC - SPA)
- ▶ Distance Domain for Distance to Fault (Standard)
- ▶ Time Domain (MS202xC/3xC only)
- ▶ Secure Data (MS202xC/3xC only)
- ▶ Balanced/Differential S-Parameters (MS202xC/3xC only)
- ▶ Vector Voltmeter
- ▶ Internal Bias Tee
- ▶ Internal GPS Receiver
- ▶ Internal Power Meter
- ▶ High-Accuracy Power Meter with USB Power Sensor
- ▶ Coverage Mapping
- ▶ Interference Analyzer
- ▶ Channel Scanner
- ▶ AM/FM/PM Modulation Analyzer
- ▶ 273 x 91 x 199 mm (10.7 x 3.6 x 7.8 in) (MS202xB/3xB)
- ▶ 315 x 79 x 211 mm (12.4 x 3.1 x 8.3 in) (MS202xC)
- ▶ 315 x 97 x 211 mm (12.4 x 3.8 x 8.3 in) (MS203xC)



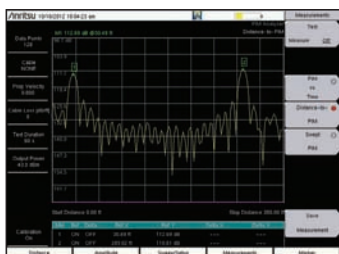
# PIM Master

## 40 Watts Battery-Operated Passive Intermodulation Analyzer

Anritsu Company introduced the first battery-operated, high-power passive intermodulation (PIM) testing solution for the major wireless standards in use around the world. PIM is a form of interference generated by passive components that are normally thought of as linear, such as connectors, cable assemblies, filters, and antennas. However, when subjected to high RF power levels found in cellular systems, these devices can generate spurious signals that increase the receiver noise floor and reduce site performance.

The PIM Master™ MW82119B accurately measures PIM performance by injecting two CW test tones into the antenna feed network and recording the magnitude of the 3<sup>rd</sup>, 5<sup>th</sup>, or 7<sup>th</sup> order intermodulation products falling in the receive band of the system. The PIM Master MW82119B is able to perform the following measurements, enabling test technicians to quickly find and eliminate PIM problems found at the cell site:

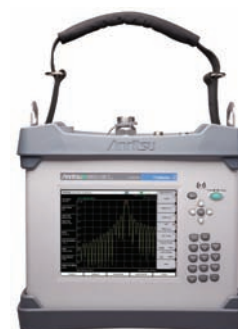
- PIM vs. Time, Swept PIM
- Distance-to-PIM(tm) (DTP)
- Noise Floor
- Trace Overlay



**Distance-to-PIM (DTP)**  
PIM Level (dBm) vs. Distance (meter)



**PIM vs. Time**  
PIM Level (dBm) vs. Time (second)



**PIM Master™ MW82119B**

### FEATURES and OPTIONS

- **Features**
  - 3.0 Hour Battery Operation
  - 25 dBm to 46 dBm Power Output
  - 3<sup>rd</sup>, 5<sup>th</sup>, 7<sup>th</sup> IMD Detection if In-Band
  - Wireless Remote Access
- **Measurements**
  - PIM vs. TIME
  - Noise Floor
  - Distance-to-PIM™
  - Swept PIM
- **Frequency Options**
  - LTE 700 (Upper and Lower band)
  - LTE 800
  - Cellular 850
  - E-GSM 900
  - DCS 1800
  - PCS/AWS 1900/2100 (for dual band systems)
  - UMTS 2100
  - LTE 2600
- **Options**
  - Site Master Cable and Antenna Analyzer
  - GPS
  - High-Accuracy Power Meter
  - PIM Master Certified PIM Measurement Training Course
  - 350 mm x 314 mm x 152 mm (13.8 in x 12.4 in x 6.0 in)

## Training and Service

### Knowledge is Power – Anritsu Gives YOU the Power

Anritsu training is the fast track to doing the job right. World-class experts lead in-person courses in which half the class time is hands-on with the instrument. See what the instrument can do, then do it yourself. Pass our rigorous assessments and earn a Site Master, PIM Master or Interference Analysis Certification and photo ID, proving you have the training to perform the most sought-after RF tests from major network carriers. Attend public training sessions in your area or ask about private, on-site training. Contact us at [us-training@anritsu.com](mailto:us-training@anritsu.com).

#### Register TODAY! – Instructor-Led Training or eLearning at [www.anritsu.com/training](http://www.anritsu.com/training)

Anritsu is your partner in professional development. Our eLearning courses can prep you for in-person certification, or deepen your existing knowledge on RF topics. Your private Anritsu My Learning portal stores your eLearning certificates and course progress.

Impeccable customer support is an integral part of Anritsu products. Our global network of customer-service centers are registered to ISO 9001:2000 quality system compliance and have achieved ISO 17025 accreditation. Staffed by Anritsu's factory-trained professionals, our centers provide the most accurate, reliable, highest-quality repair and calibration services. Get the care and quality you demand in the fast turnaround times you need. We are determined to exceed your expectations and solidify your confidence in Anritsu.



### INSTRUCTOR-LED CLASSROOM TRAINING

- **Instructor Led:**
  - Site Master Line Sweep Certification
  - PIM Master™ Certification
  - Active DAS Certification
  - Passive DAS Certification
  - NEW! Fiber Optic, OTDR & CPRI Certification
  - RF & Microwave Interference Analysis Certification
  - LMR Master User Training Course
- **eLearning:**
  - RF Fundamentals
  - Line Sweeping
  - Passive Intermodulation Measurement (PIM)
  - Distributed Antenna Systems (DAS)
  - Spectrum Analysis
  - LTE Measurement
  - Introduction to W-CDMA





Specifications are subject to change without notice.

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