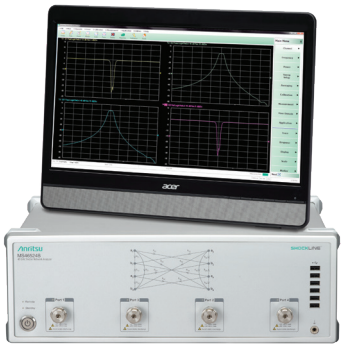
Anritsu envision : ensure

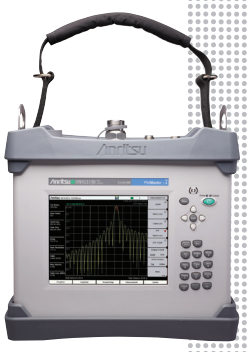
Product Brochure

Anritsu's RF and Microwave Test and Measurement Solutions

Spectrum Master™
MS2720T



ShockLine™ Vector Network Analyzer
MS46524B



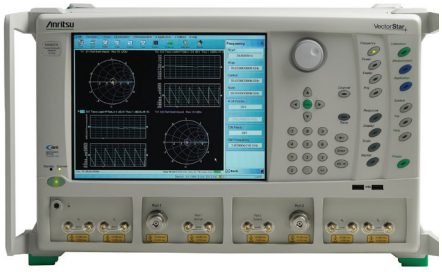
PIM Master™
MW82119B

LMR Master™
S412E

Signal Generator
MG3697C

BTS Master™
MT8220T

Site Master™
S820E



VectorStar™
MS4647B Vector Network Analyzr

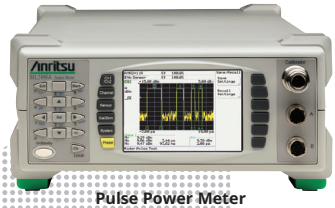
VNA Master™
MS2038C

USB Power Sensors
MA243X0A

Spectrum Master
Ultraportable
MS2760A

Site Master™
S331P

Field Master Pro™
MS2090A



Pulse Power Meter
ML2496A

Cell Master
MT8213E

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SHOCKLINE™

ShockLine Vector Network Analyzer Family

ShockLine Vector Network Analyzers

The ShockLine family of vector network analyzers (VNAs) eliminates the need to buy expensive instruments for simple The S-parameter measurements. ShockLine family employs multiple architectures that reduce manufacturing costs, enhance calibration stability, and minimize measurement uncertainty. For passive and simple linear active device testing, ShockLine VNAs deliver high-performance to 92 GHz at a substantially lower price. These VNAs integrate easily into test systems due to their small size and remote programmability. They support SCPI command programming and software drivers for the most common programming environments. The whole family shares a powerful graphical user interface for manual testing of devices. The ShockLine VNA family consists of five different series.

The ShockLine MS46121B is a series of external, PC-controlled 1-port USB solutions with frequency ranges of 40 MHz to 4 GHz and 150 kHz to 6 GHz. The ShockLine MS46121B provides 1-port vector and optional 2-port scalar measurements in a low-cost, space-saving solution that is small enough to connect directly to the device under test (DUT).

Like the ShockLine MS46121B, the ShockLine MS46122B is controlled from an external PC. It is a series of compact, 2-port VNAs with a frequency range from 1 MHz to 8/20/43.5 GHz aimed at testing passive devices in engineering, manufacturing, and cost-sensitive education applications.

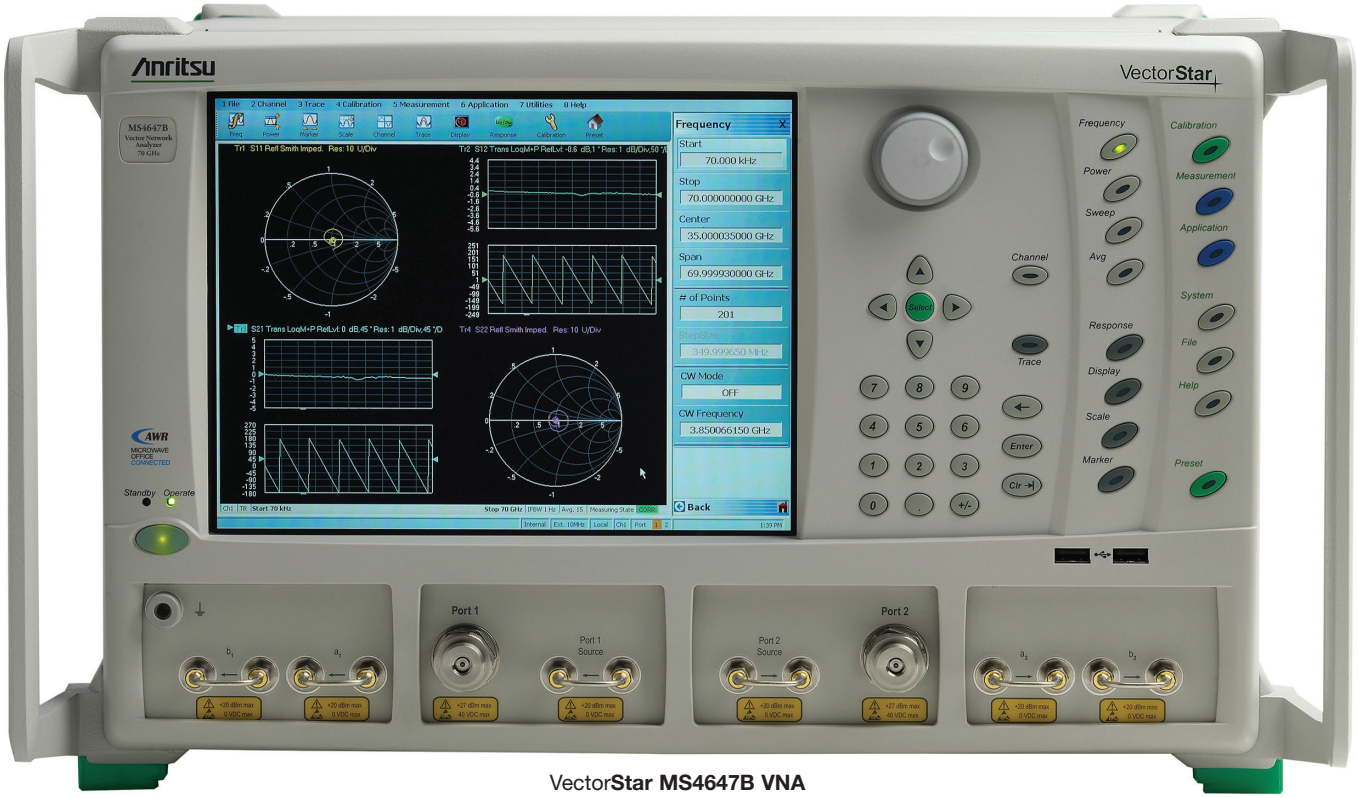
The ShockLine MS46322B solution is a series of economy VNAs with frequency ranges from 1 MHz to 8/20/43.5 GHz. Packaged in a small 2U chassis with an embedded computer, it shares the same specifications and target applications as the ShockLine MS46122B series.

The ShockLine MS46522B 2-port and MS46524B 4-port performance VNAs deliver an unprecedented level of value and performance for passive and simple linear active applications. With power sweep and multiple source capabilities, and options including bias tees, direct access loops, and advanced time domain software, these solutions can address a wide variety of applications including verification and manufacturing of mobile network equipment, mobile devices, automotive cables, high-speed data interconnects, and system integration components.

ShockLine Vector Network Analyzers	Frequency	Key Features
MS46121B-004 MS46121B-006	40 MHz to 4 GHz 150 kHz to 6 GHz	■ Excellent corrected directivity allows for less measurement uncertainty, and smaller guard bands in production ■ Fast sweep speed and wide dynamic range minimizes test times and maximize throughput in automated test applications ■ Time domain with time gating option grants easier and faster fault identification in broadband devices ■ USB ports allow for easy connection to user-provided (touchscreen) monitor, keyboard, and mouse ■ A common interface within the Anritsu family reduces switching costs to newer models ■ 3-year standard warranty ■ Compatibility with the 36585K AutoCal enables fast calibrations up to 40 GHz on ShockLine 2- and 4-port VNAs ■ Ideal for testing RF and microwave devices
MS46122B-010 MS46122B-020 MS46122B-040	1 MHz to 8 GHz 1 MHz to 20 GHz 1 MHz to 43.5 GHz	
MS46322B-010 MS46322B-020 MS46322B-040	1 MHz to 8 GHz 1 MHz to 20 GHz 1 MHz to 43.5 GHz	
MS46522B-010 MS46522B-020 MS46522B-040 MS46522B-082	50 kHz to 8.5 GHz 50 kHz to 20 GHz 50 kHz to 43.5 GHz 55 GHz to 92 GHz	
MS46524B-010 MS46524B-020 MS46524B-040	50 kHz to 8.5 GHz 50 kHz to 20 GHz 50 kHz to 43.5 GHz	

Vector Network Analyzers

VectorStar®



VectorStar **MS4647B VNA**

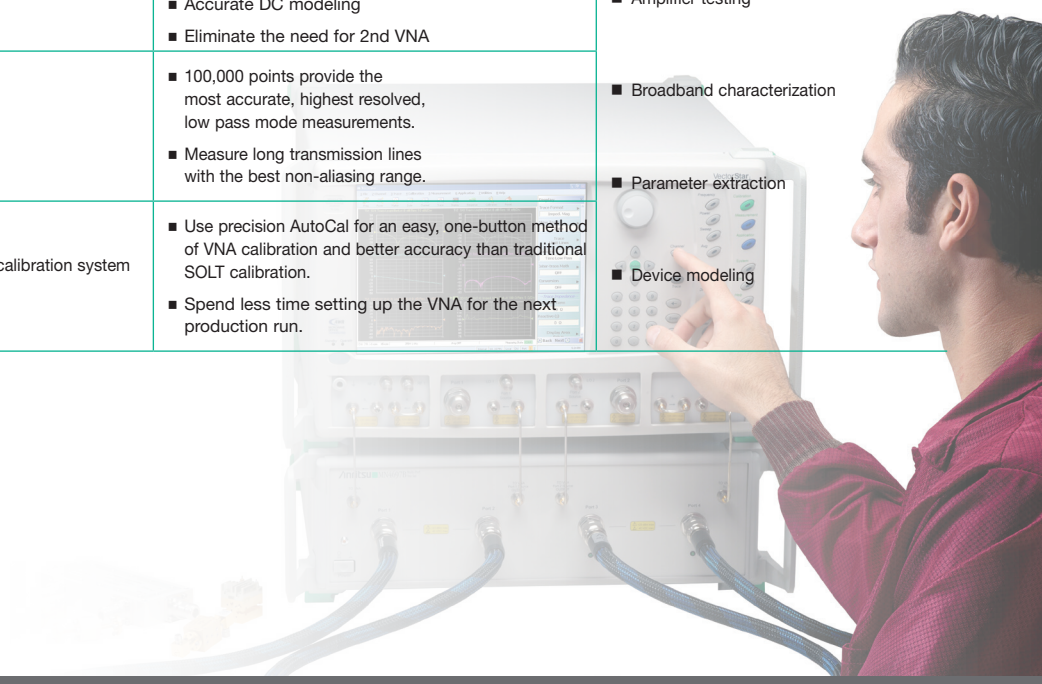
The versatility to completely characterize microwave components and systems.

VectorStar Vector Network Analyzers

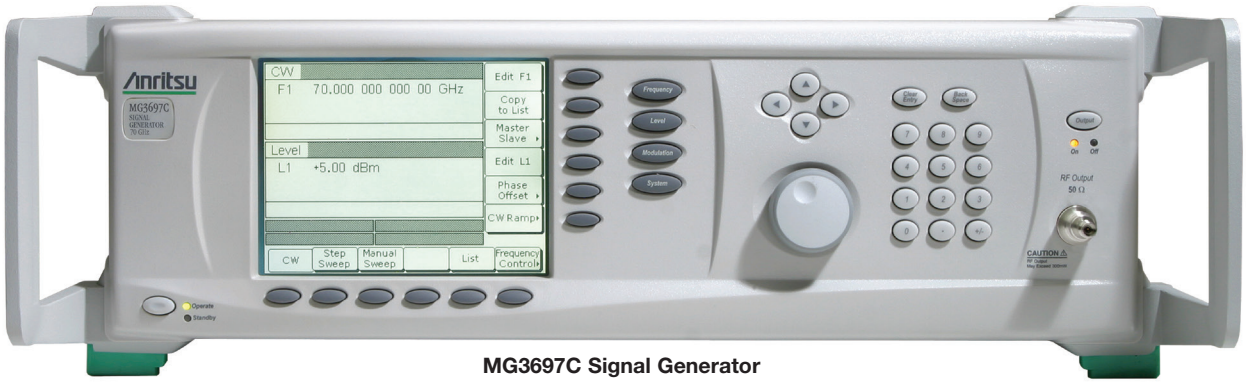
Anritsu VNAs encompass a wide range of high-performance component test tools designed to address the growing needs of microwave, satellite, defense, broadband communication, and optoelectronic components markets. Choose the VectorStar family of VNAs for the ideal solution of advanced performance, accuracy, and reliability for measuring any active or passive device or system — from characterization and designing to manufacturing and verification.

PulseView™, when combined with the innovative IF digitizing option, offers industry-leading 2.5 ns pulse resolution and 100 dB dynamic range with no compromises or trade-offs due to varying duty cycles. PulseView provides real-time display of pulse measurements while dynamically modifying pulse parameters for immediate design validation.

Vector Network Analyzer	Features	Benefits	Applications
VectorStar Family Microwave and mmWave VNA ME7838x 70 kHz to 110/125/145 GHz MS4640B Series 70 kHz to 70 GHz MS4642B 70 kHz/10 MHz to 20 GHz MS4644B 70 kHz/10 MHz to 40 GHz MS4647B 70 kHz/10 MHz to 70 GHz	Broadest frequency span from a single coaxial test port covering 70 kHz to 70 GHz in a single instrument and 70 kHz to 110/125/145 GHz in the broadband configuration. Extendable. Extendable to 1.1 THz.	■ Obtain the most thorough and accurate broadband device characterization. ■ Eliminate time consuming concatenation process across the RF, microwave/mm-wave bands. ■ Decrease test instrument expenses by eliminating the need for a 2nd RF VNA. ■ Reduce the risk of DC extrapolation errors in your device modeling.	■ Radar ■ Antenna measurements ■ Device characterization ■ Microwave and millimeter-wave (mmWave) component test ■ On-wafer ■ Waveguide S-parameters ■ R&D and production environments ■ Mixer measurements including automatic de-embedded measurements with absolute phase and group delay ■ Embed/De-embed applications ■ Amplifier testing ■ Broadband characterization ■ Parameter extraction ■ Device modeling
	Industry-leading pulse measurement performance	■ Eliminate tradeoffs and limitations of older pulse measurement methods ■ Industry leading 2.5 ns measurement resolution allows users to get a true view of their device performance and see behavior they may have been missing	
	Fast swept synthesized measurement speed < 20 µsec per point	■ Increase manufacturing revenue by increasing throughput. ■ Quickly and easily spot the most hard to find failures and reduce the risk of shipping defective products.	
	Superior dynamic range — up to 140 dB	■ Accurately measure medium and high loss devices. ■ Catch all potential filter feed-throughs in out-of-band regions.	
	High compression point — up to 15 dBm at 70 GHz	■ Eliminate the need for additional attenuators. ■ Improve calibration and measurement accuracy.	
	Best test port characteristic — up to 50 dB directivity, source match, load match	■ Reduce measurement uncertainty ■ Reduce measurement guard bands ■ Improve productivity ■ Optimum precision in R&D	
	Highest point resolution — 100,000 points	■ Zoom in on narrow band responses without re-calibration.	
	Best device modeling data	■ Accelerate design cycle ■ Accurate DC modeling ■ Eliminate the need for 2nd VNA	
	Best time domain analysis	■ 100,000 points provide the most accurate, highest resolved, low pass mode measurements. ■ Measure long transmission lines with the best non-aliasing range.	
	Most convenient automatic calibration system with best accuracy	■ Use precision AutoCal for an easy, one-button method of VNA calibration and better accuracy than traditional SOLT calibration. ■ Spend less time setting up the VNA for the next production run.	



Synthesized Signal Generators



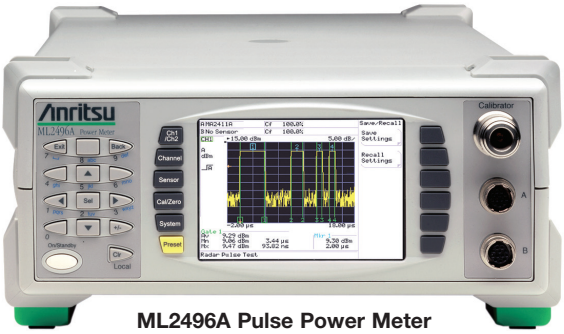
MG3697C Signal Generator

Reliability worth the industry's first standard 3-year warranty.

Synthesized Signal Generators

RF/Microwave Signal Generator MG3690C series covers audio, HF, VHF, UHF, RF, and microwave frequencies from 0.1 Hz to 70 GHz in a single coaxial output and beyond 500 GHz with external multipliers. With excellent phase noise, fast frequency switching speeds, and a full suite of analog modulation capability (including high-performance pulse modulation), the MG3690C series is an ideal signal source for design and manufacturing test of components and systems for a wide variety of industries – including wireless communications, aerospace and defense, and consumer and computer electronics. The highly configurable platform enables users to tailor their signal generator to their application. When combined with the standard 3-year warranty, Anritsu signal generators provide high-performance solutions with proven reliability.

Model	Frequency Range	Key Features	Benefit	Key Applications
RF/Microwave Signal Generator MG3690C Series	0.1 Hz to 70 GHz/500 GHz and greater	Industry's broadest frequency coverage	Use the same equipment to test with baseband to millimeter-wave signals	■ Aerospace/defense ■ Microwave communications ■ Applications signal simulation ■ Manufacturing ATE systems
		Ultra-low SSB phase noise	Excellent for LO or clock substitution	
		Complex modulation software	User-defined waveforms and custom modulations can be generated	
		Industry best pulse modulation ■ 10 ns pulse widths ■ Singlet to quadruplet pulse patterns Highly configurable platform ■ e.g., 3 levels of phase noise performance ■ e.g., internally or externally driven modulation	Outstanding radar scenario simulations ■ Part of a full suite of analog modulation capabilities ■ Combine modulations for even more flexibility Features/functionality specific to your application ■ Choose from frequency, phase noise, modulation, and many more options	



ML2496A Pulse Power Meter

Control your sensor with the PowerXpert™ Software Application

Microwave USB Power Sensors

Increase your handheld power accuracy

You can depend on Anritsu for your power measurement solution.

Traditional Power Meters and Sensors

For benchtop applications, the ML2490A series has an outstanding sample rate of 1 GS/s and 65 MHz of video bandwidth essential for measuring narrow, fast rising-edge pulse power measurements (e.g. RADAR signals). The meters work with the MA24000 series power sensors, providing more than 15 different sensor and options from which to choose – including: frequency coverage to 50 GHz; dynamic range up to 90 dB; CW, RMS and peak measurement modes; and, thermal- and diode-based technologies.

Power Meter	Frequency	VBW	Dynamic Range	Channels
ML2437A/ML2438A Power Meter (optional battery operation)	10 MHz to 70 GHz*	100 kHz	–70 dBm to +20 dBm*	1 or 2
ML2495A/ML2496A Pulse Power Meter	100 kHz to 70 GHz*	65 MHz	–70 dBm to +20 dBm*	
Traditional Power Sensor	*Sensor dependent – Go to www.anritsu.com for a complete list of 15 sensors from which to chose!			

USB Power Sensors

Anritsu USB power sensors eliminate the need for a traditional power meter. These highly accurate, standalone instruments communicate with a PC via USB or with the Anritsu handheld instruments (equipped with Option 19). Most sensors measure true RMS power, so they are ideal for measuring CW, modulated RF waveforms (ex. 3G, 4G, and OFDM signals), and multi-tone signals. They are ruggedized for field use with an industry-leading of up to +33 dBm damage level. Furthermore, the MA24507A Power Master is the world's first frequency selective power analyzer. It provides frequency specific numeric measurements of channel power or CW peak power.

USB Power Sensor	Frequency	Measurement Mode	Dynamic Range
MA24105A Inline Peak Power Sensor	350 MHz to 4 GHz	True-RMS and Peak (4 MHz VBW)	+3 dBm to +38 dBm, +51 dBm peak
MA24106A USB Power Sensor	50 MHz to 6 GHz	True-RMS: Enables accurate average power measurements regardless of modulation type.	–40 dBm to +23 dBm
MA241x8A Microwave USB Power Sensor	10 MHz to 18 GHz		–40 dBm to +20 dBm
MA24126A Microwave USB Power Sensor	10 MHz to 26 GHz		
MA24208A Microwave Universal USB Power Sensor	10 MHz to 8 GHz	True-RMS: Enables accurate, modulation independent measurements with fast measurement speeds and a wide dynamic range.	–60 dBm to +20 dBm
MA24218A Microwave Universal USB Power Sensor	10 MHz to 18 GHz		
MA243xA Microwave CW USB Power Sensor	10 MHz to 33, 40, or 50 GHz	CW only: Enables accurate CW power measurements with fast measurement speed and wide dynamic range	–70 dBm to +20 dBm
MA24507A mmWave Power Analyzer	9 kHz to 70 GHz	Frequency selective measurements of channel power or CW peak power with wide dynamic range	–90 dBm to +10 dBm (in CW)

Handheld Cable and Antenna Analyzers

Don't let their size fool you. These rugged, lightweight, and easy-to-use instruments deliver powerful, field-tested, lab-approved reliability and accuracy to the palm of your hand — and to wherever there's microwave or communication systems issues.

Site Master S820E

Site Master S331P

Need greater power accuracy?

Site Master

The new Site Master S820E is the first ever handheld 40 GHz microwave cable/antenna analyzer for field installation, troubleshooting, and maintenance of coaxial and waveguide systems.

Designed from the ground up to provide cutting-edge performance, the architecture internally is a 4 receiver, fully reversing, 2-port cable and antenna analyzer. Optional VNA and vector voltmeter (VVM) modes further extend the instrument's powerful capabilities, future-proofing your investment for many years to come.

With unprecedented dynamic range of 110 dB to 40 GHz, this new Site Master delivers ruggedness, portability and high accuracy. Widest frequency range to 40 GHz provides high-resolution distance-to-fault measurements. The Site Master S820E compliance for use in explosive atmospheres also makes it ideal for maintenance of aircraft and naval vessels.

The Site Master S331L is the highest value in a rugged, handheld cable and antenna analyzer. Utilizing the latest advancements in technology, the Site Master S331L is optimized for field conditions, easy-to-use, and has efficient sweep management capabilities. The Site Master S331L delivers an entire workday of battery operating time, the most ever offered in a handheld cable and antenna analyzer. As powerful as it is easy-to-use, more field technicians choose Site Master than any other handheld analyzer. For applications such as broadcast TV/FM, paging, cellular, GPS, PCS/GSM, LTE, HSPA/UMTS, WLAN, and WiMAX, the Site Master delivers accurate, repeatable measurements. The Site Master S331P is the smallest, lightest, fastest, and most cost effective instrument in the Site Master family. It is the only small, headless Site Master product capable of measurements down to 150 kHz for low-frequency radio communications applications and up 6 GHz for higher frequency applications like LTE-U in the 5 GHz unlicensed spectrum.

Everything you need to meet the challenges of today and tomorrow in a sleek, compact instrument. It is the most integrated cable and antenna analyzer in the world.

Model	Frequency	Measurements	
S820E	1 MHz to 40 GHz	■ VSWR ■ Cable loss ■ Return loss ■ Phase ■ Smith chart	■ Distance-to-fault ■ High-accuracy RF power (USB sensor required) ■ 2-Port transmission ■ 2-Port transmission (external sensor required)) ■ 2-Port cable loss (external sensor required)
S331L (built-in InstaCal™ and power meter)	2 MHz to 4 GHz 50 MHz to 4 GHz (power meter)	■ VSWR ■ Cable loss (1-port) ■ Return loss	■ Distance-to-fault return loss ■ Distance-to-fault VSWR ■ RF power (50 MHz to 4 GHz)
S331P	150 kHz to 4 or 6 GHz	■ VSWR ■ Cable loss (1-port) ■ Return loss	■ Distance-to-fault return loss ■ Distance-to-fault VSWR
S332E	2 MHz to 4 GHz cable and antenna analyzer 9 kHz to 4 GHz spectrum analyzer	■ Return loss ■ VSWR ■ Cable loss ■ Distance-to-fault ■ Adjacent channel power ratio ■ Channel power ■ Field strength	■ Interference analyzer ■ Occupied bandwidth ■ Transmission measurement ■ Coverage mapping ■ LTE CPRI RF ■ LTE OBSAI RF
S362E	2 MHz to 6 GHz cable and antenna analyzer 9 kHz to 6 GHz spectrum analyzer		

Land Mobile Radio Spectrum Analyzer

LMR Master S412E

Need greater power accuracy?

Delivering benchtop performance in a handheld instrument.

LMR Master

The LMR Master S412E is now available with TETRA analyzer and is the only handheld instrument capable of performing TETRA base station receiver sensitivity measurements. Anritsu's LMR Master S412E is the ideal instrument for field technicians and engineers tasked with testing the system performance of narrowband LMR/PMR voice and LTE broadband systems for public safety and critical infrastructure.

Deploying P25 Phase 2 systems isn't done in a nice comfortable workshop. It's done at the toughest sites under demanding conditions — places where a benchtop service monitor wasn't designed to go. Anritsu's LMR Master is the leading handheld P25 Phase 2 signal analyzer designed for crowded high RF sites.

Up a tower, on a roof, on a mountain — LMR Master goes where you do. Combines three famous Anritsu handhelds (the industry-leading Site Master, Spectrum Master, and VNA Master) plus signal generation and audio test interface — the ultimate LMR field analyzer. Plus internal power meter, analog FM, P25 (FDMA Phase 1 and TDMA Phase 2), TETRA, NXDN™, dPMR, DMR (MotoTRBO), ITC-R PTC, fixed and mobile WiMAX, and FirstNet LTE.

Model	Frequency	Measurements
S412E Cable and antenna, spectrum, land mobile radio analyzer with signal generator	500 kHz to 1.6 GHz cable and antenna analyzer 100 kHz to 1.6 GHz spectrum analyzer Optional extension to 6 GHz	■ Signal analyzers with coverage mapping: TETRA / NBFM / P25 / P25 Phase 2 / NXDN / dPMR / DMR (MotoTRBO) / PTC ■ Return loss ■ VSWR ■ Cable loss ■ Distance-to-fault ■ Adjacent channel power ratio ■ Channel power ■ Field strength ■ Interference analyzer ■ Occupied bandwidth ■ Transmission measurement ■ Coverage mapping

Handheld Base Station Analyzers

BTS Master MT8220T

Need greater power accuracy?

Quickly and easily perform all measurements for wireless network deployment, installation, and maintenance.

BTS Master

The BTS Master MT8220T is the only all-in-one, touchscreen handheld tool that combines cable and antenna testing, signal analysis for all cellular standards, ultra-sensitive spectrum analysis, sophisticated interference tracking, and a vector signal generator for distributed antenna system (DAS) integrity verification and receiver testing in a compact, easy-to-use instrument.

Model	Frequency	Measurements
MT8220T	400 MHz to 6 GHz (Built-in cable and antenna analyzer) 150 kHz to 7.1 GHz (Built-in spectrum analyzer) 10 MHz to 7.1 GHz (Built-in power meter)	■ Return loss/VSWR ■ Cable loss ■ Distance-to-fault ■ Phase (1- and 2- port) ■ Bias tee ■ Internal power meter ■ High accuracy power meter ■ Zero-span IF output ■ Gated sweep ■ LTE, FDD, and TDD ■ GSM/GPRS/EDGE ■ Vector signal generator: – Ability to generate user-defined waveform patterns with different rate and output from the instrument – MATLAB, LabView can be used to generate signals: -124 dBm to 0 dBm, CW, with resolution of 0.1 dB ■ Gated sweep ■ LTE, FDD, and TDD ■ GSM/GPRS/EDGE ■ TD-SCDMA/HSPA+ ■ W-CDMA/HSPA+ ■ CDMA, EV-DO ■ WiMAX, fixed and mobile ■ LTE CPRI RF ■ BBU Emulation ■ RET Control & Monitoring ■ LTE PIM over CPRI ■ LTE OBSAI RF

Cell Master MT8213E

Need greater power accuracy?

Add an MA241xxA Sensor

Cell Master

The Cell Master MT8213E eliminate the need to carry, manage, and learn multiple test sets. They include a transmitter analyzer (3GPP, 3GPP2, WiMAX, and more), a transmission analyzer for 2-port devices, interference analyzer, channel scanner, GPS receiver, CW signal generator (tests LNAs, repeaters or base station receiver sensitivity), and T1/E1 analyzer.

Model	Frequency	Measurements	
MT8213E	2 MHz to 6 GHz (Built-in cable and antenna analyzer) 9 kHz to 6 GHz (Built-in spectrum analyzer) 10 MHz to 6 GHz (Built-in power meter)	■ Return loss/VSWR ■ Cable/insertion loss ■ Distance-to-fault ■ Channel power ■ Occupied bandwidth ■ Carrier-to-interference ■ Field strength ■ Adjacent channel power ratio ■ Emission mask ■ Signal strength ■ RSSI ■ LTE, FDD, and TDD	■ W-CDMA/HSPA+ ■ GSM/GPRS/EDGE ■ TD-SCDMA/HSPA+ ■ CDMA, EV-DO ■ WiMAX, fixed and mobile ■ Coverage mapping ■ E1, T1, T3 ■ ISDB-T ■ DVB-T/H ■ LTE CPRI RF ■ LTE OBSAI RF

Handheld Spectrum Analyzers

Field Master Pro™ MS2090A

Need greater power accuracy?

No limits. No gaps. No misses.

Field Master Pro™ MS2090A

Delivering the highest levels of performance available in a handheld RF spectrum analyzer, the Field Master Pro MS2090A instrument gives field engineers and technicians unparalleled measurement accuracy previously reserved for only benchtop instruments. Integrated and continuous frequency coverage from 9 kHz to 54 GHz provides the ability to view the RF spectrum and measure all transmissions in order to avoid interference and guarantee performance meets the latest 5G test challenges while maintaining support for a full range of wireless technologies in use today.

The built-in real-time spectrum analyzer (RTSA) provides the ultimate signal analysis and interference capture tool. RTSA spans of 20 MHz (standard) to 100 MHz (optional) provide capability for cellular interference monitoring to full ISM band signal analysis. A displayed average noise level (DANL) of -164 dBm and Third Order Intercept (TOI) of 20 dBm (typical) make measurements like spectrum clearing, radio alignment, harmonic, and distortion are even more accurate than previously possible with. Maximize transmitter power and spurious testing with 100 MHz modulation bandwidth, best-in-class phase noise performance, and ±0.5 dB typical amplitude accuracy.

Features and Options

- 9 kHz to 9/14/20/26.5/32/44/54 GHz
- Demodulation:
  - 5GNR
  - RF
  - Modulation quality
  - SSB signal analysis
- Full span swept-tuned spectrum analyzer including a spectrogram display
- Integrated channel power and occupied bandwidth measurements
- Built-in adjacent channel power (ACP) measurement
- Built-in real-time spectrum analyzer (RTSA)
- High-resolution, multi-touch screen and modern GUI
- Ideal for:
  - Network interference hunting and spectrum clearing
  - Broadcast transmitter analysis
  - Microwave radio links
  - Satellite system monitoring
  - 5G NR base station measurements
  - 5G coverage mapping

Spectrum Master MS2720T

Need greater power accuracy?

Take advantage of a large selection of options to handle a wider range of applications at a reasonable cost.

Spectrum Master

Superior performance. Advanced capabilities. Affordable pricing. The Anritsu Spectrum Master family of spectrum analyzers delivers high frequency/level accuracies and a broad set of smart, intuitive features — including built-in, one-button measurements.

As the de facto industry standard, the Spectrum Master series provides ultimate measurement flexibility in a lightweight, rugged package for field environments and mobile applications. With frequencies ranging from 9 kHz to 43 GHz, the Spectrum Master is ideal for such applications as: spectrum clearing and monitoring, interference hunting and mitigation, and general purpose measurements on transmitting devices. Additional options provide demodulation analysis for several 3GPP and 3GPP2 standards, IQ Capture capability, Isotropic EMF measurements, Coverage Mapping, Channel Scanner, and so on.

Model	Frequency	RBW	DANL @ 1 GHz, preamp on	Key Features
MS2711E	9 kHz to 3 GHz (Usable to 0 Hz)	100 Hz to 3 MHz	–142 dBm in 100 Hz RBW (typ)	■ Spectrum analyzer, interference analyzer with interference mapping ■ High-accuracy power meter ■ Channel scanner, GPS, AM/FM/PM analyzer ■ Tracking generator
MS2712E	9 kHz to 4 GHz (Usable to 0 Hz)	1 Hz to 3 MHz	–162 dBm in 1 Hz RBW (typ)	■ Spectrum analyzer, interference analyzer with interference mapping, and spectrogram ■ Coverage mapping, channel scanner, GPS, AM/FM/PM analyzer ■ 3GPP, 3GPP2, WiMAX, signal analyzers ■ Tracking generator ■ Digital TV ISDB-T, DVB-T/H analyzers ■ EMF Measurements
MS2713E	9 kHz to 6 GHz (Usable to 0 Hz)			
MS2720T	9 kHz to 9 GHz 9 kHz to 13 GHz 9 kHz to 20 GHz 9 kHz to 32 GHz 9 kHz to 43 GHz (Usable to 0 Hz)	1 Hz to 10 MHz	–163 dBm in 1 Hz RBW, 9 GHz model (typ) –164 dBm in 1 Hz RBW, >9 GHz model (typ)	■ Measurements: occupied bandwidth, channel power, ACPR, C/I, emission mask, field Strength, coverage mapping, channel scanner, GPS ■ 3G and 4G measurement options for LTE, CDMA, W-CDMA, WiMAX, GSM, and TD-SCDMA ■ Interference analyzer: spectrogram, signal strength, RSSI, mapping ■ IQ Capture Option ■ AM/FM/PM analysis ■ Tracking generator: output Level of –40 dBm to 0 dBm with a resolution of 0.1 dB (which is our Lockin Specification)

Handheld Vector Network Analyzers

VNA Master MS2038C

Need greater power accuracy?

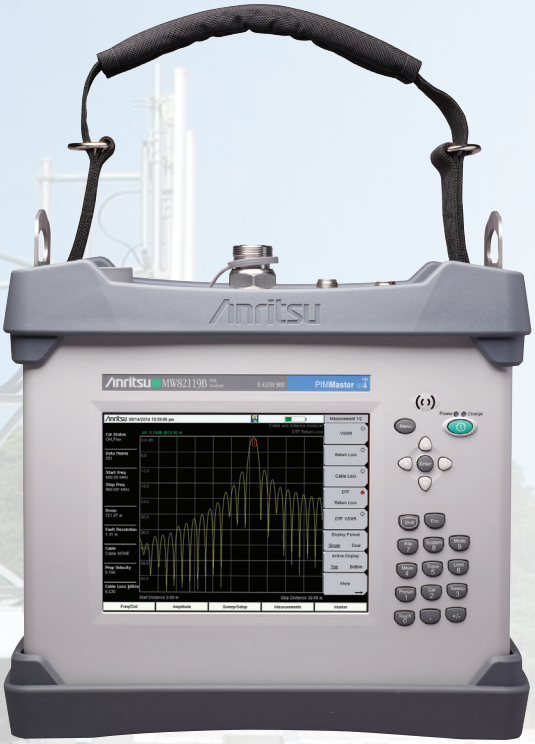
VNA Master

Need unparalleled performance and essential RF capabilities at modest prices? Enter the VNA Master series — simply the most advanced, ultra-portable handheld VNAs on the market.

There's a lot riding on the accuracy of your field measurements. Why take a chance on an unproven instrument when the success of your mission or even national security could be at stake? Count on Anritsu — now in our ninth generation providing handheld VNAs that take the precision of a test lab into the field.

Model	VNA Frequency	SPA Frequency	DANL @ 1 GHz, preamp on	Key Features
MS2024B	500 kHz to 4 GHz	—		■ 2-port VNA: S_{11}, S_{21} ■ Real/Imag impedance ■ Return Loss & VSWR ■ Smith chart ■ Phase ■ Distance-to-fault ■ Group delay ■ Transmission ■ Distance domain
MS2025B	500 kHz to 6 GHz	—		
MS2034B	500 kHz to 4 GHz	9 kHz to 4 GHz (Usable to 0 Hz)	–152 dBm in 10 Hz RBW, (typ)	MS202xB measurements plus: ■ High-performance spectrum analysis ■ AM/FM/PM analyzer ■ Interference analyzer
MS2035B	500 kHz to 6 GHz	9 kHz to 6 GHz (Usable to 0 Hz)	–152 dBm in 10 Hz RBW, (typ)\	
MS2026C	5 kHz to 6 GHz	—		■ Return loss ■ Time Domain with Gating ■ Phase ■ Smith Chart ■ Group delay ■ Distance-to-fault ■ Real/Imag impedance ■ 2-Port, 2-Path VNA ■ Time or distance domain ■ S_{11}, S_{12}, S_{21}, S_{22} ■ Standard Distance Domain
MS2027C	5 kHz to 15 GHz	—		
MS2028C	5 kHz to 20 GHz	—		
MS2036C	5 kHz to 6 GHz	9 kHz to 9 GHz (Usable to 0 Hz)	–164 dBm in 1 Hz RBW, (typ)	MS202xC measurements plus: ■ High-performance spectrum analysis ■ Gated Sweep ■ AM/FM/PM analyzer ■ Interference analyzer
MS2037C	5 kHz to 15 GHz	9 kHz to 15 GHz (Usable to 0 Hz)	–164 dBm in 1 Hz RBW, (typ)	
MS2038C	5 kHz to 20 GHz	9 kHz to 20 GHz (Usable to 0 Hz)	–164 dBm in 1 Hz RBW, (typ)	

Passive Intermodulation Analyzer



PIM Master MW82119B

Need greater power accuracy?

PIM Master

Anritsu Company introduces 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 subject 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 3rd, 5th, or 7th 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 versus time
- Swept PIM
- Noise floor
- Distance-to-PIM (DTP)

Model	Frequency Options		Other Options	
PIM Master MW82119B passive intermodulation analyzer (must be ordered with one frequency option)	MW82119B-0600	LTE 600 w/1900 MHz	MW82119B-0019	High-accuracy power meter (requires USB power sensor)
	MW82119B-0700	LTE 700	MW82119B-0031	GPS receiver (requires GPS antenna)
	MW82119B-0701	APT 700	MW82119B-0331	Site Master cable and anrenna analyzer
	MW82119B-0800	LTE 800	MW82119B-0098	Standard calibaration to ISO 17025 and/or Z540.1
	MW82119B-0850	Cellular 850	MW82119B-0099	Premium calibration to ISO 17025 and/or Z540.1 plus test data
	MW82119B-0900	E-GSM 900		
	MW82119B-0902	E-GSM 900 W/IM2		
	MW82119B-0180	DCS 1800		
	MW82119B-0194	PCS/AWS 1900/2100		
	MW82119B-0210	UMTS 2100		
	MW82119B-0260	LTE 2600		

Precision Components / RF Power Indicator

Precision Components, Precision Measurements

Technicians rely on Anritsu for industry-leading design and production of precision microwave components.

- Precision coaxial connector systems to 110 GHz
- High-directivity SWR auto testers and bridges
- Precision terminations and air lines
- Precision step attenuators
- Precision bias tees
- Precision coaxial and waveguide to coax adapters
- RF detectors
- Precision fixed attenuators
- Precision power dividers and splitters
- Broadband microwave limiters

RF Power Indicator MA25100A

RF Power Indicator

The MA25100A RF Power Indicator is always on and always ready. Its self-contained battery can last for years with normal use and is field-replaceable. A “self-test” button lights both indicators (red and yellow) if internal circuits and battery are functioning

- Use the MA25100A RF Power Indicator to determine if a connector is “live” with RF power that could damage sensitive measuring equipment from 400 MHz to 4000 MHz
- Mate the MA25100A to the connector in question and it will indicate the presence of high-level RF: Yellow LED if RF > +17 dBm (50 mW) or Red LED if RF > +27 dBm (500 mW).
- The MA25100A can withstand RF power levels up to +50 dBm (100 W) from a 50 Ω source. The MA25100A has a very high VSWR and should not be used as a 50 Ω termination

Ultraportable Spectrum Analyzer

World's first ultraportable mmWave spectrum analyzer up to 110 GHz.

The future of performance and affordability.

Spectrum Master MS2760A Ultraportable mmWave Spectrum Analyzer

9 kHz up to 110 GHz

The mmWave market is the open frontier for a wireless communications world that is getting more and more crowded. As a result, many new technologies are being developed to take advantage of the bandwidth availability at higher frequencies. This imposes several new challenges on developers, including:

- Higher propagation losses in mmWave frequencies
- A general lack of test equipment above 50 GHz

By utilizing our patented non-linear transmission line (NLTL) technology, our new line of ultraportable spectrum analyzers meets the need for test at higher frequencies while maintaining performance and affordability.

The Spectrum Master MS2760A is truly pocket-sized but big on performance, with class-leading dynamic range, sweep speed, and amplitude accuracy. Its ultraportable size enables direct connect to almost any DUT, eliminating the need for lossy, expensive cables or antennas.

The Spectrum Master MS2760A is the world's first handheld mmWave spectrum analyzer to provide continuous coverage from 9 kHz up to 110 GHz. It is ideal for the growing 5G network development market, as well as other fast-growing mmWave applications, like 802.11ad / WiGig, E-band microwave wireless communications, satellite communications, and automotive radar.

Key Features

- Six models: 32, 44, 50, 70, 90, and 110 GHz
- Measure: channel power, adjacent channel power, occupied bandwidth
- Dynamic range: >103 dB from 6.15 GHz up to 70 GHz
- DANL: –127 dBm up to 110 GHz
- Resolution Bandwidth (RBW): 10 Hz to 3 MHz
- Up to 6 traces, 3 trace detectors, 12 markers
- I/O: external 10 MHz frequency reference

Notes

Notes

Anritsu envision : ensure

Specifications are subject to change without notice.

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