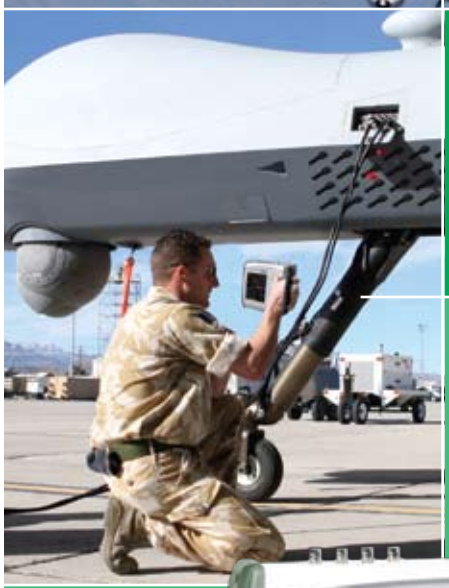
GSA Schedule
Contract GS24F0066M, GS35F0311R, GS07F0198U

gsamart®

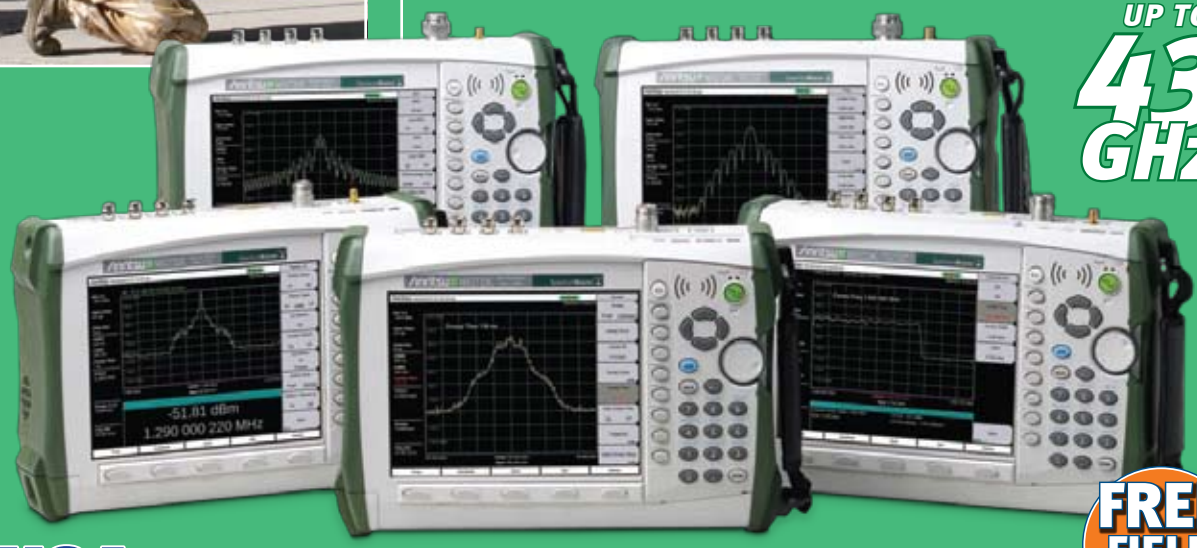


# Anritsu

## 2011 GSA Schedule Contract Products

*Five new models—*
**9 kHz to 9, 13, 20 and the first 32 and 43 GHz high performance handheld spectrum analyzers.**

UP TO 43 GHz




MADE IN USA

GSA models start at $15,232 see inside for details

FREE FIELD TRIAL

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GSA Schedule

Contracts: GS24F0066M, GS35F0311R, GS07F0198U, GS07F0437U, GS02F0187V

Federal Supply Service Authorized
Federal Supply Schedule Price List

GSA Quotes and Orders
- Toll free: (888) 665-2765
- Outside U.S.: +1 (650) 624-0525
- Fax: (650) 624-0535
- E-mail: sales@gsamart.com
- www.gsamart.com

Ordering and Billing Address
GSAMart
1000 Cherry Ave, Suite 100
San Bruno, CA 94066

Payment Methods
- Credit card (VISA, MasterCard, or American Express)
- Government Purchase Card (IMPAC)
- Purchase order, Net 30 days on approved credit

GS24F0066M (Exp. 10 March 2013)
GS35F0311R (Exp. 2 Feburary 2015)
GS07F0198U (Exp. 31 January 2013)
Technical Communities
Tax ID: 94-3310442
CAGE code: 1RPN6
DODAAC: Q90079

SBA Small Business Credit Available
Technical Communities, Inc., operator of GSAMart, is classified as "Small Business."

DOD EMALL Authorized equipment vendor.

When I joined Wiltron in 1972, the company had come a long way from its California roots that stretched back to the 1960s. When the doors first opened, Wiltron was a small company in Mountain View, CA, but it soon made a very big impact on the RF/microwave industry with the introduction of the first true Vector Network Analyzer (VNA) in 1965.

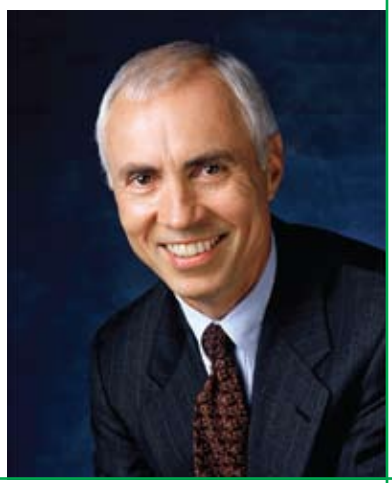
The company moved to Morgan Hill, CA in 1980 and today, Morgan Hill remains our U.S. headquarters. Since then, our name has changed to Anritsu, and we've grown into a truly global company with over 3700 direct employees worldwide. Throughout, the Morgan Hill team has continued to offer innovative new products and technologies, including the invention of the K and V connectors, and the first true handheld cable and antenna analyzers. And more recently, we pioneered the application of nonlinear transmission line (NLTL) technology in VNA's to create the industry's widest bandwidth, fastest, highest dynamic range microwave and millimeter wave VNA analyzer in the world.

Whether your applications demand rugged, portable solutions in the field or high-performance analyzers and synthesizers in the lab, we're confident the Anritsu RF and Microwave products found in this catalog will prove to be the highest performance and most reliable products you've ever used. Our team of engineers, assemblers and technician's in Morgan Hill, California stand behind each one.

Thank you for your consideration of Anritsu Company and its products.

Frank Tiernan

**Frank Tiernan**
**President**
**Anritsu Company**



MADE IN USA **www.anritsu.gsamart.com**

## HIGH PERFORMANCE HANDHELD ANALYZER

GSA

# Spectrum Master MS272xC

Five new models—9 kHz to 9, 13, 20 and the first 32 and 43 GHz handheld models. Weighing less than 8 lbs., the MS272xC series is designed with an assortment of applications to test the RF physical layer, making it easier than ever for field technicians, monitoring agencies and engineers to monitor over-the-air signals, locate interferers, and detect hidden transmitters. The MS272xC Spectrum Master eliminates the need to carry heavy benchtop spectrum analyzers into the field to measure signals above 20 GHz, such as those used in microwave backhaul applications.

Designed with a broadband preamplifier, the handheld spectrum analyzers have high sensitivity of -159 dBm at 1 GHz and -145 dBm at 43 GHz to detect small signals. Broadband preamplifiers over the whole frequency range with nominal gain of 20 dB. Three sweep modes, resolution bandwidths from 1 Hz to 10 MHz. New triggering choices including hysteresis, hold-off, and delay. LTE Measurements up to 20 MHz bandwidths.

Convenient operating procedures, high sensitivity, excellent repeatability and exceptional performance enable the MS272xC series to simplify measurements on wireless systems for easy verification of system compliance.

**Major Applications**

- Transmitter Spectrum Analysis; occupied bandwidth, channel power, adjacent channel power ratio and modulation
- Received Signal Analysis; location and identification of in-band interference and out-of-band spurious signals and spectral masks
- Signal Strength Mapping; to determine the most suitable location for antennas, base stations and repeaters
- Field analysis of 3G signals–fast sweep speed, field-swappable battery, smart measurements and daylight-viewable display make the MS2726C an ideal choice for the challenge of rugged environments
- Interference mitigation in many diverse situations including wireless patient telemetry in hospitals


***The World's First 32 & 43 GHz Handheld Spectrum Analyzers***

Scan with your smart phone for your free application note, *Detecting Hidden Signals*

| Model | Bandwidth | MSRP | GSA Price |
|---|---|---|---|
| MS2722C | 9 kHz–9 GHz | $15,950.00 | **$15,232.25** |
| MS2723C | 9 kHz–13 GHz | $17,950.00 | **$17,142.25** |
| MS2724C | 9 kHz–20 GHz | $21,950.00 | **$20,962.25** |
| MS2725C | 9 kHz–32 GHz | $32,950.00 | **$31,467.25** |
| MS2726C | 9 kHz–43 GHz | $42,950.00 | **$41,017.25** |

GSA **GSA contract products,** (GS24F0066M, GS35F0311R, GS07F0198U). Small business credit applies. **Free shipping FOB U.S. destinations.**

# Call Toll Free 888-665-2765

**PERFORMANCE VNA + SPECTRUM ANALYZER**

## GSA VNA Master MS202xC/3xC

The MS202xC/3xC VNA Master series of handheld vector network analyzers (VNAs) provide the performance and capabilities of numerous benchtop instruments in a single highly-portable analyzer. Offering the broadest frequency range of 5 kHz to up to 20 GHz in a handheld VNA, fast sweep times, waveguide support, and advanced time domain capabilities, the MS202C/3xC series can be used by RF/microwave engineers to conduct system maintenance and interference hunting in a variety of aerospace, defense, wireless backhaul and general-purpose applications.

### Combination Vector/Spectrum Analyzer

In addition to vector network analysis, the MS203xC VNA Master offer superior spectrum analysis performance compared to existing instruments. Two models–with frequency coverage of 9 kHz to either 6 GHz and 20 GHz respectively–can detect everything between small signals and interference sources. Using the standard preamplifier, typical sensitivity of display average noise level is -160 dBm in 1 Hz resolution bandwidth (RBW). Dynamic range is ›104 dB in 1 Hz RBW. The phase noise at 1 GHz is -100 dBc/Hz at 10 kHz offset, making the MS203xC well suited for interference sleuthing and rogue signal hunting. An intuitive menu-driven user interface makes it easy to conduct all measurements.

***Lightweight, Rugged, Portable Laboratory Grade VNA***

| Model | Vector Network Analyzer | Spectrum Analyzer | MSRP | GSA Price |
|---|---|---|---|---|
| MS2026C | 5 kHz–6 GHz | - | $17,450.00 | **$16,664.75** |
| MS2028C | 5 kHz–20 GHz | - | $34,950.00 | **$33,377.25** |
| MS2036C | 5 kHz–6 GHz | 9 kHz–9 GHz | $26,950.00 | **$25,737.25** |
| MS2038C | 5 kHz–20 GHz | 9 kHz–20 GHz | $46,950.00 | **$44,837.25** |
| MS20xxC-015 | Vector Voltmeter (2P) Option | | $995.00 | **$950.22** |
| MS20xxC-002 | Time+Distance Domain Option | | $3,900.00 | **$3724.50** |
| MS20xxC-077 | Differential S-params Option | | $995.00 | **$950.22** |

**Federal contractors and government agencies are eligible for savings.**

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## HIGH PERFORMANCE HANDHELD VNA

## GSA VNA Master MS202xB/3xB

MS202xB/3xB—the industry's most affordable and compact handheld solution to address cable, antenna, component and signal analysis needs in the field. MS202xB/3xB—Portable, affordable vector network and spectrum analysis, has frequency coverage from 500 kHz to 4/6 GHz in a compact ruggedized touchscreen instrument. For spectrum monitoring, coverage mapping, interference analysis, RF and microwave measurements, and battlefield/flight line systems and spectrum analysis.

**Major Applications**
- Battlefield Antenna Test/Tuning and Spectrum Monitoring
- Flight Line Cable and Antenna Testing
- RADAR and EW Field Test
- Microwave Communications System Test
- Vector Voltmeter (optional) for Cable Phase Matching
- Distance-to-Fault (optional) for Cable Integrity Analysis

**Standard Features**
- Vector Network Analysis from 5 kHz to 4/6 GHz
- 100 dB Transmission Dynamic Range
- 2-port, 1-path VNA
- Gain/Loss, VSWR, Re/Im Impedance, Smith Charts, etc.
- High accuracy VNA error correction
- SOLT, SSLT and SST calibrations
- USB connectivity for storage and remote operation

**Options**
- Distance Domain [0501]
- Vector Voltmeter [0015]
- Interference Analysis [0025]
- Channel Scanner [0027]
- GPS Receiver [0031], requires GPS antenna [2000-1528-R]
- Internal Bias Tee [0010]
- High Accuracy Power Meter [0019], requires separate USB sensor
- Coverage Mapping [0431], requires GPS [0031 + antenna]

***The Ultimate Handheld VNA***


Scan with your smart phone for your free application note, *Measurement of RADAR Cross Section Using the "VNA Master"*

| Model | Vector Network Analyzer | Spectrum Analyzer | MSRP | GSA Price |
|---|---|---|---|---|
| MS2024B | 500 kHz–4 GHz | - | $10,450.00 | **$9,979.75** |
| MS2025B | 500 kHz–6 GHz | - | $12,950.00 | **$12,367.25** |
| MS2034B | 500 kHz–4 GHz | 100 kHz–4 GHz | $14,950.00 | **$14,277.25** |
| MS2035B | 500 kHz–6 GHz | 100 kHz–6 GHz | $19,950.00 | **$19,052.25** |
| MS20xxB-015 | Vector Voltmeter Option | | $695.00 | **$663.72** |
| MS20xxB-0501 | Distance Domain Option | | $650.00 | **$620.75** |
| MS20xxB-0411 | Ethernet Option | | $495.00 | **$472.72** |

GSA **GSA contract products,** (GS24F0066M, GS35F0311R, GS07F0198U). Small business credit applies. **Free shipping FOB U.S. destinations.**

# MADE IN USA Call Toll Free 888-665-2765

## COMPACT HANDHELD SPECTRUM ANALYZER

### GSA Spectrum Master MS2712/13E


Ease of use, rich functionality, and best-in-class price/performance. The MS271xE allows you to monitor, locate, identify, and analyze a broad range of cellular, 2G/3G/4G, land mobile radio, Wi-Fi, and broadcast signals. With a rich array of configuration options, it eliminates the need for you to learn and carry multiple instruments when locating and identifying signals over wide frequency ranges.

**Major Applications**

- Spectrum monitoring
- Transmitter Verification: occupied bandwidth, channel power, adjacent channel power ratio
- Interference Analysis of cellular system, land mobile radio systems, Wi-Fi
- Signal Strength Mapping
- Field analysis of 2G/3G/4G signals
- Field Strength Measurements
- Coverage verification, network optimization

| Model | Description | MSRP | GSA Price |
|---|---|---|---|
| MS2712E | 100 kHz—4 GHz, Spectrum/Interference Analyzer w/ Interference Mapping | $8,950.00 | **$8,547.25** |
| MS2713E | 100 kHz—6 GHz, Spectrum/Interference Analyzer w/ Interference Mapping | $11,950.00 | **$11,412.25** |

## 7.1 GHz HANDHELD SPECTRUM ANALYZER

### GSA Spectrum Master MS2721B

Convenient operating procedures, high sensitivity, excellent repeatability and exceptional performance enable the MS2721B to simplify measurements on wireless systems for easy verification of system compliance.

**Major Applications**

- Transmitter Spectrum Analysis - occupied bandwidth, channel power, adjacent channel power ratio and modulation
- Received Signal Analysis–location and identification of in-band interference and out-of-band spurious signals and spectral masks
- Signal Strength Mapping–to determine the most suitable location for antennas, base stations and repeaters
- Field analysis of 3G signals–fast sweep speed, field-swappable battery, smart measurements and daylight-viewable display make the MS2721B an ideal choice for the challenge of rugged environments
- Broadcast measurement AM & FM analog and IBOC proofing measurements
- Interference mitigation in many diverse situations including wireless patient telemetry in hospitals
- Digital Video testing in DVB-T/H and ISDB-T formats

| Model | Frequenct Range | MSRP | GSA Price |
|---|---|---|---|
| MS2721B | 9 kHz–7.1 GHz | $13,950.00 | **$13,322.25** |

## COMPACT HANDHELD SPECTRUM ANALYZER

### GSA Spectrum Master MS2711E

Convenient operating procedures, high sensitivity, and excellent repeatability enable the MS2711E to pinpoint the smallest system performance degradation and allow for easy verification of system compliance. This spectrum analyzer is an ideal solution for cellular providers, land mobile operators, and military spectrum analysis.

**Major Applications**

- Interference Analysis of cellular system, land mobile radio systems, Wi-Fi
- Transmitter Spectrum Analysis–occupied bandwidth, channel power, field strength, Adjacent Channel Power Ratio, AM/FM demod, Carrier-to-Interference Ratio
- Received Signal strength (RSSI)–location and identification of in-band interference and out-of-band spurious signals; modulation identification, and spectral mask
- Field Strength Measurements
- Spectrum monitoring

| Model | Description | MSRP | GSA Price |
|---|---|---|---|
| MS2711E | 100 kHz–3.0 GHz | $6,950.00 | **$6,950.00** |

MADE IN USA **www.anritsu.gsamart.com**

## BASE STATION ANALYZER

### GSA BTS Master™ MT8221B/MT8222B

The MT8221B supports 4G standards and installed 2G/3G networks. Provides a 20 MHz demodulation capability to support LTE bandwidths from 1.4 to 20 MHz. It also features a 30 MHz Zero-Span IF Output for external demodulation of virtually any other wideband signal.

**Major Applications**

- Cable and Antenna Analyzer Measurements
- Spectrum Analyzer Measurements
- Interference Analyzer Measurements
- Channel Scanner Capability
- Vector Signal Generator Capability
- Signal Quality Analyzers Measurements
- Backhaul Quality Analyzer Measurements

BTS Master MT8222B is the value choice for deploying, maintaining and troubleshooting 2G/2.5G, 3G, and 4G wireless base stations.

| Model | Cable & Antenna | Spectrum Analyzer | Power Meter | MSRP | GSA Price |
|---|---|---|---|---|---|
| MT8221B | 400 MHz–4 GHz | 150 kHz–7.1 GHz | 10 MHz–7.1 GHz | $19,950.00 | **$19,052.25** |
| MT8222B | 400 MHz–4 GHz | 150 kHz–7.1 GHz | 10 MHz–7.1 GHz | $20,950.00 | **$20,007.25** |

## BASE STATION ANALYZER

### GSA Cell Master™ MT8212E/MT8213E

30 analyzers in one–all of the tools required for maintaining and troubleshooting base stations. 3GPP, including LTE, 3GPP2, WiMAX, and ISDB-T signal analyzers. Interference mapping with GPS guidance. Indoor and outdoor coverage mapping. Easy-to-use touch screen and USB connectivity in a compact handheld package.

**Cable and Antenna Analyzer**

- Measurements: RL, VSWR, Cable Loss, DTF, Phase
- 2-port Transmission Measurement: High/Low Power
- Sweep Speed: 1 msec/data point, typical
- Single or Dual Measurement Touchscreen
- Calibration: OSL, InstaCal™, and FlexCal™
- Bias Tee: 32 V internal

**Spectrum and Interference Analyzer**

- Measurements: Occupied Bandwidth, Channel Power, ACPR, C/I, Coverage Mapping
- Interference Analyzer: Spectrogram, Signal Strength, RSSI, Signal ID, Interference Mapping
- Dynamic Range: › 95 dB in 10 Hz RBW
- DANL: -152 dBm in 10 Hz RBW
- Phase Noise: -100 dBc/Hz max @ 10 kHz offset at 1 GHz
- Frequency Accuracy: ‹ ±50 ppb with GPS On

| Model | Cable & Antenna | Spectrum Analyzer | Power Meter | MSRP | GSA Price |
|---|---|---|---|---|---|
| MT8212E | 2 MHz - 4 GHz | 100 KHz - 4 GHz | 100 MHz - 4 GHz | $14,950.00 | **$14,277.25** |
| MT8213E | 2 MHz - 6 GHz | 100 KHz - 6 GHz | 10 MHz - 6 GHz | $18,950.00 | **$18,097.25** |

GSA **GSA contract products,** (GS24F0066M, GS35F0311R, GS07F0198U). Small business credit applies. **Free shipping FOB U.S. destinations.**

# Call Toll Free 888-665-2765

**CABLE & ANTENNA ANALYZER + SPECTRUM**

Now w/ CW Sig Gen

## GSA LMR Master™ S412E

FREE FIELD TRIAL

*Scan with your smart phone.*

The S412E combines a high performance receiver/spectrum analyzer with the worlds most advanced hand held vector network analyzer plus a CW/P25/NXDN signal generator with internally adjustable power from +5 dBm to –120 dBm.

The LMR Master is the ideal instrument for Land Mobile Radio (LMR) and Public Safety System technicians and engineers testing the RF performance of P25 and NXDN radios in the VHF/UHF, 400 MHz, 700 MHz, and 800 MHz bands.

The S412E can be configured to be equipped with a cable & antenna analyzer, spectrum analyzer, interference analyzer, channel scanner, Received Signal Strength Indicator (RSSI), AM/FM/PM modulation analysis, RF power meter, GPS receiver, P25 Analyzer, P25 Talk-Out Coverage, NXDN Analyzer, and NXDN Talk-Out Coverage.

The high performance 2 MHz to 1600 MHz vector network analyzer can be used to sweep cables and antenna systems. Frequency Domain Reflectrometry (FDR) analysis provides highly-accurate gain/loss and VSWR measurements to characterize antenna systems.

The Distance-To-Fault (DTF) measurement can easily spot poor connections, contamination, damaged cables, and water penetration. The frequency coverage can be extended to 6 GHz on both the VNA [option 16] and Spectrum Analyzer [option 06].

**Major Applications**

- Cable & antenna testing for P25 and NXDN systems (Public Safety, Regional Interoperability, Federal Agencies, Homeland Security, etc)
- Cable and antenna testing and spectrum analysis for law enforcement, broadcasting, interdiction, interference mitigation, and interop deployment.
- P25 and NXDN sensitivity measurements with the built in signal generator with 120 dB power control range and multiple BER test patterns
- Return Loss measurement
- Distance-To-Fault measurement
- Insertion Loss measurement with 100 dB dynamic range and with less than 850 us/pt sweep speed
- Low level interference measurements
- Occupied BW and Emission mask compliance
- AM/FM/PM Modulation Analysis
- Received Signal Strength Indicator
- RF Power Measurements of both CW and modulated signals
- Channel Scanner


***Handheld Solution For Installing & Maintaining Public Safety Systems***

| Model | Description | MSRP | GSA Price |
|---|---|---|---|
| S412E | Handheld Solution For Installing & Maintaining Public Safety Systems | $13,950.00 | **$13,322.25** |

**Federal contractors and government agencies are eligible for savings.**

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## CABLE & ANTENNA ANALYZER

### GSA Site Master™ S3xxE Series

Maintain legacy networks as well as 3G and 4G. Complete sweeps quickly, perform calibrations instantly, and implement fast trace naming while in the field. Designed to handle the most punishing field conditions, the integrated cable and antenna analyzer and spectrum analyzer dramatically enhances your productivity.

**Major Applications**

- Cable & Antenna Installation and Maintenance for wireless service providers, contractors, military, aerospace and defense, and public safety applications
- 2-port measurements of Tower Mounted Amplifiers, duplexers, diplexers, filters
- Phase Matching Cables
- Antenna Tuning
- Spectrum monitoring
- Transmitter Verification: occupied bandwidth, channel power, adjacent channel power ratio
- Interference Analysis of cellular system, land mobile radio systems, Wi-Fi
- Signal Strength Mapping
- Field analysis of 2G/3G/4G signals

| Model | Frequency | Memory Per Cahnnel | MSRP | GSA Price |
|---|---|---|---|---|
| S331E | 2 MHz–4 GHz | - | $7,160.00 | **$6,837.80** |
| S332E | 2 MHz–4 GHz | 100 kHz–4 GHz | $11,450.00 | **$10,934.75** |
| S361E | 2 MHz–6 GHz | - | $8,450.00 | **$8,069.75** |
| S362E | 2 MHz–4 GHz | 100 kHz–6 GHz | $15,450.00 | **$14,754.75** |
| PSN50 | 50 MHz–6 GHz | High Accuracy Sensor Option | $1,700.00 | **$1,623.50** |

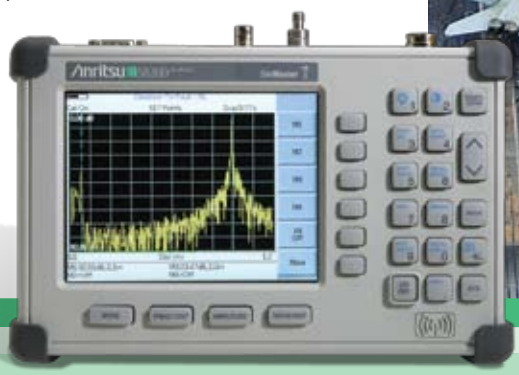
## BROADBAND CABLE & ANTENNA ANALYZER

### GSA Site Master™ S810/S820D

This Broadband Site Master is a battery operated handheld for microwave communication systems field installation, verification, troubleshooting and repair. Ideal TDR replacement tool for avionics, RADAR and military communication line sweeping and fault detection. Technical sophistication in a ruggedized, lightweight, compact and high-impact housing. Weather resistant seals and a rubber membrane keypad protects unit from dirt and moisture.

**Major Applications**

- Microwave antenna and cable characterization
- Flight line and ship board antenna testing
- RADAR and ew field test
- Coax and waveguide cables
- Distance to fault



| Model | Description | MSRP | GSA Price |
|---|---|---|---|
| S810D | 25 MHz–10.5 GHz | $13,600.00 | **$12,988.00** |
| S820D | 25 MHz–20 GHz | $20,550.00 | **$19,625.25** |

GSA **GSA contract products,** (GS24F0066M, GS35F0311R, GS07F0198U). Small business credit applies. **Free shipping FOB U.S. destinations.**

# Call Toll Free 888-665-2765

## PASSIVE INTERMODULATION (PIM) ANALYZER

## GSA PIM Master™ MW8219A

Anritsu Company introduces its first generation high performance PIM testing solution, the MW8219A, for the PCS and AWS cellular frequency bands. Anritsu has developed the PIM Master to verify if receiver interference at a cell site is due to an intermodulation product of two or more transmit frequencies, also known as passive intermodulation (PIM).

The PIM Master generates two high power tones in the transmit band of a base station and Anritsu's family of handheld RF instruments' PIM Analyzer measures the 3rd, 5th, or 7th order intermodulation products in the receive band coming back down the same cable. And the GPS option will record the location of the measurement.

**Features**

**PIM Master MW8219A for the PCS/AWS Bands**
- RF Power: 2 x 20, 30, or 40 Watts (user selectable)
- Tx Band: 1930 to1990 MHz, 2110 to 2155 MHz
- IMD Band: 1710 to 1755 MHz, 1850 to 1910 MHz
- IMD Orders: 3rd, 5th, or 7th orders (user selectable)

**Measurements**
- PIM
- Noise Floor
- Distance-to-PIM (DTP) [option 0420]

**Controlled with Anritsu Handheld Spectrum Analyzers**
- See PIM results with PIM Analyzer no cost [option 0419]
- Listen to relative PIM level with audible tone
- Set Limit Lines for visual and/or audible Pass/Fail criteria
- Save and Recall Set-ups for standardized testing
- GPS tag PIM measurements with GPS [option 0031]

**Report Generation and Training**
- Utilize Anritsu's next generation Line Sweep Tool
- PIM Master Certified PIM Measurement Training Course

***High-Performance Passive Intermodulation Analyzer***

| Model | Measurements | MSRP | GSA Price |
|---|---|---|---|
| MW8219A | 3rd, 5th, & 7th Order PIM, Noise Floor, Distance-to-PIM [Option 0420] | $32,950.00 | **$31,467.25** |

**Federal contractors and government agencies are eligible for savings.**

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## 70 GHz SIGNAL GENERATOR

SAVE $3,082

### GSA MG3690C

Excellent performance with outstanding output power, industry leading phase noise, digital/analog frequency sweeping, and internal/external-drive amplitude, frequency, phase and pulse modulations.

Optional Frequency Down To 0.1 Hz

| Model | Frequency Range | Max Output Power (dBm) / High Power Option | List | GSA |
|---|---|---|---|---|
| MG3691C | 2 GHz–10 GHz | +19 / +26 (w/ Option) | $17,800.00 | **$16,999.00** |
| MG3692C | 2 GHz–20 GHz | +17 to +19 / +23 to +26 (w/ Option) | $18,200.00 | **$17,381.00** |
| MG3693C | 2 GHz–30 GHz | +9 to +15 / +19 to +23 (w/ Option) | $29,300.00 | **$27,981.50** |
| MG3694C | 2 GHz–40 GHz | +9 to +15 / +19 to +23 (w/ Option) | $34,400.00 | **$32,852.00** |
| MG3695C | 2 GHz–50 GHz | +3 to +12 / +13 to +23 (w/ Option) | $49,400.00 | **$47,177.00** |
| MG3697C | 2 GHz–70 GHz | +3 to +12 / +3 to +21 (w/ Option) | $68,500.00 | **$65,417.50** |

| Options | Description | List | GSA |
|---|---|---|---|
| MG3690C-15A | High Power Output, 20 GHz, For MG3691C & MG3692C | $5,700.00 | **$5,443.50** |
| MG3690C-15B/C | (B) High Power Output, 40 GHz For MG3693C & MG3694C, (C) 50 GHz for MG3695C | $8,700.00 | **$8,308.50** |
| MG3690C-15D | High Power Output for MG3697C | $9,800.00 | **$9,359.00** |
| MG3690C-3 | Ultra-low Phase Noise | $5,500.00 | **$5,252.50** |
| MG3690C-3x | Premium Phase Noise | $12,000.00 | **$11,460.00** |
| MG3690C-4 | RF Coverage 8 MHz–2.2 GHz, Digital Down Converter For Lower Phase Noise | $3,500.00 | **$3,342.50** |
| MG3690C-5 | RF Coverage 8 MHz–2 GHz, w/ An Analog Down Converter | $3,500.00 | **$3,342.50** |
| MG3690C-22 | Audio Frequency Coverage, 0.1 Hz–10 MHz | $2,750.00 | **$2,626.25** |

## MICROWAVE SIGNAL GENERATOR

SAVE $1,091

### GSA MG37020A

The MG37022A Fast Switching Microwave Signal Generator covers both RF and microwave frequencies from 10 MHz to 20 GHz. With 100 µsec per point typical switching speed it is an ideal signal source for RF and microwave applications requiring frequency agility, including data intensive applications such as antenna testing and satellite payload testing, high throughput applications such as RFIC and MMIC testing, and defense applications including RADAR and EW receiver testing.

The MG37022A also offers high output power, low phase noise, excellent spectral purity, and high performance pulse modulation.

**Major Applications**

- Manufacturing and R&D of EW, RADAR, and Communications Systems

| Model | Description | MSRP | GSA Price |
|---|---|---|---|
| MG37022A | 10 MHz–20 GHz | $24,250.00 | **$23,158.75** |

GSA **GSA contract products,** (GS24F0066M, GS35F0311R, GS07F0198U). Small business credit applies. **Free shipping FOB U.S. destinations.**

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**RF, µW, mmW VECTOR NETWORK ANALYZER**

SAVE $6,957

## GSA VectorStar™ MS4640A Series

The VectorStar family is Anritsu's Premium VNA line, offering the highest overall performance on a modern platform. The MS4640A Series offers the broadest coverage in a single instrument, 70 kHz to 70 GHz. The additional two decades at the low end are even more impressive than the guaranteed 70 GHz coverage on the high end, for better device modeling without having to switch to another RF VNA. The industry leading 100 dB dynamic range at 70 GHz, coupled with excellent raw performance, will offer the best accuracy and stability to the toughest measurements. And when you can achieve synthesized sweeps at the industry fastest 20 µs/point, while achieving greater than 80dB sensitivity, the result is the best all-around VNA available on the market today, and for a long time to come.

Anritsu's VNA is destined to become the ideal microwave VNA platform, built on an Open Windows architecture, with unlimited potential such as 100,001 points in single channel mode, with versatile connectivity, and intuitive interface. Backed by the only industry standard 3-year warranty and the most responsive sales support team, the MS4640A is the VNA of choice for the discerning engineer.

**Features**

- Broadest frequency span from a single coaxial test port covering 70 kHz to 70 GHz in a single instrument and 70 kHz to 110 GHz in the Broadband configuration
- Fastest swept synthesized measurement speed ‹ 20 µsec per point
- Superior Dynamic Range - up to 140dB
- High available power - up to +13dBm
- Best test port characteristic performance–up to 50dB in Directivity, Source Match and Load Match
- Most convenient automatic calibration system with best accuracy
- Highest data resolution utilizing 100,000 points for maximum flexibility Best device modeling data
- Best time domain analysis
- Best device modeling data
- 4-port single-ended and balanced measurements

**140dB Superior Dynamic Range**


Scan with your smart phone for your free application note, *Time Domain Measurements Using Vector Network Analyzers*

| Model | Frequency Range | Ports | Connector | MSRP | GSA Price |
|---|---|---|---|---|---|
| MS4642A | 10 MHz–20 GHz | 2 | K (male) | $80,950.00 | **$77,307.25** |
| MS4644A | 10 MHz–40 GHz | 2 | K (male) | $104,950.00 | **$100,227.25** |
| MS4645A | 10 MHz–50 GHz | 2 | V (male) | $126,700.00 | **$120,998.50** |
| MS4647A | 10 MHz–70 GHz | 2 | V (male) | $154,600.00 | **$147,643.00** |

**Federal contractors and government agencies are eligible for savings.**

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## MULTIPORT VECTOR NETWORK ANALYZER

SAVE $2,700

### GSA VectorStar™ MN469xA

70 GHz high-performance, proven switching technology produces the high accuracy and wide dynamic range necessary to conduct 16 fully corrected S-parameter measurements quickly. Developed for today's highly integrated multiport assemblies and common three-port devices. The configuration is also well suited for measuring balanced two-port devices, such as high-speed transmission line backplanes, connectors, cables, balanced amplifiers, baluns, and transceivers. Measurements can be made in 30 µs/point with high accuracy, making the solution ideal for both R&D and manufacturing environments. Provides 70 kHz to 20/40/50/70 GHz 4-port capability using an external test set driven by the base VNA.


| Model | Description | MSRP | GSA Price |
|---|---|---|---|
| MN4694B | 4-port Test Set, K (For Use w/ MS4642A or MS4644A VNA Models w/ Option 51, 61 or 62) | $49,500.00 | **$47,272.50** |
| MN4697B | 4-port Test Set, V (For Use w/ MS4645A or MS4647A VNA Models w/ Option 51, 61 or 62) | $67,500.00 | **$64,462.50** |

## BROADBAND VECTOR NETWORK ANALYZER

SAVE UP TO $19,417

### GSA VectorStar™ ME7828A

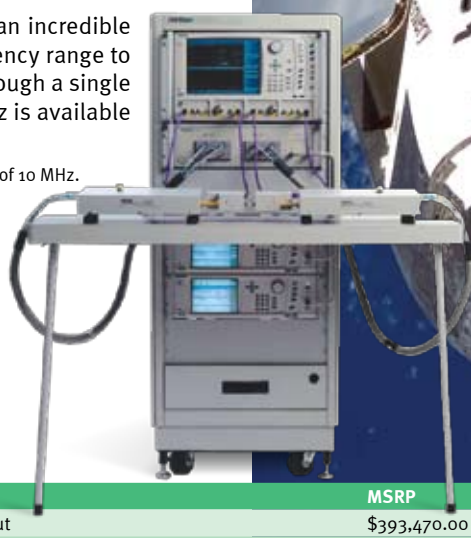
The VectorStar ME7828A broadband system provides an incredible range of performance: from the widest available frequency range to the best dynamic range and calibration stability, all through a single coaxial output. Basic operation from 10 MHz to 110 GHz is available with optional capabilities starting at 70 kHz.

- Industry-best broadband frequency coverage–starts at 70 kHz instead of 10 MHz.
- Industry-best dynamic range: typical 90 dB vs 75 dB at 65 GHz
- Industry-best measurement speed: 120 ms vs 500 ms for 201 pts.
- Industry-best calibration and measurement stability: 0.1 dB vs 0.6 dB over 24 hrs.
- Millimeter-wave waveguide coverage to 0.5 THz

**Major Applications**

- Broadband Characterization
- Parameter Extraction
- Device Modeling
- On-wafer Measurements
- Millimeter-wave Measurements
- Time Domain Analysis

**Sweep Speeds 4-10x Faster Than Other Systems**



| Model | Description | MSRP | GSA Price |
|---|---|---|---|
| ME7828A | 10 MHz–110 GHz, Broadband VNA, 1 mm Coax Output | $393,470.00 | **$375,763.85** |
| ME7828A-012 | 70 kHz–110 GHz, Broadband VNA, 1 mm Coax Output | | **Call** |

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## VECTOR NETWORK ANALYZER

SAVE $5,400

### GSA 37000E Lightning™

High performance tool designed for fast and accurate measurements for defense, satellite, RADAR, broadband communication, signal integrity, and optoelectronic component markets. Wide range of configurations and capabilities including time domain, gain compression, IMD, frequency translation, and multiport testing. Synthesized source, S-parameter test set, and tuned receiver in a single compact package ideal for bench-top testing. Models operating up to 20, 40, and 67 GHz available.

**Major Applications**

- Economical R&D and Manufacturing
- RADAR and EW System Test
- Active and Passive Microwave Component Test

| Model | Frequency Range | MSRP | GSA Price |
|---|---|---|---|
| 37247E | 40 MHz–20 GHz | $51,800.00 | **$49,469.00** |
| 37269E | 40 MHz–40 GHz | $69,500.00 | **$66,372.50** |
| 37297E | 40 MHz–65 GHz | $114,000.00 | **$108,870.00** |
| 37347E | 40 MHz–20 GHz Premium Model | $60,800.00 | **$58,064.00** |
| 37369E | 40 MHz–40 GHz Premium Model | $81,900.00 | **$78,214.50** |
| 37397E | 40 MHz–65 GHz Premium Model | $120,000.00 | **$114,600.00** |

## ECONOMY MICROWAVE SPECTRUM ANALYZER

### GSA MS271xB

Designed to be an affordable solution for bench testing of microwave components, subsystems, and systems. Low phase noise of -110 dBc/Hz* typical at 1 GHz @ 10 kHz offset, best in its class typical DANL of 159 dBm* at 1 GHz in a 1 Hz RBW, resolution bandwidth (RBW) range of 1 Hz to 3 MHz and video bandwidth (VBW) range of 1 Hz to 3 MHz. It also has the fastest sweep speeds of any spectrum analyzer in its class. *Specs are for MS2717B only.

**Major Applications**

- Microwave component test in manufacturing and R&D
- Aerospace & defense test for defense electronics, ATE
- University labs requiring affordable spectrum analysis tools
- Compliance test in manufacturing and R&D for 6 different wireless system formats for components and sub-system tests, especially Node-B transmitters
- Transmitter Spectrum Analysis in the lab or production; occupied bandwidth, channel power, adjacent channel power ratio and modulation

| Model | Frequency Range | MSRP | GSA Price |
|---|---|---|---|
| MS2717B | 9 kHz–7.1GHz | $13,450.00 | **$12,844.75** |
| MS2718B | 9 kHz-13 GHz | $17,450.00 | **$16,664.75** |
| MS2719B | 9 KHz-20 GHz | $20,450.00 | **$19,529.75** |

***Powerful Yet Affordable Solution for Microwave Spectrum Analysis***

**Federal contractors and government agencies are eligible for savings.**

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## PEAK AND PULSE POWER METERS

SAVE $422

### GSA ML2400 Series

Anritsu offers the world's most comprehensive range of power meters. The ML2490A series has the best in class sample rate of 1 GS/s and 65 MHz bandwidth essential for measuring narrow fast rising-edge pulse power measurements (e.g. RADAR). The best in class ML2480B series has a sample rate of 62.5 MHz/s and 20 MHz bandwidth suited for wideband power measurements on signals such as W-CDMA, WLAN, and WiMAX.

Choose from six different families of MA2400/ MA24000 series power sensors with frequency coverage to 50 GHz and dynamic range up to 90 dB.

| Model | Description | Video Bandwidth | MSRP | GSA Price |
|---|---|---|---|---|
| ML2495A | Wideband Peak, 1 Ch | 65 MHz | $7,185.00 | **$6,861.67** |
| ML2496A | Wideband Peak, 2 Ch | 65 MHz | $9,385.00 | **$8,962.67** |
| ML2487B | Wideband, 1 Ch | 20 MHz | $5,270.00 | **$5,032.85** |
| ML2488B | Wideband, 2 Ch | 20 MHz | $6,220.00 | **$5,940.10** |
| MA2490A | Wideband Sensor, 50 MHz–8 GHz | 20 MHz | $2,690.00 | **$2,568.95** |
| MA2411B | Pulse Profiling, 300 MHz –40 GHz | 50 MHz | $3,600.00 | **$3,438.00** |

## USB POWER SENSORS

### GSA MA24100A

Anritsu USB power sensors eliminate the need of a traditional power meter. The highly accurate, standalone instruments that communicates with a PC via USB. The power measurement capability of these sensors is intended to mimic that of a traditional thermal (thermo-electric) power sensor with a wider dynamic range. These sensors are ideal for measuring average power of CW, modulated RF waveforms 3G, 4G, OFDM, and multi-tone signals. It measures true RMS power regardless of the type of the input signal. Input signal up to 150W.

***Works Without Power Meter***

| Model | Description | Frequency Range | Dynamic Range | MSRP | GSA Price |
|---|---|---|---|---|---|
| MA24104A | True-RMS | 600 MHz–4 GHz | 2 mW–150 W, (+3 dBm–+51.76 dBm) | $2,495.00 | **$2,382.73** |
| MA24106A | True-RMS | 50 MHz–6 GHz | -40 dBm–+23 dBm | $2,400.00 | **$2,292.00** |
| MA24108A | True-RMS | 10 MHz–8 GHz | -40 dBm–+20 dBm | $2,695.00 | **$2,573.73** |
| MA24118A | True-RMS | 10 MHz–18 GHz | -40 dBm–+20 dBm | $2,995.00 | **$2,960.23** |
| MA24126A | True-RMS | 10 MHz–26 GHz | -40 dBm to +20 dBm | $3,495.00 | **$3,337.73** |

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CALL FOR ALL MODELS

## GSA Microwave Components

### Programmable Step Attenuators

| Model | Frequency | Power | Connector | MSRP | GSA Price |
|---|---|---|---|---|---|
| 4412K | 20 GHz | 70 dB | K(f)-K(f) | $1,690.00 | **$1,613.95** |
| 4422K | 20 GHz | 110 dB | K(f)-K(f) | $1,880.00 | **$1,795.40** |
| 4512K | 26.5 GHz | 70 dB | K(f)-K(f) | $1,850.00 | **$1,766.75** |
| 4522K | 26.5 GHz | 110 dB | K(f)-K(f) | $2,070.00 | **$1,976.85** |
| 4612K | 40 GHz | 70 dB | K(f)-K(f) | $2,100.00 | **$2,005.50** |
| 4622K | 40 GHz | 110 dB | K(f)-K(f) | $2,350.00 | **$2,244.25** |

### RF and Microwave Cables

| Model | Frequency | Length | Connector | MSRP | GSA Price |
|---|---|---|---|---|---|
| N120-6 | 18 GHz | 15 cm | N(m)-N(m) | $230.00 | **$219.65** |
| NS120MF-6 | 18 GHz | 15 cm | N(m)-SMA(f) | $240.00 | **$229.20** |
| K120FF-10CM | 40 GHz | 10 cm | K(f)-K(f) | $140.00 | **$133.70** |
| K120FF-150CM | 40 GHz | 150 cm | K(f)-K(f) | $270.00 | **$257.85** |
| V120FF-10CM | 65 GHz | 10 cm | V(f)-V(f) | $255.00 | **$243.53** |
| V120FF-150CM | 65 GHz | 150 cm | V(f)-V(f) | $395.00 | **$377.23** |

### Precision Coaxial Adapters

| Model | Frequency | Connector | MSRP | GSA Price |
|---|---|---|---|---|
| 34AN50 | 18 GHz | GPC-7-N(m) | $500.00 | **$477.50** |
| 34RKNF50 | 18 GHz | K(m)-N(f) | $400.00 | **$382.00** |
| 34SFSF50 | 26.5 GHz | WSMA(f)-WSMA(f) | $450.00 | **$429.75** |
| 34RKRK50 | 40 GHz | K(m)-K(m) | $500.00 | **$477.50** |
| 34RVRV50 | 60 GHz | V(m)-V(m) | $700.00 | **$668.50** |

### Precision Fixed Attenuators

| Model | Frequency | Attenuation | Connector | MSRP | GSA Price |
|---|---|---|---|---|---|
| 41KB-3 | 26.5 GHz | 3 dB | K(m)-K(f) | $290.00 | **$276.95** |
| 41KB-20 | 26.5 GHz | 20 dB | K(m)-K(f) | $290.00 | **$276.95** |
| 41KC-3 | 40 GHz | 3 dB | K(m)-K(f) | $350.00 | **$334.25** |
| 41KC-20 | 40 GHz | 20 dB | K(m)-K(f) | $350.00 | **$334.25** |
| 41V-3 | 60 GHz | 3 dB | V(m)-V(f) | $500.00 | **$477.50** |
| 41V-20 | 60 GHz | 20 dB | V(m)-V(f) | $500.00 | **$477.50** |

**Anritsu GSA models at www.anritsu.gsamart.com**

### Autotesters

Ideal for checking amplifiers, directional couplers, attenuators, filters, splitters, and terminations.

| Model | Frequency | Directivity | Connector | MSRP | GSA Price |
|---|---|---|---|---|---|
| 560-98K50 | 10 MHz–40 GHz | 35 dB | K(m) | $3,500.00 | **$3,342.50** |

### Calibration and Verification Kits

| Model | Type | Connector | MSRP | GSA Price |
|---|---|---|---|---|
| 3651 | Calibration | GPC-7 | $3,500.00 | **$3,342.50** |
| 3652A | Calibration | K | $6,500.00 | **$6,207.50** |
| 3653 | Calibration | N | $5,900.00 | **$5,634.50** |
| 3650A | Calibration | SMA/3.5mm | $5,500.00 | **$5,252.50** |
| 3654D | Calibration | V | $12,800.00 | **$12,224.00** |
| 3667 | Verification | GPC-7 | $4,700.00 | **$4,488.50** |
| 3668 | Verification | K | $4,100.00 | **$3,915.50** |
| 3663 | Verification | N | $3,900.00 | **$3,724.50** |
| 3666 | Verification | SMA/3.5mm | $3,900.00 | **$3,724.50** |
| 3669B | Verification | V | $5,500.00 | **$5,252.50** |

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## WLAN TEST SET (802.11b/g/a/n)

### GSA MT8860C

The MT8860C is an integrated one-box test set dedicated to testing 802.11 WLAN devices. It provides a high-speed measurement solution that is suitable for both production testing and design proving. The MT8860C replaces existing test systems that typically require power meters, spectrum analyzers, and Gold Radios with external attenuators. The result is a test instrument with faster integration into production, offers a universal solution for all WLAN chip sets, and is simpler to maintain and calibrate. The MT8860C also reduces test system costs, increases production throughput, and delivers the most flexible WLAN testing available.

*The Only WLAN Test Set With Network & Direct Modes For Testing WLAN Devices Conforming To IEEE 802.11 Standards.*

| Model | Description | MSRP | GSA Price |
|---|---|---|---|
| MT8860C | WLAN Test Set | $30,000.00 | **$28,650.00** |
| MT8860C-014 | 802.11a Tx/Rx Option | $8,000.00 | **$7,640.00** |

## BLUETOOTH® TEST SET

### GSA MT8852B

The MT8852B Bluetooth Test Set supports Bluetooth Basic Rate plus Enhanced Data Rate (EDR) measurements and the new Bluetooth low energy measurements. It is the only integrated test set qualified by the Bluetooth SIG for RF measurements. 8 Bluetooth Basic Rate and 6 Bluetooth EDR transmitter and receiver test cases are supported. EDR test cases supported include Relative Transmit Power, Carrier Frequency Stability/Modulation Accuracy, Differential Phase Encoding, Sensitivity, and BER Floor Performance.

The new Bluetooth low energy measurement option adds 6 low energy test cases to the standard product. These new test cases can be run as part of a test script so that test program creation is simplified and test times are minimised.


| Model | Description | MSRP | GSA Price |
|---|---|---|---|
| MT8852B | Bluetooth Test Set Including EDR | $25,205.00 | **$24,070.78** |
| MT8852B-27 | Bluetooth Low Energy Option | $7,950.00 | **$7,592.25** |

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CERTIFIED TRAINING & EDUCATION

## GSA Anritsu Training

Anritsu Training provides instructor-led and online courses to help you and your employees stay up to date with technologies important to your job. Our instructor-led courses typically include about a 50/50 split between lectures and labs. We create simulations in the labs that are as close as practical to real life applications, in order to enhance the learning experience.

Anritsu offers training at various locations across the USA and some international locations as well. We can also provide classes at your location. Registration for seats in all public classes can be processed on-line from Anritsu.

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- ***NEW***–Passive Intermodulation Measurement (PIM)
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- LMR Master
- Base Station Test
- Spectrum Analysis
- WiMAX

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gsamart®

**VNA Master,™** the ultimate handheld solution for cable, antenna and signal analysis anytime, anywhere.


***Laboratory Grade Instrument In A Rugged Handheld***

| MS2026C | MS2036C | MS2028C | MS2038C | |
|---|---|---|---|---|
| 5 kHz–6 GHz | 5 kHz–6 GHz<br>9 kHz–9 GHz | 5 kHz–20 GHz | 5 kHz–20 GHz<br>9 kHz–20 GHz | Vector Network Analyzer<br>+ Spectrum Analyzer |

MADE IN USA

GSA models start at **$16,664** see inside for details

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