

Anritsu Advancing beyond

Signal Analyzer Spectrum Analyzer Selection Guide



Anritsu Signal Analyzers/Spectrum Analyzers

Solve all your measurement needs with Anritsu's wide line-up of signal and spectrum analyzers, ranging from high-performance and multi-function, high-end models for R&D to handheld types for field use.

Supported Frequencies (Bench-top Type)

| Model/Name | Frequency Coverage | | | | | | Remarks |
|----------------------------|--------------------|-------|-------|--------|--------|--------|---|
| | 50 Hz | 9 kHz | 1 GHz | 10 GHz | 25 GHz | 50 GHz | |
| Signal Analyzer MS2850A | | | | | | | 9 kHz to 32 GHz/44.5 GHz |
| Signal Analyzer MS2840A | | | | | | | 9 kHz to 3.6 GHz/6 GHz/26.5 GHz/44.5 GHz |
| Signal Analyzer MS2830A | | | | | | | 9 kHz to 3.6 GHz/6 GHz/13.5 GHz/26.5 GHz/43 GHz |
| Signal Analyzer MS2690A | | | | | | | 50 Hz to 6 GHz |

Key Specifications

Bench-top Type

| Overview | | MS2850A-047/046 | MS2840A-040/041 | MS2840A-044/046 |
|-------------------------------------|-----------------------|--|--|--|
| Performance | | ◆◆◆◆◆ | ◆◆◆◆◆ | ◆◆◆◆◆ |
| Frequency Range | | 9 kHz to 32 GHz/44.5 GHz | 9 kHz to 3.6 GHz/6 GHz | 9 kHz to 26.5 GHz/44.5 GHz |
| Phase Noise | | -123 dBc/Hz | -133 dBc/Hz*1 (500 MHz, 10 kHz offset) | -123 dBc/Hz (1 GHz, 10 kHz offset) |
| TOI (1 GHz, without preamp) | | +16 dBm | +16 dBm | +16 dBm |
| Displayed Average Noise | 1 GHz, without preamp | -150 dBm/Hz | -151 dBm/Hz | -150 dBm/Hz |
| | 1 GHz, with preamp | -164 dBm/Hz | -165 dBm/Hz | -164 dBm/Hz |
| | 5 GHz, without preamp | -144 dBm/Hz | -146 dBm/Hz | -144 dBm/Hz |
| Standard Attenuator Range/Step | | 60 dB/2 dB steps | 60 dB/2 dB steps | 60 dB/2 dB steps*1 |
| Overall Amplitude Accuracy | | ±0.5 dB | ±0.5 dB | ±0.5 dB |
| Resolution Bandwidth (RBW) | | SPA: 1 Hz to 20 MHz VSA: 1 Hz to 10 MHz | SPA: 1 Hz to 20 MHz VSA: 1 Hz to 10 MHz*1 | SPA: 1 Hz to 20 MHz VSA: 1 Hz to 10 MHz*1 |
| Standard Analysis Bandwidth | | 255 MHz | 31.25 MHz | 31.25 MHz |
| Optional Analysis Bandwidth | | 510 MHz/1 GHz | 62.5 MHz*2/125 MHz*2 | 62.5 MHz*2/125 MHz*2 |
| Maximum Digitize Time (10 MHz span) | | 5 s | 5 s | 5 s |
| Signal Generator Option | | — | ✓ | — |
| Tracking Generator Option | | — | — | — |

*1: Depends on installed option.

*2: An image response is received when setting the bandwidth to more than 31.25 MHz.

This can be used when not inputting a signal frequency outside the MS2840A/MS2830A analysis bandwidth (125 MHz max.).

The Signal Analyzer MS2690A is recommended for other measurement purposes.

*3: Instead of changing the signal generator (SG) frequency to match the spectrum analyzer(SA) sweep, continuously synchronizing the frequency by using SG and SA can realize the function same as tracking generator.

Supported Frequencies (Handheld Type)

| Model/Name | Frequency Coverage | | | | | | | Remarks |
|--|--------------------|-------|-------|--------|--------|--------|---------|---|
| | 50 Hz | 9 kHz | 1 GHz | 10 GHz | 25 GHz | 50 GHz | 100 GHz | |
| Spectrum Master Ultraportable Spectrum Analyzer MS2760A | | | | | | | | 9 kHz to 32 GHz/44 GHz/50 GHz/70 GHz/ 90 GHz/110 GHz/145 GHz/170 GHz |
| Field Master Pro MS2090A | | | | | | | | 9 GHz/14 GHz/20 GHz/26.5 GHz/32 GHz/ 43.5 GHz/54 GHz |
| Spectrum Master MS2720T | | | | | | | | 9 kHz to 9 GHz/13 GHz/20 GHz |
| Spectrum Master MS2713E | | | | | | | | 9 kHz to 6 GHz |
| Field Master MS2080A | | | | | | | | 9 kHz to 4 GHz/6 GHz |
| Field Master MS2070A | | | | | | | | 9 kHz to 3 GHz |
| Spectrum Monitor Module MS27100A | | | | | | | | 9 kHz to 6 GHz |
| Remote Spectrum Monitor MS27101A | | | | | | | | 9 kHz to 6 GHz |
| Remote Spectrum Monitor MS27102A | | | | | | | | 9 kHz to 6 GHz |
| Remote Spectrum Monitor MS27103A | | | | | | | | 9 kHz to 6 GHz |
| Remote Spectrum Monitor MS27201A | | | | | | | | 9 kHz to 54 GHz |

| MS2830A-040/041/043 | MS2830A-044/045 | MS2690A |
|--|--|---|
| ◆◆◆ | ◆◆◆ | ◆◆◆◆◆ |
| 9 kHz to 3.6 GHz/6 GHz/13.5 GHz | 9 kHz to 26.5 GHz/43 GHz | 50 Hz to 6 GHz |
| -118 dBc/Hz*1 (500 MHz, 10 kHz offset) | -115 dBc/Hz (500 MHz, 100 kHz offset) | -116 dBc/Hz (2 GHz, 100 kHz offset) |
| +15 dBm | +15 dBm | +22 dBm |
| -151 dBm/Hz | -150 dBm/Hz | -155 dBm/Hz |
| -162 dBm/Hz | -161 dBm/Hz | -166 dBm/Hz |
| -146 dBm/Hz | -144 dBm/Hz | -152 dBm/Hz |
| 60 dB/2 dB steps | 60 dB/2 dB steps (044), 10 dB steps (045) | 60 dB/2 dB steps |
| ±0.5 dB | ±0.5 dB | ±0.5 dB |
| SPA: 1 Hz to 20 MHz*1 VSA: 1 Hz to 10 MHz*1 | SPA: 1 Hz to 20 MHz*1 VSA: 1 Hz to 10 MHz*1 | SPA: 30 Hz to 20 MHz*1 VSA: 1 Hz to 10 MHz*1 |
| — | — | 31.25 MHz |
| 31.25 MHz/62.5 MHz*2/125 MHz*2 | 31.25 MHz/62.5 MHz*2/125 MHz*2 | 62.5 MHz/125 MHz |
| 5 s | 5 s | 5 s |
| ✓ | — | ✓ |
| ✓*3 | — | — |

Key Specifications

Handheld Type

| Overview | | MS2760A (32 GHz/44 GHz/50 GHz/70 GHz/ 90 GHz/110 GHz/145 GHz/170 GHz) | MS2090A (9 GHz/14 GHz/20 GHz/26.5 GHz/ 32 GHz/43.5 GHz/54 GHz) | MS2080A (4 GHz/6 GHz) | MS2070A (3 GHz) |
|------------------------------------|-----------------------|---|--|--------------------------|----------------------|
| Performance | | ◇◇◇◇◇ | ◇◇◇◇◇ | ◇◇◇◇ | ◇◇◇ |
| Frequency Range | | 9 kHz to 110 GHz | 9 kHz to 54 GHz | 9 kHz to 4 GHz/6 GHz | 9 kHz to 3 GHz |
| Phase Noise (1 GHz, 10 kHz offset) | | -110 dBc/Hz (typical) | -102 dBc/Hz | -93 dBc/Hz | -93 dBc/Hz |
| TOI (without preamp)*1 | | +35 dBm | +20 dBm | +14 dBm | +14 dBm |
| Displayed Average Noise | 1 GHz, without preamp | — | -145 dBm | -142 dBm | -142 dBm |
| | 1 GHz, with preamp | -136 dBm/Hz | -161 dBm | -161 dBm | -161 dBm |
| | 5 GHz, with preamp | — | -159 dBm | -157 dBm | — |
| Standard Attenuator Range/Step | | — | 65 dB/5 dB steps | 50 dB, 5 dB steps | 50 dB, 5 dB steps |
| Overall Amplitude Accuracy | | ±2.0 dB, ±0.5 dB (typical) | ±1.3 dB (20 GHz) | ±1.0 dB | ±1.0 dB |
| Resolution Bandwidth (RBW) | | 1 Hz to 3 MHz | 1 Hz to 10 MHz | 1 Hz to 5 MHz | 1 Hz to 3 MHz |
| Standard Analysis Bandwidth | | — | 20 MHz | 20 MHz | 20 MHz |
| Optional Analysis Bandwidth | | — | 55 MHz/110 MHz | 40 MHz | — |
| Signal Generator Option | | — | — | — | — |
| Tracking Generator Option | | — | — | — | — |
| Battery | | — | ✓ | ✓ | ✓ |
| Cable/Antenna Analyzer | | — | Opt., requires S331P | Opt., requires S331P | Opt., requires S331P |

*1: Typical value. MS2760A: @ 2 GHz, Others: @ 1 GHz

*2: Normalized to 1 Hz RBW

*3: Available only 9 GHz, 13 GHz and 20 GHz models

Remote Spectrum Monitor

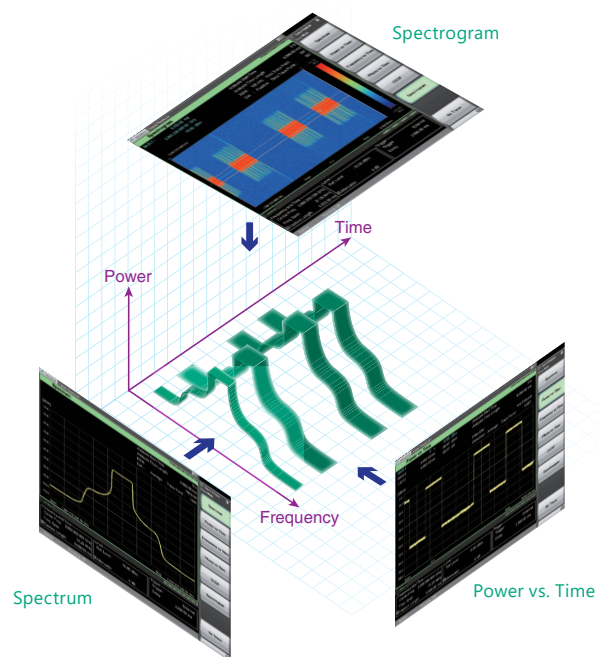
| Overview | | MS27100A | MS27101A | MS27102A | MS27103A | MS27201A |
|-------------------------------------|-----------------------|------------------------|------------------------|-------------------------------------|--------------------------------------|----------------------|
| Performance | | OEM model PCB | Compact ½ rack model | Weather-proof IP-67 enclosure model | 12 (optionally 24) RF IN ports model | Cover up to 43.5 GHz |
| Frequency Range | | 9 kHz to 6 GHz | 9 kHz to 6 GHz | 9 kHz to 6 GHz | 9 kHz to 6 GHz | 9 kHz to 43.5 GHz |
| Phase Noise (1 GHz, 10 kHz offset) | | -99 dBc/Hz (typical) | -99 dBc/Hz (typical) | -99 dBc/Hz (typical) | -99 dBc/Hz (typical) | -102 dBc/Hz |
| TOI (1 GHz, without preamp) | | +10 dBm | +10 dBm | +10 dBm | +10 dBm | +20 dBm |
| Displayed Average Noise* | 1 GHz, without preamp | -145 dBm/Hz | -145 dBm/Hz | -145 dBm/Hz | -140 dBm/Hz | -145 dBm |
| | 1 GHz, with preamp | -162 dBm/Hz | -162 dBm/Hz | -162 dBm/Hz | -157 dBm/Hz | -161 dBm |
| | 5 GHz, with preamp | -156 dBm/Hz | -156 dBm/Hz | -156 dBm/Hz | -148 dBm/Hz | -159 dBm |
| Standard Attenuator Range/Step | | 0 to 50 dB (5 dB step) | 0 to 50 dB (5 dB step) | 0 to 50 dB (5 dB step) | 0 to 50 dB (5 dB step) | 65 dB (5 dB step) |
| Overall Amplitude Accuracy | | ±2.5 dB | ±2.5 dB | ±2.5 dB | ±2.5 to 3.5 dB | ±1.3 dB (20 GHz) |
| Resolution Bandwidth (RBW) | | 10 Hz to 3 MHz | 10 Hz to 3 MHz | 10 Hz to 3 MHz | 10 Hz to 3 MHz | 1 Hz to 10 MHz |
| Maximum Digitize Time (10 MHz span) | | 6.7 s | 6.7 s | 6.7 s | 6.7 s | 85 s |

*: Normalized to 1 Hz RBW

| MS2720T (13 GHz/20 GHz) | MS2720T (9 GHz) | MS2713E (6 GHz) |
|----------------------------|--------------------|--------------------|
| ◇◇◇◇◇ | ◇◇◇◇◇ | ◇◇◇◇ |
| 9 kHz to 20 GHz | 9 kHz to 9 GHz | 9 kHz to 6 GHz |
| -102 dBc/Hz | -108 dBc/Hz | -100 dBc/Hz |
| +20 dBm | +20 dBm | +25 dBm |
| -145 dBm/Hz | -146 dBm/Hz | -141 dBm/Hz |
| -161 dBm/Hz | -160 dBm/Hz | -157 dBm/Hz |
| -142 dBm/Hz | -140 dBm/Hz | -134 dBm/Hz |
| 65 dB/5 dB step | 65 dB/5 dB step | 55 dB/5 dB step |
| ±1.3 dB | ±1.3 dB | ±1.25 dB |
| 1 Hz to 10 MHz | 1 Hz to 10 MHz | 1 Hz to 3 MHz |
| — | — | — |
| 20 MHz | 20 MHz | 20 MHz |
| — | — | — |
| ✓*3 | ✓*3 | ✓ |
| ✓ | ✓ | ✓ |
| — | — | — |

Vector Signal Analysis (VSA) Function

Seamless signal capture and VSA analysis in multiple domains make it easy to evaluate burst-signal responses and capture degraded spectrum transients, etc., which cannot be checked by conventional sweep spectrum analyzers. This greatly improves design verification and troubleshooting efficiency.





SIGNAL ANALYZER

MS2850A (MS2850A-047/046) 9 kHz to 32 GHz/44.5 GHz

Wideband Signal Analysis Using Excellent Dynamic Range and Flatness

- Excellent Flatness Performance
 - In-band frequency characteristics: ± 1.2 dB (nom.), In-band phase linearity: 5° p-p (nom.) (Center Frequency: 28 GHz, at Center Frequency ± 500 MHz)
- Wide Dynamic Range
 - Better than 140 dB@28 GHz (The difference between the ADC clipping level and DANL)
- Analysis Bandwidth: 255 MHz (Standard), 510 MHz (Option), 1 GHz (Option)
- Measurement applications (Options): Modulation Analysis (5G, LTE, LTE-Advanced, W-CDMA, TD-SCDMA, GSM, Vector Modulation, etc.), Phase Noise, Noise Figure, Noise Floor Reduction, etc.



The MS2850A-047/046 is a spectrum analyzer/signal analyzer with a maximum analysis bandwidth of 1 GHz and excellent flatness performance. With this performance, the MS2850A supports high-accuracy amplitude and phase measurements for each signal in wideband next-generation communications systems, such as 5G mobile and satellite. In addition to signal analysis, 1 GHz analysis bandwidth can be utilized as a digitizer application that monitors multiple frequencies in satellite communication. The large amounts of digitized data captured can be transferred to an external PC 100 times faster than conventional method by External Interface for High Speed Data Transfer PCIe/USB3.0 MS2850A-053/054 option.



SIGNAL ANALYZER

MS2840A (MS2840A-040/041) 9 kHz to 3.6 GHz/6 GHz

Top Class Phase Noise Performance at Middle-Price Range

- Phase Noise: -140 dBc/Hz@150 MHz, 10 kHz offset (MS2840A-066, meas.)
 - -138 dBc/Hz@1 GHz, 10 kHz offset (MS2840A-066, meas.)
 - -123 dBc/Hz@1 GHz, 10 kHz offset (Standard)
- Analysis Bandwidth: 31.25 MHz (Standard), 125 MHz max. (Option)
- Measurement applications (options): Modulation Analysis (Vector Modulation, Analog Modulation), Phase Noise, Noise Figure, Noise Floor Reduction, Built-in Vector/Analog Signal Generator, BER, etc.



Installing the MS2840A-066 option in the MS2840A-040/041 supports excellent phase noise performance exceeding that of high-end models. It offers high cost-performance in fields including development and manufacturing of narrowband wireless equipment and oscillators with built-in wireless, as well as wireless fundamental research. Additionally, it is ideal for substitute replacement of first-generation and earlier legacy high-end models. It has a built-in signal analyzer function with a wide 31.25 MHz analysis bandwidth using FFT technology for versatile analyses in both the time and frequency domains, etc. Moreover, installing the internal vector signal generator and analog signal generator options provides all-in-one support for TRx measurements of wireless equipment.

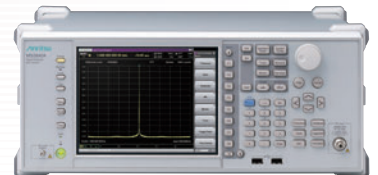


SIGNAL ANALYZER

MS2840A (MS2840A-044/046) 9 kHz to 26.5 GHz/44.5 GHz

Excellent Phase Noise Performance Using New Synthesizer Design

- Phase Noise: -123 dBc/Hz@1 GHz, 10 kHz offset
- Analysis Bandwidth: 31.25 MHz (Standard), 125 MHz max. (Option)
- Measurement applications (options): Modulation Analysis (Vector Modulation, Analog Modulation), Phase Noise, Noise Figure, Noise Floor Reduction, Pulse Radar, etc.



The MS2840A-044/046 is a spectrum analyzer offering top-class phase noise performance in a middle-price-range model. This excellent phase noise performance supports measurement of wideband transmitters, such as VHF and UHF LMR/PMR, where the measurement instrument performance is key to measurement of close-in spurious, as well as measurement of microwave wireless backhaul, satellite, pulse radar, etc.



SIGNAL ANALYZER

MS2830A (MS2830A-040/041/043) 9 kHz to 3.6 GHz/6 GHz/13.5 GHz

Supports TRx Evaluations of Various Wireless Equipment Plus Spurious Measurements of Narrowband Wireless Equipment

- Total level accuracy: ± 0.3 dB (typ.) (300 kHz to 4 GHz)
- SSB Phase Noise: -109 dBc/Hz@500 MHz, 1 kHz offset*
 - -118 dBc/Hz@500 MHz, 10 kHz offset*
 - -133 dBc/Hz@500 MHz, 100 kHz offset*
- *: Requires Low Phase Noise Performance MS2830A-066
- Measurement applications (Options): Modulation Analysis (LTE/LTE-Advanced, Analog Modulation, Vector Modulation, etc.), Noise Figure, Built-in Audio Analyzer, Built-in Vector/Analog Signal Generator, BER, Internal Signal Generator Control Function, etc.



MS2830A-041

With support for various measurements, the high cost-performance of the MS2830A makes it ideal for various applications. As well as TRx tests of different wireless equipment including digital and analog LMR/PMR/Transceiver Modules, and cellular and WLAN, it also supports spurious measurements of narrowband wireless equipment typified by LMR/PMR. And the built-in Noise Figure (NF) measurement function plus the Internal Signal Generator Control Function (for evaluating filter and amplifier transmission characteristics) expand the application range even further. Finally, Anritsu's unique Capture & Playback Function can regenerate wireless equipment Tx signals.

SIGNAL ANALYZER



MS2830A Microwave (MS2830A-044/045) 9 kHz to 26.5 GHz/43 GHz

For the Manufacturing & Maintenance of the Microwave Wireless Transmitters

- Total level accuracy: ± 0.3 dB (typ.) (300 kHz to 4 GHz)
- Dynamic range*: 159 dB@25 GHz *:(TOI – DANL)
TOI: +13 dBm@25 GHz
DANL: –146 dBm/Hz@25 GHz
- SSB phase noise: –115 dBc/Hz@500 MHz, 100 kHz offset
- Measurement applications (Options):
Modulation Analysis (LTE/LTE-Advanced, Vector Modulation, etc.), Noise Figure, BER, etc.



MS2830A-045

The MS2830A-044/045 has an upper frequency limit of 26.5 GHz/43 GHz. It can be customized to support various measurement applications.

- Confirming microwave signal frequency, phase, amplitude, instantaneous spectrum fluctuations, etc., in signal analyzer mode
- Measuring weak signals at microwave preamplifiers

SIGNAL ANALYZER



MS2690A 50 Hz to 6 GHz

Signal Analyzer with Excellent Fundamental Performance

- Frequency coverage up to 6 GHz
- Total level accuracy: ± 0.3 dB (typ.)
- Dynamic range: 177 dB, TOI: $\geq +22$ dBm, DANL: –155 dBm/Hz
- Signal Analyzer ■ Analysis bandwidth: 31.25 MHz (standard), 62.5 MHz/125 MHz (option)
■ Measurement applications (Options): Modulation Analysis (5G, LTE, LTE-Advanced, W-CDMA, TD-SCDMA, GSM, Vector Modulation, etc.), Noise Figure, etc.



The MS2690A has the excellent total level accuracy and dynamic range. Not only can it capture wideband signals but FFT technology supports multifunction signal analyses in both the time and frequency domains.

SPECTRUM MASTER™ Ultraportable Spectrum Analyzer

MS2760A/MS2762A 9 kHz to 170 GHz

The Future of Performance and Affordability

- First portable spectrum analyzer to provide continuous frequency coverage to 170 GHz
- Broadband mmWave capabilities for radio astronomy, automotive radar, wireless backhaul, 802.11ad, satcom, and more
- Ultraportable form factor enables measurements right at the device under test
- Measure: channel power, adjacent channel power, occupied bandwidth
- Patented NLTL technology provides > 100 dB dynamic range
- -141/-136/-129/-122 dBm DANL to 90/110/145/170 GHz (Spectrum Master MS2762A)
- Up to 6 traces, 3 trace detectors, and 12 markers
- Standard three-year warranty



Our MS276xA family of ultraportable spectrum analyzers is the first solution of its kind to provide continuous coverage to 170 GHz.

This family now offers:

- The MS2760A models: providing full broadband coverage from 9 kHz to 170 GHz with excellent dynamic range and DANL performance.
- The MS2762A models: providing increased dynamic range and DANL performance than the MS2760A models for the most demanding sensitivity requirements, these units frequency coverage range is from 6 GHz to 170 GHz.

The MS2760A and MS2762A solutions deliver the best-in-class price/performance ratio unmatched by traditional benchtop instruments.

The MS276xA series are pocket-sized, yet big on performance with leading dynamic range, sweep speed, and amplitude accuracy.

The ultraportable size of these instruments enables a direct connection to almost any DUT, eliminating the need for lossy, expensive cables. This enables you to more efficiently advance your technology development and reduce your time to market.

FIELD MASTER PRO™

MS2090A 9 kHz to 9/14/20/26.5/32/43.5/54 GHz

Compact and Ruggedized for Field Use

- DANL: -164 dBm (with preamp)
- TOI: +20 dBm (typical)
- Analysis bandwidth: 110 MHz
- Amp range: DANL to +30 dBm
- Phase noise at 1 GHz:
-110 dBc/Hz @ 100 kHz offset (typical)
- Demodulation: 5GNR, LTE FDD, RF, and modulation quality plus SSB signal analysis
- Resolution bandwidth (RBW): 1 Hz to 10 MHz
- RTSA bandwidth: 22, 55, 110 MHz (option dependent)
- Amplitude accuracy: < 14 GHz ± 1.3 dB (± 0.5 dB, typical)
- Zero span with 60 ns minimum span
- IQ capture and streaming



The MS2090A real-time spectrum analyzer delivers performance never previously available in a compact, handheld instrument. With continuous frequency coverage from 9 kHz to 54 GHz, the Field Master Pro MS2090A is specifically designed to meet the test challenges of a full range of other wireless technologies in use today, including: 5G, LTE, wireless backhaul, aerospace/defense, satellite systems, and radar.

FIELD MASTER™

MS2080A 9 kHz to 4/6 GHz

Handheld RF Spectrum Analyzer

- Spectrum analyzer: 9 kHz to 4 GHz and 6 GHz
- Fast sweep speeds of 45 GHz per second
- Real Time Spectrum Analyzer (RTSA) with 40 MHz bandwidth
- Cable and antenna analyzer with addition of S331P Site Master
- LTE FDD/TDD analyzer with modulation quality
- 5GNR FR1 analyzer including support for DSS
- Interference analyzer with interference mapping and eCompass handle
- USB power sensor support for precise transmitter power measurements
- AM/FM demodulation with audio output for signal identification



The MS2080A is a spectrum analyzer that integrates RF field technician's most commonly used instruments into a single package. That means less to carry and a single user interface to learn, making time in the field more productive. Integrating a high performance spectrum analyzer with RTSA, interference analyzer tools, LTE/5GNR transmitter analysis and cable and antenna line sweep measurements the MS2080A addresses the full complement of the RF field technicians requirements. Designed to withstand the knocks and blows inevitable when working at remote transmitter sites. Weighing less than 4 kg, the MS2080A is small, compact, and easy to carry. An optional shoulder harness attaches to the supplied soft case to ease long-term use outdoors, especially with over six hours of continuous operation when adding the extended power pack. An environmental rating of IP52 in the soft case protects the instrument from dust and water, ensuring it is always ready to make the measurements you need in the location you need them.

FIELD MASTER™

MS2070A 9 kHz to 3 GHz

Handheld RF Spectrum Analyzer

- Spectrum analyzer: 9 kHz to 3 GHz
- Interference analyzer with interference mapping and eCompass handle
- Spectrogram display for detection and recording of interfering signals
- Smart measurements including channel power and occupied bandwidth
- USB power sensor support for precise transmitter power measurements
- AM/FM demodulation with audio output for signal identification



The MS2070A from Anritsu offers an unrivalled combination of performance and features for standard spectrum analysis to 3 GHz. It builds on Anritsu's experience of developing handheld instruments that delivers in both field and laboratory environments. The large 10-inch high resolution multi-touch screen presents results and instrument configuration in a clear and easy to use style. At under 4 kg weight, with the integrated battery typically providing three hours of operation all in a convenient soft carry case, it is ideal for measurements in the field.

Key applications include HF, VHF, UHF transmitter measurements, interference hunting, EMI/EMC pre-compliance testing and PIM hunting.

SPECTRUM MASTER™

MS2720T 9 kHz to 9 GHz/13 GHz/20 GHz

High-performance Handheld Spectrum Analyzer

- Frequency coverage: 9 kHz to 9 GHz, 13 GHz, and 20 GHz
- Broadband preamplifiers over the whole frequency range for increased sensitivity approx. 17 dB
- Three sweep modes: Improved sweep speed, up to 100 times faster
- Resolution and video bandwidths from 1 Hz to 10 MHz
- New triggering choices, including hysteresis, hold-off, and delay
- More zero-span capabilities including 10 MHz RBW & VBW
- Enhanced spectrum analyzer touch-screen GUI, including large marker display choice
- Choice of display options for readability: normal, black on white, night vision, color on white, or high contrast
- On-screen interference mapping as part of the interference analysis option



The MS2720T represents one of the company's highest performance handheld spectrum analyzer. Exciting new features and options bring more value and speed to the user. The MS2720T features over 30 analyzers in one to meet virtually every measurement need.

SPECTRUM MASTER™

MS2713E 9 kHz to 6 GHz

Compact Handheld Spectrum Analyzer

- Spectrum analyzer: 9 kHz to 6 GHz
- Interference analyzer with interference mapping
- High accuracy power meter, 2-port transmission measurements
- Coverage mapping, Channel scanner, GPS, AM/FM/PM analyzer
- 3GPP, 3GPP2, WiMAX, ISDB-T, DVB-T/H signal analyzers
- Tracking generator: 500 kHz to 4 GHz



Regulatory requirements are growing. You're under increasing pressure to cut costs. And improving system uptime is always a top priority. The MS2713E helps you do all of this and more. Whether you are performing complex interference analysis or assessing signal quality, the MS2713E delivers the ease of use, rich functionality, and best-in-class price/performance you've come to expect from Anritsu.

Designed to handle the most punishing field conditions, the MS2713E 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, the multifunctional MS2713E eliminates the need for you to learn and carry multiple instruments when locating and identifying signals over wide frequency ranges.

REMOTE SPECTRUM MONITORS

MS27201A 9 kHz to 43.5 GHz

For Remote RF Signal Monitoring

- Frequency coverage: 9 kHz to 43.5 GHz
- Sweep speed up to 24 GHz/s
- Windows-based PC GUI application
- Hardware watchdog timer to insure long-term stability for remotely deployed monitors
- Low spurious levels for accurate signal discovery
- Up to 110 MHz analysis bandwidth



Our newest models of remote spectrum monitoring products are designed to both mitigate interference problems and to identify illegal or unlicensed signal activity. The MS27201A is built for the most demanding spectrum monitoring tasks by extending the frequency range to 43.5 GHz and up to 110 MHz analysis bandwidth. The MS27201A packs 5G and LTE analysis, IQ capture and streaming, all in a 2U enclosure.

SPECTRUM MONITOR MODULE

MS27100A 9 kHz to 6 GHz

Identify and Mitigate Interference and Unlicensed/Illegal Signals

- OEM model designed for private labeling or integration into user enclosures
- Sweep speed up to 24 GHz/s
- 20 MHz instantaneous FFT bandwidth
- IQ capture & streaming
- Integrated preamp & GPS receiver
- Built-in web server



By monitoring spectrum on a continual bases, the Spectrum Monitor Module MS27100A facilitates the identification and removal of illegal or unlicensed interference signals in real time. Patterns of unwanted signal activity can also be examined, providing an efficient way to characterize and locate the source of the interference problem. The Spectrum Monitor Module MS27100A can also be used to characterize spectrum occupancy. Monitoring these frequencies provides the information needed to optimize spectrum for maximum utilization.

REMOTE SPECTRUM MONITORS

MS27101A 9 kHz to 6 GHz

Identify and Mitigate Interference and Unlicensed/Illegal Signals

- Sweep speed up to 24 GHz/s
- 20 MHz instantaneous FFT bandwidth
- IQ capture & streaming
- Integrated preamp & GPS receiver
- Built-in web server



Mitigate interference problems and identify illegal or unlicensed signal activity with the MS27101A. Designed for indoor use, perform frequency spectrum sweeps at rates up to 24 GHz/s to capture intermittent or pulsed signals. Perform multiple FFT captures of signals of interest, then store the data for later playback and analysis to identify unlicensed signals. Multiple devices can be deployed to extend the RF monitoring capabilities for geo-location of signals of interest. Vision software can then be used to geo-locate an interfering signal or illegal broadcast.

REMOTE SPECTRUM MONITORS

MS27102A 9 kHz to 6 GHz

Identify and Mitigate Interference and Unlicensed/Illegal Signals

- IP67 rated for outdoor deployments
- Sweep speeds up to 24 GHz/s
- 20 MHz instantaneous FFT bandwidth
- IQ block mode & streaming with time stamping
- Integrated GPS receiver & built-in web server



The MS27102A is an ideal solution to identify, mitigate, and remove illegal or unlicensed interference signals. Designed for remote outdoor applications, it is rated to the IP67 standard, being dust and water resistant, and each port on the unit is ruggedized and weatherized. Fast sweep speeds enable the detection of intermittent or pulsed signals. Perform multiple FFT captures of signals of interest, then store the data for later playback and analysis to identify unlicensed signals. Multiple devices can be deployed to extend the RF monitoring capabilities for geo-location of signals of interest. Vision software can then be used to geo-locate an interfering signal or illegal broadcast.

REMOTE SPECTRUM MONITORS

MS27103A 9 kHz to 6 GHz

Identify and Mitigate Interference and Unlicensed/Illegal Signals

- 12 RF Input ports for use with multiple antennas (24 ports option available)
- Sweep speed up to 24 GHz/s
- 20 MHz instantaneous FFT bandwidth
- IQ capture & streaming
- Integrated preamp & GPS receiver
- Built-in web server



Capable of sweep rates up to 24 GHz/s, the MS27103A allows for the capture of many types of signals including periodic or transient transmissions as well as short "bursty" signals. The 20 MHz instantaneous FFT bandwidth provides the ability for wideband, real-time captures of signal activity for subsequent post-processing. IQ captures can be recorded both in block mode or streamed. A "save on event" feature is also provided to capture spectrum measurements only when certain user-settable thresholds are violated. This saves memory space since only signals of interest are captured and recorded.

Vision™ Software MX280001A

The Vision dedicated remote spectrum monitoring software records long-term spectrum monitoring data as well as remote monitoring at multiple spectrum monitors. Captured data is displayed using graphs showing dates and times when limit lines have been exceeded. Options available for geo-location of signals (TDOA), coverage mapping, spectrum occupancy, and high-speed port scanners



Application Charts

Application Comparison Chart

| Measurement Applications | Benchtop | | | | Handheld | | | | |
|---------------------------------------|----------|---------|---------|---------|----------|---------|---------|---------|---------|
| | MS2850A | MS2840A | MS2830A | MS2690A | MS2090A | MS2080A | MS2070A | MS2720T | MS2713E |
| 5G | ✓ | | | ✓ | ✓* | ✓* | | | |
| LTE | ✓ | | ✓ | ✓ | ✓* | ✓* | | ✓* | ✓* |
| W-CDMA/HSPA | ✓ | | ✓ | ✓ | | | | ✓* | ✓* |
| HSPA Evolution | ✓ | | ✓ | ✓ | | | | | |
| GSM/EDGE | | | ✓ | ✓ | | | | ✓* | ✓* |
| EDGE Evolution | | | ✓ | ✓ | | | | | |
| CDMA2000 | | | ✓* | ✓* | | | | ✓* | ✓* |
| 1xEV-DO | | | ✓* | ✓* | | | | ✓* | ✓* |
| TD-SCDMA/HSDPA | ✓ | | ✓ | ✓ | | | | ✓* | ✓* |
| Fixed WiMAX | | | | | | | | ✓* | ✓* |
| Mobile WiMAX | | | | | | | | ✓* | ✓* |
| WLAN | | | ✓ | ✓ | | | | | |
| Vector Modulation Analysis | ✓ | ✓ | ✓ | ✓ | | | | | |
| ISDB-T | | | | | | | | | ✓ |
| DVB-T/H | | | | | | | | | ✓ |
| Phase Noise | ✓ | ✓ | ✓ | ✓ | | | | | |
| Noise Figure | ✓ | ✓ | ✓ | ✓ | | | | | |
| AM/FM tune and listen | | | | | | ✓ | ✓ | ✓ | ✓ |
| Analog Modulation Analysis (FM/AM/PM) | | ✓ | ✓ | | | | | ✓ | ✓ |
| Audio Analyzer/Generator | | | ✓ | | | | | | |

*: Down link/Forward link only

Signal Analyzer MS2850A, MS2840A, MS2830A, MS2690A Recommended Model for Target Market

| Market | DUT | Purpose | MS2850A | MS2840A | MS2830A | MS2690A |
|---------------------------------------|--------------------------------|-------------------------------|---------|---------|---------|---------|
| Cellular (5G) | Base Stations | R&D, Production | ✓ | ✓* | ✓* | ✓ |
| | UE, RF Devices/Modules | R&D, Production | ✓ | ✓* | ✓* | ✓ |
| Cellular (LTE, W-CDMA, etc.) | Base Stations | R&D, Production | ✓ | ✓* | ✓ | ✓ |
| | UE, RF Devices/Modules | R&D, Production | ✓ | ✓* | ✓ | ✓ |
| WLAN | RF Devices/Modules | R&D, Production | | | ✓ | ✓ |
| LMR/PMR (P25, NXDN, DMR, TETRA, etc.) | Base Stations, Two-Way Radios | R&D, Production | | ✓ | ✓ | |
| LMR/PMR (FM, AM, PM) | Base Stations, Two-Way Radios | R&D, Production | | ✓ | ✓ | |
| IoT (FSK, etc.) | RF Devices/Modules | R&D, Production | | ✓ | ✓ | |
| Microwave Link | Transmitters | R&D, Production, Maintenance | | ✓ | ✓ | |
| Pulse Radar | Transmitters | Production, Maintenance | | ✓ | | |
| RF Device | Oscillators, etc. | R&D (Phase noise measurement) | ✓ | ✓ | | |
| Education | Radios, Electronic Parts, etc. | General education | | | ✓ | |

*: Available for spectrum measurement without modulation analysis.

• United States

Anritsu Americas Sales Company

450 Century Parkway, Suite 190, Allen, TX 75013 U.S.A.
Phone: +1-800-Anritsu (1-800-267-4878)

• Canada

Anritsu Electronics Ltd.

Americas Sales and Support

450 Century Parkway, Suite 190, Allen, TX 75013 U.S.A.
Phone: +1-800-Anritsu (1-800-267-4878)

• Brazil

Anritsu Eletronica Ltda.

Praça Amadeu Amaral, 27 - 1 Andar
01327-010 - Bela Vista - Sao Paulo - SP, Brazil
Phone: +55-11-3283-2511
Fax: +55-11-3288-6940

• Mexico

Anritsu Company, S.A. de C.V.

Bldv Miguel de Cervantes Saavedra #169 Piso 1, Col. Granada
Mexico, Ciudad de Mexico, 11520, MEXICO
Phone: +52-55-4169-7104

• United Kingdom

Anritsu EMEA Ltd.

200 Capability Green, Luton, Bedfordshire, LU1 3LU, U.K.
Phone: +44-1582-433200
Fax: +44-1582-731303

• France

Anritsu S.A.

12 avenue du Québec, Immeuble Goyave,
91140 VILLEBON SUR YVETTE, France
Phone: +33-1-60-92-15-50

• Germany

Anritsu GmbH

Nemetschek Haus, Konrad-Zuse-Platz 1,
81829 München, Germany
Phone: +49-89-442308-0
Fax: +49-89-442308-55

• Italy

Anritsu S.r.l.

Spaces Eur Arte, Viale dell'Arte 25, 00144 Roma, Italy
Phone: +39-6-509-9711

• Sweden

Anritsu AB

Kistagången 20 B, 2 tr, 164 40 Kista, Sweden
Phone: +46-8-534-707-00

• Finland

Anritsu AB

Technopolis Aviapolis, Teknobulevardi 3-5 (D208.5),
FI-01530 Vantaa, Finland
Phone: +358-20-741-8100

• Denmark

Anritsu A/S

c/o Regus Winghouse, Ørestads Boulevard 73, 4th floor,
2300 Copenhagen S, Denmark
Phone: +45-7211-2200

• Spain

Anritsu EMEA Ltd.

Representation Office in Spain

Paseo de la Castellana, 141. Planta 5, Edificio Cuzco IV
28046, Madrid, Spain
Phone: +34-91-572-6761

• Austria

Anritsu EMEA GmbH

Am Belvedere 10, A-1100 Vienna, Austria
Phone: +43-(0)1-717-28-710

• United Arab Emirates

Anritsu EMEA Ltd.

Anritsu A/S

Office No. 164, Building 17, Dubai Internet City
P. O. Box – 501901, Dubai, United Arab Emirates
Phone: +971-4-3758479

• India

Anritsu India Private Limited

6th Floor, Indiqube ETA, No.38/4, Adjacent to EMC2,
Doddanekundi, Outer Ring Road, Bengaluru – 560048, India
Phone: +91-80-6728-1300
Fax: +91-80-6728-1301

• Singapore

Anritsu Pte. Ltd.

11 Chang Charn Road, #04-01, Shriro House, Singapore 159640
Phone: +65-6282-2400
Fax: +65-6282-2533

• Vietnam

Anritsu Company Limited

16th Floor, Peakview Tower, 36 Hoang Cau Street, O Cho Dua Ward,
Dong Da District, Hanoi, Vietnam
Phone: +84-24-3201-2730

• P.R. China (Shanghai)

Anritsu (China) Co., Ltd.

Room 2701-2705, Tower A, New Caohejing International
Business Center No. 391 Gui Ping Road Shanghai, 200233, P.R. China
Phone: +86-21-6237-0898
Fax: +86-21-6237-0899

• P.R. China (Hong Kong)

Anritsu Company Ltd.

Unit 1006-7, 10/F., Greenfield Tower, Concordia Plaza,
No. 1 Science Museum Road, Tsim Sha Tsui East,
Kowloon, Hong Kong, P.R. China
Phone: +852-2301-4980
Fax: +852-2301-3545

• Japan

Anritsu Corporation

8-5, Tamura-cho, Atsugi-shi, Kanagawa, 243-0016 Japan
Phone: +81-46-296-6509
Fax: +81-46-225-8352

• Korea

Anritsu Corporation, Ltd.

5FL, 235 Pangyoeyeok-ro, Bundang-gu, Seongnam-si,
Gyeonggi-do, 13494 Korea
Phone: +82-31-696-7750
Fax: +82-31-696-7751

• Australia

Anritsu Pty. Ltd.

Unit 20, 21-35 Ricketts Road, Mount Waverley, Victoria 3149, Australia
Phone: +61-3-9558-8177
Fax: +61-3-9558-8255

• Taiwan

Anritsu Company Inc.

7F, No. 316, Sec. 1, NeiHu Rd., Taipei 114, Taiwan
Phone: +886-2-8751-1816
Fax: +886-2-8751-1817