

**Anritsu** envision : ensure

# Site Master™

Compact Handheld Cable & Antenna Analyzer  
with Spectrum Analyzer

**S331E**  
2 MHz to 4.0 GHz

**S332E**  
2 MHz to 4.0 GHz  
9 kHz to 4 GHz

Cable and Antenna Analyzer  
Spectrum Analyzer

**S361E**  
2 MHz to 6.0 GHz

**S362E**  
2 MHz to 6.0 GHz  
9 kHz to 6 GHz

Cable and Antenna Analyzer  
Spectrum Analyzer



## Introduction

Anritsu introduces its eighth generation compact handheld Cable and Antenna Analyzers with Spectrum Analyzers for installation and maintenance of wireless networks. They feature the highest performance and the most capabilities ever offered by Anritsu in a compact handheld tester since introducing its first line sweeper in 1995.

## Cable and Antenna Analyzer Highlights

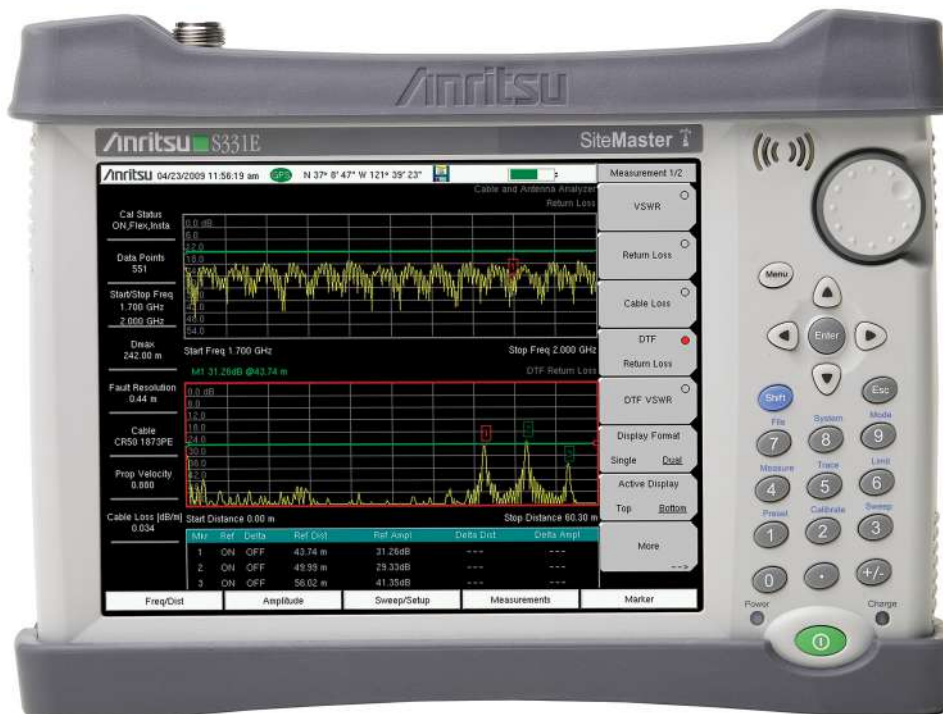
- Measurements: RL, VSWR, Cable Loss, DTF, Phase
- 2-port Transmission Measurement: High/Low Power
- Sweep Speed: 1 ms/data point, typical
- Display: Single or Dual Measurement Touchscreen
- Calibration: OSL, InstaCal™, and FlexCal™
- Bias Tee: 32 V internal

## Spectrum and Interference Analyzer Highlights

- Measurements: Occupied Bandwidth, Channel Power, ACPR, C/I
- 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

## Capabilities and Functional Highlights

- AM / FM / PM Analyzer
- CPRI LTE RF Measurements
- OBSAI LTE RF Measurements
- EMF Test (S332E & S362E)
- High Accuracy Power Meter
- Up to 50 GHz USB Sensors
- PIM Alert Application (S332E & S362E)
- Master Software Tools™
- Line Sweep Tools™
- easyTest Tools™
- USB & Optional Ethernet (Option 413) for data transfer and instrument control
- PIM Hunting
- Handheld Interference Hunter support (S332E & S362E)
- On-Screen Interference Mapping
- On-Screen Coverage Mapping
- GPS tagging of saved traces
- Increase throughput by automating repetitive or operator intensive tasks via Ethernet or USB. Remote programming provided via Ethernet (Option 413)
- 4.5 hour battery operation time
- Store 2000 Traces internally
- Touchscreen keyboard
- Quick Name Matrix
- < 5 minute warm-up time
- E-Learning Training
- Certified Line Sweep Training



Site Master™ S331E Cable & Antenna Analyzer featuring 8.4 inch Daylight Viewable Touchscreen  
Compact Size: 273 mm x 199 mm x 91 mm (10.7 in x 7.8 in x 3.6 in), Lightweight: 2.71 kg (6.0 lb)

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Definitions

|                     |   |
|---------------------|---|
| Specifications      | All specifications and characteristics apply to Revision 2 <sup>1</sup> instruments under the following conditions, unless otherwise stated: <ul style="list-style-type: none"> <li>• After 5 minutes of warm-up time, where the instrument is left in the ON state</li> <li>• Sweep mode set to Performance</li> <li>• When using the internal reference signal</li> </ul> |
| Typical Performance | Typical performance is the measured performance of an average unit and is not warranted.  |
| Calibration Cycle   | Calibration is within the recommended 12 month period.  |

All specifications subject to change without notice. For the most current data sheet, please visit the Anritsu web site: [www.anritsu.com](http://www.anritsu.com)

1.Applies to instruments with serial number ≥ 1606XXX.


**Cable and Antenna Analyzer**
**Measurements**

|                    |  |
|--------------------|--|
| Smart Measurements | VSWR<br>Return Loss<br>Cable Loss<br>Distance-to-Fault (DTF) Return Loss<br>Distance-to-Fault (DTF) VSWR<br>1-Port Phase<br>Smith Chart (50/75 $\Omega$ selectable)<br>PIM Alert Application (available for download)<br>PIM Hunting |
|--------------------|--|

**Setup Parameters**

|                     |  |
|---------------------|--|
| Measurement Display | Single/Dual Measurement Display with independent markers   |
| Frequency           | Start/Stop, Signal Standard, Start Cal   |
| DTF                 | Start/Stop, DTF Aid, Units (m/ft), Cable Loss, Propagation Velocity, Cable, Windowing  |
| Windowing           | Rectangular, Normal Side Lobe, Low Side Lobe, Minimum Side Lobe  |
| Amplitude           | Top, Bottom Auto Scale, Full Scale   |
| Sweep               | Run/Hold, Single/Continuous, RF Immunity (High/Low), Data Points, Averaging/Smoothing, Output Power (High/Low), RF Pwr When Hold (On/Off)                    |
| Data Points         | 137, 275, 551, 1102, 2204  |
| Markers             | Markers 1-6 (On/Off), Delta Markers 1-6 (On/Off), Marker to Peak/Valley, Peak/Valley Auto, Marker Table (On/Off), All Markers Off                            |
| Traces              | Recall, Copy to Display Memory, No Trace Math, Trace $\pm$ Memory, (Trace + Memory)/2, and Trace Overlay (On/Off)  |
| Limit Line          | On/Off, Single Limit, Multi-segment Edit, Limit Alarm (On/Off), Pass Fail Message (On/Off), Pass/Fail (Unbounded/Bounded), Warning Limit Offset, Clear Limit |
| Calibration         | Start Cal, Cal Type (Standard/FlexCal™), Disp Valid Cal Temp Range   |
| Save/Recall         | Setups, Measurements (.vna, .dat), Screen Shots (.jpg) (save only)   |
| Application Options | Bias-Tee (On/Off), Impedance (50 $\Omega$ , 75 $\Omega$ , Other)   |

**Frequency**

|                      |  |
|----------------------|--|
| Frequency Range      | 2 MHz to 4 GHz (S331E, S332E), 2 MHz to 6 GHz (S361E, S362E) |
| Frequency Accuracy   | $\leq \pm 2.5$ ppm @ 25 °C                                   |
| Frequency Resolution | 1 kHz (RF immunity low), 100 kHz (RF immunity high)          |

**Output Power**

|      |   |
|------|---|
| High | 0 dBm, typical  |
| Low  | 2 MHz to 1.5 GHz: -40 dBm, typical<br>>1.5 GHz to 4/6 GHz: -30 dBm, typical |

**Interference Immunity**

|              |  |
|--------------|--|
| On-Channel   | +17 dBm @ > 1.0 MHz from carrier frequency         |
| On-Frequency | 0 dBm within $\pm 10$ kHz of the carrier frequency |

**Measurement Speed**

|                   |   |
|-------------------|---|
| Return Loss       | $\leq 1.00$ ms/data point, RF immunity low, typical |
| Distance-to-Fault | $\leq 1.25$ ms/data point, RF immunity low, typical |

**Return Loss**

|                   |               |
|-------------------|---------------|
| Measurement Range | 0 dB to 60 dB |
| Resolution        | 0.01 dB       |

**VSWR**

|                   |             |
|-------------------|-------------|
| Measurement Range | 1:1 to 65:1 |
| Resolution        | 0.01        |

**Cable Loss**

|                   |               |
|-------------------|---------------|
| Measurement Range | 0 dB to 30 dB |
| Resolution        | 0.01 dB       |

**Distance-to-Fault**

|                            |  |
|----------------------------|--|
| Vertical Range Return Loss | 0 dB to 60 dB  |
| Vertical Range VSWR        | 1:1 to 65:1  |
| Fault Resolution (meters)  | $(1.5 \times 10^8 \times vp) / \Delta F$ (vp = velocity propagation constant, $\Delta F$ is F2-F1 in Hz) |
| Horizontal Range (meters)  | 0 to (Data Points-1) x Fault Resolution, to a maximum of 1500 meters (4921 ft)                           |

**1-Port Phase**

Measurement Range -180° to +180°  
Resolution 0.01°

**Cable and Antenna Analyzer (continued)**

**Smith Chart**

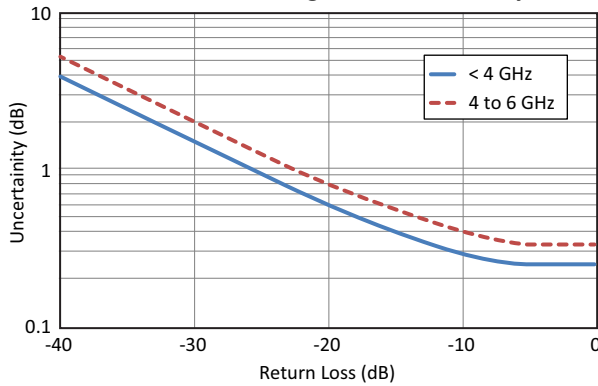
Resolution 0.01 50/75 ohm selectable

**Measurement Accuracy**

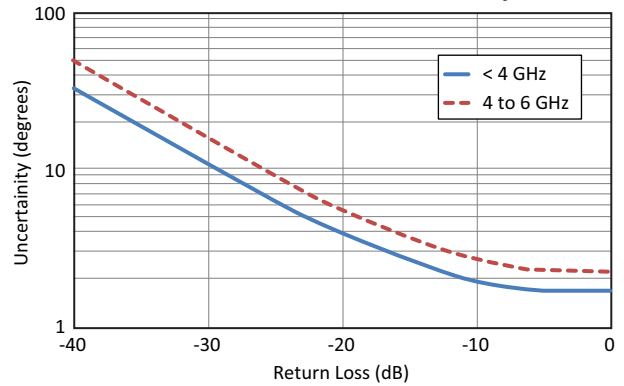
Corrected Directivity > 42 dB, OSL Calibration  
> 38 dB, InstaCal™ Calibration

**Measurement Uncertainty**

**Reflection Magnitude Uncertainty**



**Reflection Phase Uncertainty**



**2-Port Transmission Measurement (Option 21)**

**Frequency**

Frequency Range 2 MHz to 4 GHz (S331E, S332E), 2 MHz to 6 GHz (S361E, S362E)  
Frequency Resolution 10 Hz

**Output Power**

High 0 dBm, typical  
Low 2 MHz to 1.5 GHz: -40 dBm, typical  
>1.5 GHz to 4/6 GHz: -30 dBm, typical

**High Dynamic Range (On)**

2 MHz to 4 GHz 80 dB, 95 dB, typical  
4 GHz to 6 GHz 70 dB, 85 dB, typical  
Application Options Bias-Tee (On/Off), Impedance (50 Ω, 75 Ω, Other)

**Bias-Tee (Option 10)** (requires Option 21 for S331E and S361E)

Setup On/Off, Voltage, Current (Low/High)  
Voltage Range +12 V to +32 V  
Current (Low/High) 250 mA/450 mA, 1 A surge for 100 ms  
Resolution 0.1 V

**Spectrum Analyzer** (S332E, S362E only)**Measurements**

|                    |   |
|--------------------|---|
| Smart Measurements | Field Strength (uses antenna calibration tables to measure dBm/m <sup>2</sup> , dBmV/m, dBV/m, dBμV/m, Volt/m, Watt/m <sup>2</sup> , dBW/m <sup>2</sup> , A/m, dBA/m and Watt/cm <sup>2</sup> )<br>Occupied Bandwidth (measures 99 % to 1 % power channel of a signal)<br>Channel Power (measures the total power in a specified bandwidth)<br>ACPR (adjacent channel power ratio)<br>AM/FM/SSB Demodulation (wide/narrow FM, USB and LSB), (audio out only)<br>C/I (carrier-to-interference ratio)<br>Emission Mask<br>Coverage Mapping (requires Option 431)<br>PIM Alert Application (available for download)<br>PIM Hunting |
|--------------------|---|

**Setup Parameters**

|                     |   |
|---------------------|---|
| Frequency           | Center/Start/Stop, Span, Frequency Step, Signal Standard, Channel #, Channel Increment    |
| Amplitude           | Reference Level (RL), Scale, Attenuation Auto/Level, RL Offset, Pre-Amp On/Off, Detection |
| Span                | Span, Span Up/Down (1-2-5), Full Span, Zero Span, Last Span                               |
| Bandwidth           | RBW, Auto RBW, VBW, Auto VBW, RBW/VBW, Span/RBW   |
| File                | Save, Save-on-Event, Recall, Copy, Delete   |
| Save                | Setups, Measurements, Screen Shots (JPEG), Limit Lines, Spurious Emission Mask            |
| Save-on-Event       | Crossing Limit Line, Sweep Complete, Save-then-Stop, Clear All                            |
| Recall              | Setups, Measurements, Limit Lines, Spurious Emission Mask                                 |
| Copy                | Selected file or files to internal/external memory (USB)                                  |
| Delete              | Selected file or files from internal/external memory (USB)                                |
| Application Options | Bias-Tee (On/Off), Impedance (50 Ω, 75 Ω, Other)  |

**Sweep Functions**

|           |  |
|-----------|--|
| Sweep     | Single/Continuous, Sweep Mode (Fast, Performance, No FFT), Reset, Detection, Minimum Sweep Time, Trigger Type, Gated Sweep (see Option 90) |
| Detection | Peak, RMS, Negative, Sample, Quasi-peak  |
| Triggers  | Free Run, External, Video, Change Position, Manual   |

**Trace Functions**

|                    |  |
|--------------------|--|
| Traces             | Up to three Traces (A, B, C), View/Blank, Write/Hold, Trace A/B/C Operations           |
| Trace A Operations | Normal, Max Hold, Min Hold, Average, # of Averages, (always the live trace)            |
| Trace B Operations | A → B, B ↔ C, Max Hold, Min Hold   |
| Trace C Operations | A → C, B ↔ C, Max Hold, Min Hold, A - B → C, B - A → C, Relative Reference (dB), Scale |

**Marker Functions**

|                      |   |
|----------------------|---|
| Markers              | Markers 1-6 each with a Delta Marker, or Marker 1 Reference with Six Delta Markers, Marker Table (On/Off), All Markers Off                                |
| Marker Types         | Style (Fixed/Tracking), Noise Marker, Frequency Counter Marker  |
| Marker Auto-Position | Peak Search, Next Peak (Right/Left), Peak Threshold %, Set Marker to Channel, Marker Frequency to Center, Delta Marker to Span, Marker to Reference Level |
| Marker Table         | 1-6 markers frequency and amplitude plus delta markers frequency amplitude and offset   |

**Limit Line Functions**

|                     |  |
|---------------------|--|
| Limit Lines         | Upper/Lower, On/Off, Edit, Move, Envelope, Advanced, Limit Alarm, Default Limit    |
| Limit Line Edit     | Frequency, Amplitude, Add Point, Add Vertical, Delete Point, Next Point Left/Right |
| Limit Line Move     | To Current Center Frequency, By dB or Hz, To Marker 1, Offset from Marker 1        |
| Limit Line Envelope | Create Envelope, Update Amplitude, Points (41 max), Offset, Shape Square/Slope     |
| Limit Line Advanced | Type (Absolute/Relative), Mirror, Save/Recall                                      |

**Frequency**

|                     |  |
|---------------------|--|
| Frequency Range     | 9 kHz to 4 GHz (S332E), 9 kHz to 6 GHz (S362E) (useable to 0 Hz)                             |
| Tuning Resolution   | 1 Hz   |
| Frequency Reference | Aging: ± 1.0 ppm/year<br>Accuracy: ± 1.5 ppm (25 °C ± 25 °C) + aging, < ± 50 ppb with GPS On |
| Frequency Span      | 10 Hz to 4 GHz including zero span (S332E), 10 Hz to 6 GHz including zero span (S362E)       |
| Sweep Time          | Minimum 100 ms, 7 μs to 3600 s in zero span  |
| Sweep Time Accuracy | ± 2 % in zero span   |

**Bandwidth**

|                               |   |
|-------------------------------|---|
| Resolution Bandwidth (RBW)    | 10 Hz to 3 MHz in 1-3 sequence ± 10% (1 MHz max in zero-span) (-3 dB bandwidth) |
| Video Bandwidth (VBW)         | 1 Hz to 3 MHz in 1-3 sequence (-3 dB bandwidth) (auto or manually selectable)   |
| RBW with Quasi-Peak Detection | 200 Hz, 9 kHz, 120 kHz (-6 dB bandwidth)  |
| VBW with Quasi-Peak Detection | Auto VBW is On, RBW/VBW = 1   |





**Coverage Mapping (Option 431)** (S332E, S362E only; requires Option 31 GPS)

**Measurements**

|                 |            |
|-----------------|------------|
| Indoor Mapping  | RSSI, ACPR |
| Outdoor Mapping | RSSI, ACPR |

**Setup Parameters**

|                             |   |
|-----------------------------|---|
| Frequency                   | Center/Start/Stop, Span, Freq Step, Signal Standard, Channel #, Channel Increment         |
| Amplitude                   | Reference Level (RL), Scale, Attenuation Auto/Level, RL Offset, Pre-Amp On/Off, Detection |
| Span                        | Span, Span Up/Down (1-2-5), Full Span, Zero Span, Last Span                               |
| BW                          | RBW, Auto RBW, VBW, Auto VBW, RBW/VBW, Span/VBW   |
| Measurement Setup           | ACPR, RSSI  |
| Point Distance / Time Setup | Repeat Type Time Distance   |
| Save Points Map             | Save KML, JPEG, Tab Delimited   |
| Recall Points Map           | Recall Map, Recall KML Points only, Recall KML Points with Map, Recall Default Grid       |



**Interference Analyzer (Option 25)** (S332E, S362E only)

**Measurements**

|   |   |
|---|---|
| Spectrum                                  | Field Strength<br>Occupied Bandwidth<br>Channel Power<br>Adjacent Channel Power Ratio (ACPR)<br>AM/FM/SSB Demodulation (Wide/Narrow FM, Upper/Lower SSB), (audio out only)<br>Carrier-to-Interference ratio (C/I) |
| Spectrogram                               | Collect data up to 72 hours   |
| Signal Strength                           | Gives visual and aural indication of signal strength  |
| Received Signal Strength Indicator (RSSI) | Collect data up to 168 hours (one week)<br>Gives visual and aural indication of signal strength   |
| Signal ID (up to 12 signals)              | Center Frequency<br>Bandwidth<br>Signal Type (FM, GSM, W-CDMA, CDMA, Wi-Fi)<br>Closest Channel Number<br>Number of Carriers   |
| Signal-to-Noise Ratio (SNR)               | > 10 dB   |
| Interference Mapping                      | Triangulate location of interference with on-display maps   |
| Application Options                       | Bias-Tee (On/Off), Impedance (50 Ω, 75 Ω, Other)<br>Support for MA2700A Handheld Interference Hunter  |

**GPS Receiver (Option 31)** (antenna sold separately)

|                             |   |
|-----------------------------|---|
| Setup                       | On/Off, Antenna Voltage 3.3/5.0 V, GPS Info   |
| GPS Time/Location Indicator | Time, Latitude, Longitude and Altitude on display<br>Time, Latitude, Longitude and Altitude with trace storage  |
| High Frequency Accuracy     | Spectrum Analyzer, Interference Analyzer, CW Signal Analyzers<br>< ± 50 ppb with GPS On, GPS antenna connected, 3 minutes after satellite lock in selected mode |
| Connector                   | SMA, Female   |



**Channel Scanner (Option 27)** (S332E, S362E only)

|                     |  |
|---------------------|--|
| Number of Channels  | 1 to 20 Channels   |
| Measurements        | Graph/Table, Max Hold (On/5 s/Off), Freq/Channel, Current/Max, Single/Dual Color |
| Scanner             | Scan Channels, Scan Frequencies, Scan Customer List, Scan Script Master™         |
| Amplitude           | Reference Level, Scale   |
| Custom Scan         | Signal Standard, Channel, # of Channels, Channel Step Size, Custom Scan          |
| Frequency Range     | 9 kHz to 4 GHz (S332E), 9 kHz to 6 GHz (S362E)                                   |
| Frequency Accuracy  | ± 10 Hz + Time base error  |
| Measurement Range   | -110 dBm to +26 dBm  |
| Application Options | Bias-Tee (On/Off), Impedance (50 Ω, 75 Ω, Other)                                 |





**CW Signal Generator (Option 28)** (S332E, S362E only; requires CW Signal Generator Kit, P/N 69793)

**Setup Parameters**

|                     |   |
|---------------------|---|
| Frequency           | Frequency, Signal Standard, Channel Number, Display Setup Help  |
| Amplitude           | Power Level (Low/High), Offset (dB)   |
| Frequency Range     | 2 MHz to 2 GHz  |
| Frequency Reference | Accuracy: $\pm 1.5$ ppm ( $25\text{ }^\circ\text{C} \pm 25\text{ }^\circ\text{C}$ ) + aging, $< \pm 50$ ppb with GPS On |
| Output Power        | High 0 dBm typical, Low -30 dBm typical<br>Attenuator (included in kit 69793): 0 to 90 dB in 1 dB steps                 |

**Gated Sweep (Option 90)** (S332E, S362E only)

|         |   |
|---------|---|
| Mode    | Spectrum Analyzer, Sweep  |
| Trigger | External TTL  |
| Setup   | Gated Sweep (On/Off)<br>Gate Polarity (Rising, Falling)<br>Gate Delay (0 ms to 65 ms typical)<br>Gate Length (1 $\mu$ s to 65 ms typical)<br>Zero Span Time |



**Electromagnetic Field Test (Option 444)** (S332E, S362E only)

**Measurements**

|                   |  |
|-------------------|--|
| Setup             | Limit lines, axis dwell time, measurement time, auto-logging, measurement units, trace display                         |
| Spectrum Analyzer | Field strength is measured   |
| Units             | dBm/m <sup>2</sup> , dBV/m, dBmV/m, dBuV/m, V/m, W/m <sup>2</sup> , dBW/m <sup>2</sup> , A/m, dBA/m, W/cm <sup>2</sup> |
| Results           | Maximum, minimum, and average of all measurements conducted  |
| Display           | Measurement status, number of measurements taken, pass/fail indicators   |

**Frequency Range**

**Supported Antenna**

|             |                  |
|-------------|------------------|
| 2000-1800-R | 9 kHz to 300 MHz |
| 2000-1792-R | 30 MHz to 3 GHz  |
| 2000-1791-R | 700 MHz to 6 GHz |

**Modes where EMF Measurements Available**

Spectrum Analyzer

**Ethernet Connectivity (Option 413)**

|                    |   |
|--------------------|---|
| Connector          | RJ45  |
| LAN Speed          | 10 Mbps   |
| Mode               | Static, DHCP  |
| Static IP settings | IP address<br>Subnet Mask<br>IP Gateway                                 |
| Remote Control     | Remote capability provided with Web Remote Control and SCPI programming |
| Data Upload        | With Line Sweep Tools through Ethernet connection                       |



**Power Meter (Option 29)** (S332E, S362E only)

**General**

|                                |  |
|--------------------------------|--|
| Frequency                      | Center/Start/Stop, Span, Frequency Step, Signal Standard, Channel #, Full Band |
| Amplitude                      | Maximum, Minimum, Offset, Relative On/Off, Units, Auto Scale                   |
| Average                        | Acquisition Fast/Med/Slow, # of Running Averages                               |
| Limits                         | Limit On/Off, Limit Upper/Lower  |
| Frequency Range                | 10 MHz to 4 GHz (S332E), 10 MHz to 6 GHz (S362E)                               |
| Span                           | 1 kHz to 100 MHz   |
| Display Range                  | -140 dBm to +30 dBm, ≤ 40 dB span  |
| Measurement Range              | -120 dBm to +26 dBm  |
| Offset Range                   | 0 dB to +100 dB (External Gain or Loss)  |
| VSWR                           | 2:1 typical  |
| Maximum Continuous Input Power | +30 dBm without attenuator   |
| Accuracy                       | Same as Spectrum Analyzer  |
| Application Options            | Impedance (50 Ω, 75 Ω, Other)  |



**High Accuracy Power Meter (Option 19)** (requires external USB Power Sensors)

|  |  |                                       |  |   |   |
|--|--|---------------------------------------|--|---|---|
| Amplitude                                | Maximum, Minimum, Offset, Relative On/Off, Units, Auto Scale |                                       |  |   |   |
| Average                                  | # of Running Averages, Max Hold                              |                                       |  |   |   |
| Zero/Cal                                 | Zero On/Off, Cal Factor (Center Frequency, Signal Standard)  |                                       |  |   |   |
| Limits                                   | Limit On/Off, Limit Upper/Lower                              |                                       |  |   |   |
| Power Sensor Model                       | MA24105A   | MA24106A                              | MA24108A/18A/26A                                       | MA24208A/18A                              | MA24330A/40A/50A  |
| Description                              | Inline High Power Sensor                                     | High Accuracy RF Power Sensor         | Microwave USB Power Sensor                             | Microwave Universal USB Power Sensor      | Microwave CW USB Power Sensor                           |
| Frequency Range                          | 350 MHz to 4 GHz   | 50 MHz to 6 GHz                       | 10 MHz to 8/18/26 GHz                                  | 10 MHz to 8/18 GHz                        | 10 MHz to 33/40/50 GHz                                  |
| Connector                                | Type N(f), 50 Ω  | Type N(m), 50 Ω                       | Type N(m), 50 Ω (8/18 GHz)<br>Type K(m), 50 Ω (26 GHz) | Type N(m), 50 Ω                           | Type K(m), 50 Ω (33/40 GHz)<br>Type V(m), 50 Ω (50 GHz) |
| Dynamic Range                            | +3 dBm to +51.76 dBm (2 mW to 150 W)                         | -40 dBm to +23 dBm (0.1 μW to 200 mW) | -40 dBm to +20 dBm (0.1 μW to 100 mW)                  | -60 dBm to +20 dBm (1 nW to 100 mW)       | -70 dBm to +20 dBm (0.1 nW to 100 mW)                   |
| Measurand                                | True-RMS   | True-RMS                              | True-RMS, Slot Power, Burst Average Power              | True-RMS, Slot Power, Burst Average Power | Average Power   |
| Measurement Uncertainty                  | ± 0.17 dB <sup>a</sup>                                       | ± 0.16 dB <sup>b</sup>                | ± 0.18 dB <sup>c</sup>                                 | ± 0.17 dB <sup>d</sup>                    | ± 0.17 dB <sup>e</sup>                                  |
| Data sheet (for complete specifications) | 11410-00621  | 11410-00424                           | 11410-00504  | 11410-00841                               | 11410-00906   |

- Notes:
- a. Expanded uncertainty with K=2 for power measurements of a CW signal greater than +20 dBm with a matched load. Measurement results referenced to the input side of the sensor.
  - b. Total RSS measurement uncertainty (0 °C to 50 °C) for power measurements of a CW signal greater than -20 dBm with zero mismatch errors.
  - c. Expanded uncertainty with K=2 for power measurements of a CW signal greater than -20 dBm with zero mismatch errors.
  - d. Power uncertainty expressed with two sigma confidence level for CW measurement after zero operation. Includes calibration factor and linearity over temperature uncertainties, but not the effects of mismatch, zero set and drift, or noise.
  - e. Includes linearity over temperature uncertainties, but not the effects of calibration factor, mismatch, zero set and drift, and noise.

**RF over Fiber Hardware (Option 759)**

Must be ordered with either Option 752: CPRI LTE RF measurements, or Option 753: OBSAI LTE RF measurements

**Operating Temperature**

Range -10 °C to +45 °C

**RF over Fiber Interface**

Connector Port Small form factor pluggable (SFP) optical transceiver port



**CPRI LTE RF Measurements (Option 752)** (requires Option 759)

**Measurements** (CPRI RF measurements support LTE technology)

|                      |  |
|----------------------|--|
| Spectrum             | Uplink or Downlink Spectrum  |
| Spectrogram          | Collects data up to one week   |
| CPRI Alarms          | Signal Level (Tx Power, Rx Power), Signal Loss, LOS, LOF, LSS, Remote LOS, Remote LOF, RAI, SDI, Reset |
| SFP Data             | Reads device information   |
| CPRI IQ Data Capture | Quick Save IQ Data, Playback IQ Data   |

**Setup Parameters**

|                     |   |
|---------------------|---|
| Frequency           | Center, Span (Span, Full Span), Signal Standard, Channel #, CF Reference (On/Off) <sup>1</sup>                                  |
| Amplitude           | Reference Level (RL), Scale, RL Offset  |
| Bandwidth           | RBW, Auto RBW, VBW, Auto VBW  |
| Measurements        | CPRI Configure, CPRI Spectrum, Spectrogram, CPRI Alarms, SFP Data (SFP Info/Compliance Info)                                    |
| CPRI Configure      | SFP Port Configure, Display Configure, AxC Trace Configure  |
| SFP Port Configure  | Line Rate, Radio Presets, Auto Detect   |
| Display Configure   | Display 1 and 2 CPRI BW, Display Mode (Single, Dual), Active Display  |
| AxC Trace Configure | AxC 1, 2, 3, and 4 (Display, SFP Port, AxC Group, Sampling Rate (Default, Compress))  |
| Radio Presets       | Ericsson (Uplink/Downlink), Nokia/ALu (Uplink/Downlink), Huawei (Uplink/Downlink), Samsung (Uplink/Downlink), No Preset, Custom |
| Custom              | IQ Bit Width, IQ Mapping (Method1, Method3), No. of Reserve Bits, Aggregation (On/Off)  |
| Auto Detect         | Radio Preset, IQ Bit Width, Reserve Bit, Aggregation, Start Auto Detect   |

**Sweep Functions**

|       |  |
|-------|--|
| Sweep | Single/Continuous, Sweep Once, Sweep 10 Averages |
|-------|--|

**Trace Functions** (AxC Trace 1 only)

|                    |  |
|--------------------|--|
| Traces             | Up to three Traces (A, B, C), View/Blank, Write/Hold, Trace A/B/C Operations             |
| Trace A Operations | Normal, Max Hold, Min Hold, Average, # of Averages, (always the live trace)              |
| Trace B Operations | A → B, B ← → C, Max Hold, Min Hold   |
| Trace C Operations | A → C, B ← → C, Max Hold, Min Hold, A - B → C, B - A → C, Relative Reference (dB), Scale |

**Marker Functions** (AxC Traces 1 through 4)

|              |   |
|--------------|---|
| Markers      | Markers 1-6 On/Off, Delta Marker On/Off, Marker Frequency to Center, Marker Table (On, Large, Off), All Markers Off |
| Marker Table | Markers 1-6 for frequency and amplitude, plus delta markers frequency offset and amplitude                          |

**Limit Line Functions**

|                 |   |
|-----------------|---|
| Limit Lines     | Upper/Lower, On/Off, Move, Save/Recall Limit, Limit Alarm On/Off, Default Limit |
| Limit Line Move | Move Up/Down, to Amplitude  |

**Display Functions**

|                            |  |
|----------------------------|--|
| Active Display             | Display 1 or 2 (Single Display or Dual Display)  |
| Display Spectrum           | Single or Dual   |
| Single Spectrum Display    | One, two, three, or four AxC traces displayed (color coded), same CPRI BW for AxC traces |
| Dual Spectrum Display      | Any combination of the four available AxC traces, same CPRI BW per display and AxC trace |
| Display Spectrogram        | Single or Dual   |
| Single Spectrogram Display | One active AxC trace per waterfall display   |
| Dual Spectrogram Display   | Any combination of the four available AxC traces may be configured per display           |
| AxC Trace (1, 2, 3, 4)     | One active AxC trace per waterfall display   |
|                            | Display 1, 2, or off   |
|                            | AxC Group  |
|                            | Sampling Rate (Default, Compress)  |

1. CF Reference is available only when Display 1 is active.



**CPRI LTE RF Measurements (Option 752)** (continued)

**Bandwidth**

|                            |  |
|----------------------------|--|
| Resolution Bandwidth (RBW) | 300 Hz to 1 MHz in 1-3-10 sequence $\pm 10\%$ (-3 dB bandwidth point) typical  |
| Video Bandwidth (VBW)      | 30 Hz to 1 MHz in 1-3-10 sequence $\pm 10\%$ (-3 dB bandwidth) typical   |
| Line Bit Rate              | Line bit rate 1: 614.4 Mbit/s<br>Line bit rate 2: 1228.8 Mbit/s<br>Line bit rate 3: 2457.6 Mbit/s<br>Line bit rate 4: 3072.0 Mbit/s<br>Line bit rate 5: 4915.2 Mbit/s<br>Line bit rate 6: 6144.0 Mbit/s<br>Line bit rate 7: 9830.4 Mbit/s<br>Line bit rate 8: 10137.6 Mbit/s |

**CPRI Parameters**

|                 |                                    |
|-----------------|------------------------------------|
| IQ Sample Width | 10 bits, 12 bits, 15 bits, 16 bits |
| Bandwidth       | 5 MHz, 10 MHz, 15 MHz, 20 MHz      |
| Aggregation     | On/Off                             |



**OBSAI LTE RF Measurements (Option 753)** (requires Option 759)

**Measurements** (OBSAI RF measurements support LTE technology)

|              |  |
|--------------|--|
| Spectrum     | Uplink or Downlink Spectrum                              |
| Spectrogram  | Collects data up to one week                             |
| OBSAI Alarms | Signal Level (Tx Power, Rx Power), Signal Loss, LOS, LOF |
| SFP Data     | Reads device information                                 |

**Setup Parameters**

|                         |  |
|-------------------------|--|
| Frequency               | Center, Span (Span, Full Span), Signal Standard, Channel #, CF Reference (On/Off) <sup>1</sup>   |
| Amplitude               | Reference Level (RL), Scale, RL Offset   |
| Bandwidth               | RBW, Auto RBW, VBW, Auto VBW, LTE Bandwidth  |
| Measurements            | Start OBSAI, OBSAI Configure, OBSAI Spectrum, Spectrogram, OBSAI Alarms, SFP Data (SFP Info/Compliance Info)   |
| Start OBSAI             | Scans OBSAI link for active RP3 addresses; detects and sets link rate; configures first RP3 address and displays a Spectrum view.  |
| OBSAI Configure         | Link Rate, Display Configure, Carrier Trace Configure  |
| Display Configure       | Display 1 and 2 LTE BW, Display Mode (Single, Dual), Active Display  |
| Carrier Trace Configure | Carrier Trace 1 (Display 1, 2, or off; RP3 Address)<br>Carrier Trace 2 (Display 1, 2, or off; RP3 Address)<br>Carrier Trace 3 (Display 1, 2, or off; RP3 Address)<br>Carrier Trace 4 (Display 1, 2, or off; RP3 Address) |
| RP3 Address             | RP3 list populated with Start OBSAI or plug-in of an active link<br>Addresses removed from list upon fiber plug-out or Loss of Signal<br>Address list is empty following power cycle or if no OBSAI carriers are found   |

**Sweep Functions**

|       |  |
|-------|--|
| Sweep | Single/Continuous, Sweep Once, Sweep 10 Averages |
|-------|--|

**Trace Functions** (Carrier Trace 1 only)

|                    |  |
|--------------------|--|
| Traces             | Up to three Traces (A, B, C), View/Blank, Write/Hold, Trace A/B/C Operations             |
| Trace A Operations | Normal, Max Hold, Min Hold, Average, # of Averages, (always the live trace)              |
| Trace B Operations | A → B, B ← → C, Max Hold, Min Hold   |
| Trace C Operations | A → C, B ← → C, Max Hold, Min Hold, A - B → C, B - A → C, Relative Reference (dB), Scale |

**Marker Functions** (Carrier Traces 1 through 4)

|              |   |
|--------------|---|
| Markers      | Markers 1-6 On/Off, Delta On/Off, Marker Freq to Center, Marker Table (On, Large, Off), All Markers Off |
| Marker Table | Markers 1-6 for frequency and amplitude, plus delta markers frequency offset and amplitude              |

**Limit Line Functions**

|                 |   |
|-----------------|---|
| Limit Lines     | Upper/Lower, On/Off, Move, Save/Recall Limit, Limit Alarm On/Off, Default Limit |
| Limit Line Move | Move Up/Down, to Amplitude  |

**Display Functions**

|                            |  |
|----------------------------|--|
| Active Display             | Display 1 or 2 (Single Display or Dual Display)  |
| Display Spectrum           | Single or Dual   |
| Single Spectrum Display    | One, two, three, or four carrier traces displayed (color coded)<br>Trace LTE BW must match display LTE BW to be visible              |
| Dual Spectrum Display      | Any combination of the four available carrier traces, same LTE BW per display and carrier trace                                      |
| Display Spectrogram        | Single or Dual   |
| Single Spectrogram Display | One active carrier trace per waterfall display   |
| Dual Spectrogram Display   | Any combination of the four available carrier traces may be configured per display<br>One active carrier trace per waterfall display |
| Carrier Trace (1, 2, 3, 4) | Display 1, 2, or off   |

**Bandwidth**

|                            |   |
|----------------------------|---|
| Resolution Bandwidth (RBW) | 300 Hz to 1 MHz in 1-3-10 sequence ±10 % (-3 dB bandwidth point) typical        |
| Video Bandwidth (VBW)      | 30 Hz to 1 MHz in 1-3-10 sequence ±10 % (-3 dB bandwidth) typical               |
| Link Rate                  | 1x: 768.0 Mbit/s<br>2x: 1536.0 Mbit/s<br>4x: 3072.0 Mbit/s<br>8x: 6144.0 Mbit/s |
| LTE Bandwidth              | 5 MHz, 10 MHz, 15 MHz <sup>2</sup> , 20 MHz                                     |

1. CF Reference is available only when Display 1 is active.  
2. Only supports Dual Bit Map algorithm for 15 MHz bandwidth signals.

 **AM/FM/PM Signal Analyzers (Option 509)** (S332E, S362E only)

**Measurements**

| Display Type       | RF Spectrum AM/FM/PM                                     | Audio Spectrum (AM)  | Audio Spectrum (FM/PM)   | Audio Waveform (AM)  | Audio Waveform (FM/PM)  | Summary (AM)   | Summary (FM/PM)  |
|--------------------|--|--|--|--|---|--|--|
| Graphic Display    | Power (dBm) vs. Frequency                                | Depth (%) vs. Modulation Frequency   | Deviation (kHz/rad) vs. Modulation Frequency   | Depth (%) vs. Time   | Deviation (kHz/rad) vs. Time  | None   | None   |
| Numerical Displays | Carrier Power<br>Carrier Frequency<br>Occupied Bandwidth | AM Rate<br>RMS Depth (Pk-Pk)/2 Depth<br>SINAD*<br>THD*<br>Distortion/Total Vrms* | FM/PM Rate<br>RMS Deviation (Pk-Pk)/2<br>Deviation<br>SINAD*<br>THD*<br>Distortion/Total Vrms* | AM Rate<br>RMS Depth (Pk-Pk)/2 Depth<br>SINAD*<br>THD*<br>Distortion/Total Vrms* | FM/PM Rate<br>RMS Depth (Pk-Pk)/2 Depth<br>SINAD*<br>THD*<br>Distortion/Total Vrms* | RMS Depth (AM)<br>Peak + Depth<br>Peak - Depth<br>(Pk-Pk)/2 Depth<br>Carrier Power<br>Carrier Frequency<br>Occupied Bandwidth<br>AM Rate<br>SINAD*<br>THD*<br>Distortion/Total Vrms* | RMS Deviation (FM/PM)<br>Peak + Depth<br>Peak - Depth<br>(Pk-Pk)/2 Depth<br>Carrier Power<br>Carrier Frequency<br>Carrier Frequency<br>Occupied Bandwidth<br>AM Rate<br>SINAD*<br>THD*<br>Distortion/Total Vrms* |

\* Requires Sinewave modulation

**Setup Parameters**

|              |   |
|--------------|---|
| Frequency    | Center Freq, Span, Freq Step, Signal Standard, Channel, Channel Increment, Set Carrier Freq             |
| Amplitude    | Scale, Power Offset, Adjust Range   |
| Setup        | Demod Type (AM, FM, PM), IFBW, Auto IFBW  |
| Measurements | RF Spectrum AM/FM/PM, Audio Spectrum (AM/FM/PM), Audio Waveform (AM/FM/PM), Summary (AM/FM/PM), Average |
| Marker       | On/Off, Delta, Peak Search, Marker Freq to Center, Marker to Ref Lvl, Marker Table, All Markers Off     |

**Specifications**

|                |  |
|----------------|--|
| AM             | Modulation Rate: $\pm 1$ Hz (< 100 Hz), $\pm 2\%$ (> 100 Hz)<br>Depth: $\pm 5\%$ for (Modulation rates 10 Hz to 100 kHz)   |
| FM             | Modulation Rate: $\pm 1$ Hz (< 100 Hz); $\pm 2\%$ (100 Hz to 100 kHz)<br>Deviation Accuracy: $\pm 5\%$<br>(100 Hz to 100 kHz, IFBW must be greater than 95 % occupied BW)                          |
| PM             | Modulation Rate: $\pm 1$ Hz (< 100 Hz); $\pm 2\%$ (100 Hz to 100 kHz)<br>Deviation Accuracy: $\pm 5\%$<br>(deviation 0 to 93 Rad, rate 10 Hz to 5 kHz, IFBW must be greater than 95 % occupied BW) |
| IF bandwidth   | 1 kHz to 300 kHz in 1-3 sequence   |
| Frequency Span | RF Spectrum: 10 kHz to 10 MHz<br>Audio Spectrum: 2 kHz, 5 kHz, 10 kHz, 20 kHz, 70 kHz, 140 kHz   |
| RBW/VBW        | 30   |
| Span/RBW       | 100  |
| Sweep time     | 50 $\mu$ s to 50 ms (Audio Waveform)   |

General Specifications

|                                 |  |  |
|---------------------------------|--|--|
| <b>System Parameters</b>        |  |  |
| System                          | Status (Temperature, Battery Info, Serial Number, Firmware Version, Options Installed) | Self Test, Application Self Test, GPS (see Option 31)  |
| System Options                  | Name, Date and Time, Brightness, Volume  | Language (English, French, German, Spanish, Chinese, Japanese, Korean, Italian, Russian, Portuguese) |
| Internal Trace/Setup Memory     | 2,000 traces, 2,000 setups   | Reset (Factory Defaults, Master Reset, Update Firmware)  |
| External Trace/Setup Memory     | Limited by size of USB Flash drive   |  |
| Mode Switching                  | Auto-Stores/Recalls most recently used Setup Parameters in the Mode                    |  |
| <b>File Management</b>          |  |  |
| File Types                      | Vary with measurement mode   |  |
| File                            | Save, Recall, Copy, Delete   |  |
| Save                            | Setups, Measurements, Screen Shots (JPEG)  |  |
| Recall                          | Setups, Measurements   |  |
| Copy                            | Selected file or files to internal/external memory (USB)                               |  |
| Delete                          | Selected file or files from internal/external memory (USB)                             |  |
| File Sort Method                | By Name/Date/Type, Ascend/Descend  |  |
| <b>Connectors</b>               |  |  |
| RF Out                          | Type N, female, 50 Ω (Reflection In)   |  |
| RF Out Damage Level             | +42 dBm, ± 50 VDC  |  |
| RF In                           | Type N, female, 50 Ω   |  |
| RF Input Damage Level           | +30 dBm peak, ± 50 VDC, Maximum Continuous Input (≥ 10 dB attenuation)                 |  |
| GPS                             | SMA(f)   |  |
| External Power                  | 5.5 mm barrel connector, 12.5 VDC to 15 VDC, < 4.0 Amps                                |  |
| USB Interface (2)               | Type A (Connect USB Flash Drive and Power Sensor)                                      |  |
| USB Interface                   | 5-pin mini-B (Connect to PC for data transfer)   |  |
| Ethernet Interface              | RJ45 connector for Ethernet 10-Base T (available with Option 413 Ethernet)             |  |
| Headset Jack                    | 3.5 mm mini-phone plug   |  |
| External Reference In           | BNC, female, Maximum Input +10 dBm, 1 MHz, 5 MHz, 10 MHz, 13 MHz                       |  |
| External Trigger/Clock Recovery | BNC, female, Maximum Input ± 50 VDC  |  |
| RF over Fiber                   | SFP/SFP+ compatible socket (available with Option 759)                                 |  |
| <b>Display</b>                  |  |  |
| Type                            | Resistive Touchscreen  |  |
| Size                            | 8.4" daylight viewable color LCD   |  |
| Resolution                      | 800 x 600  |  |
| Pixel Defects                   | No more than five defective pixels (99.9989% good pixels)                              |  |
| <b>Battery</b>                  |  |  |
| Type                            | Li-Ion   |  |
| Battery Operation               | 4.5 hours, typical (S331E, S361E), 3.5 hours, typical (S332E, S362E)                   |  |
| <b>Regulatory Compliance</b>    |  |  |
| European Union                  | EMC 2014/30/EU, EN 61326:2013, CISPR 11/EN 55011, IEC/EN 61000-4-2/3/4/5/6/8/11        | Low Voltage Directive 2014/35/EU   |
|                                 | Safety EN 61010-1:2010   | RoHS Directive 2011/65/EU  |
| Australia and New Zealand       | RCM AS/NZS 4417:2012   |  |
| South Korea                     | KCC-REM-A21-0004   |  |
| <b>Environmental</b>            |  |  |
| MIL-PRF-28800F Class 2          |  |  |
| Operating Temperature Range     | -10 °C to 55 °C  |  |
| Storage Temperature Range       | -51 °C to 71 °C  |  |
| Maximum Relative Humidity       | 95 % RH at 30 °C, non-condensing   |  |
| Vibration, Sinusoidal           | 5 Hz to 55 Hz  |  |
| Vibration, Random               | 10 Hz to 500 Hz  |  |
| Half Sine Shock                 | 30 g <sub>n</sub>  |  |
| Altitude                        | 4600 meters, operating and non-operating   |  |
| Explosive Atmosphere            | MIL-PRF-28800F, Section 4.5.6.3  | MIL-STD-810G, Method 511.5, Procedure 1  |
| <b>ESD</b>                      |  |  |
| RF Port Center Pin              | Withstands up to ± 15 kV   |  |
| <b>Size and Weight</b>          |  |  |
| Size                            | 273 mm x 199 mm x 91 mm (10.7 in x 7.8 in x 3.6 in)                                    |  |
| Weight                          | 2.71 kg, (6.0 lb), (S331E, S361E)  | 3.71 kg, (8.2 lb), (S332E, S362E)  |
| <b>Warranty</b>                 |  |  |
| Duration                        | Standard three-year warranty (one-year warranty on battery)                            |  |

**Line Sweep Tools** (for your PC)

| <b>Trace Capture</b>     |  |   |
|--------------------------|--|---|
| Browse to Instrument     |  | View and copy traces from the test equipment to your PC using Windows Explorer          |
| Open Legacy Files        |  | Open DAT files captured with Hand Held Software Tools v6.61                             |
| Open Current Files       |  | Open VNA or DAT files   |
| Capture Plots To         |  | The Line Sweep Tools screen, DAT files, Database, or JPEG                               |
| <b>Traces</b>            |  |   |
| Trace Types              |  | Return Loss, VSWR, DTF-RL, DTF-VSWR, Cable Loss, Smith Chart, and PIM                   |
| Trace Formats            |  | DAT, VNA, CSV, PNG, BMP, JPG, HTML, Data Base, and PDF                                  |
| <b>Report Generation</b> |  |   |
| Report Generator         |  | Includes GPS location along with measurements   |
| Report Format            |  | Create reports in HTML or PDF format  |
| Report Setup             |  | Report Title, Company, Prepared for, Location, Date and Time, Filename, Company logo    |
| Trace Setup              |  | 1 Trace Portrait Mode, 2 Trace Portrait Mode, 1 Trace Landscape Mode                    |
| <b>Trace Validation</b>  |  |   |
| Presets                  |  | 7 presets allow "one click" setting of up to 6 markers and one limit line               |
| Marker Controls          |  | 6 regular Markers, Marker Peak, Marker Valley, Marker between, and frequency entry      |
| Delta Markers            |  | 6 Delta markers   |
| Limit Line               |  | Enable and drag or value entry. Also works with presets                                 |
| Next Trace Button        |  | Next Trace and Previous trace arrow keys allow quick switching between traces           |
| <b>Tools</b>             |  |   |
| Cable Editor             |  | Allows creation of custom cable parameters  |
| Distance to Fault        |  | Converts a Return Loss trace to a Distance to Fault trace                               |
| Measurement Calculator   |  | Converts Real, Imaginary, Magnitude, Phase, RL, VSWR, Rho, and Transmit power           |
| Signal Standard Editor   |  | Creates new band and channel tables   |
| Renaming Grid            |  | 36 user definable phrases for creation of file names, trace titles, and trace subtitles |
| <b>Connectivity</b>      |  |   |
| Connections              |  | USB cable, USB Memory Stick   |

**easyTest Tools** (for your PC)

| <b>Instrument Mode</b> |  |  |
|------------------------|--|--|
|                        |  | Cable & Antenna Analyzer Mode  |
| <b>Commands</b>        |  |  |
| Display Image          |  | Allows putting a custom image on the instrument screen                 |
| Recall Setup           |  | Places the instrument into a known state                               |
| Prompt                 |  | Displays instructional messages on the instrument screen               |
| Save                   |  | Allows automatic or manual saving of traces                            |
| <b>Connectivity</b>    |  |  |
| Connections            |  | Ethernet, USB cable or USB memory stick (Ethernet requires Option 413) |



**Master Software Tools** (for your PC)

**Mapping** (GPS Required)

|                                   |                                    |
|-----------------------------------|------------------------------------|
| Spectrum Analyzer Mode            | MapInfo, MapPoint                  |
| Mobile WiMAX OTA, LTE OTA Options | Google Earth, Google Maps, MapInfo |

**Folder Spectrogram** (Spectrum Monitoring for Interference Analysis and Spectrum Clearing)

|                                    |   |
|------------------------------------|---|
| Folder Spectrogram – 2D View       | Creates a composite file of multiple traces<br>Peak Power, Total Power, Peak Frequency, Histogram, Average Power (Max/Min)<br>File Filter (Violations over limit lines or deviations from averages)<br>Playback |
| Video Folder Spectrogram – 2D View | Create AVI file to export for management review/reports   |
| Folder Spectrogram – 3D View       | Views (Set Threshold, Markers)<br>- 3D (Rotate X, Y, Z Axis, Level Scale, Signal ID)<br>- Playback (Frequency and/or Time Domain)   |

**List/Parameter Editors**

|                 |  |
|-----------------|--|
| Traces          | Add, delete, and modify limit lines and markers            |
| Product Updates | Auto-checks Anritsu website for latest revision firmware   |
| Pass/Fail       | Create, download, or edit Signal Analysis Pass/Fail Limits |
| Languages       | Add custom language or modify non-English language menus   |

**Connectivity**

|                  |  |
|------------------|--|
| Connections      | Connect to PC using USB or Ethernet (Ethernet requires Option 413) |
| Remote Operation | Operate unit remotely with MST Remote Access Tool                  |








**Web Remote Control** (requires Ethernet Option 413)

|                   |  |
|-------------------|--|
| Control           | Full instrument control through a browser – all instrument functions except power switch and rotary knob   |
| Connections       | RJ45 Ethernet jack<br>Third party Wi-Fi router   |
| Protocol          | HTTP/TCP/IP  |
| Physical Layer    | Cat 5 Cable, Wi-Fi router compatible   |
| Software Required | HTML 5 Compliant Browser – Newer versions of Chrome, Firefox, Internet Explorer and others   |
| Operating System  | iOS, Windows, Linux, Android operating systems that can host the HTML 5 Compliant browser  |
| Remote Hardware   | PCs, Tablets, and Smart Phones with Ethernet or Wi-Fi connections and a HTML 5 Compliant browser   |
| Download          | Individual instrument files downloaded via browser<br>Multiple instrument files and directories zipped and downloaded via browser<br>Screen capture capability |
| Display Modes     | Normal: All modes & displays supported<br>Fast: Spectrum traces update faster (up to 5 updates per second)   |
| Password          | The instrument can be password protected<br>Passwords may be used to manage who is controlling the instrument  |
| Users/Instruments | One user/device can view and control many instruments  |

**Programmable Remote Control**

|                      |   |
|----------------------|---|
| Functionality        | Many instrument functions are programmable. See the Programming Manual for details. |
| Programming Language | Standard Commands for Programmable Instruments (SCPI)                               |
| Interfaces           | USB, Ethernet (with Option 413)   |
| Available Drivers    | LabView (visit NI.com for driver)   |

Ordering Information – Options

|   | <b>S331E</b>   | <b>S332E</b>                     | <b>S361E</b>   | <b>S362E</b>                     | <b>Description</b>   |
|---|----------------|----------------------------------|----------------|----------------------------------|--|
|    | 2 MHz to 4 GHz | 2 MHz to 4 GHz<br>9 kHz to 4 GHz | 2 MHz to 6 GHz | 2 MHz to 6 GHz<br>9 kHz to 6 GHz | Cable and Antenna Analyzer<br>Spectrum Analyzer  |
|   | <b>Options</b> | <b>Options</b>                   | <b>Options</b> | <b>Options</b>                   |  |
|    | S331E-0021     | S332E-0021                       | S361E-0021     | S362E-0021                       | 2-Port Transmission Measurement  |
|   | S331E-0010     | S332E-0010                       | S361E-0010     | S362E-0010                       | Bias-Tee (requires Option 21 for S331E /S361E)   |
|    | S331E-0019     | S332E-0019                       | S361E-0019     | S362E-0019                       | High-Accuracy Power Meter (requires External Power Sensor)   |
|    |                | S332E-0029                       |                | S362E-0029                       | Power Meter  |
|    |                | S332E-0025                       |                | S362E-0025                       | Interference Analyzer (recommend Option 31)  |
|    |                | S332E-0027                       |                | S362E-0027                       | Channel Scanner  |
|    |                | S332E-0028                       |                | S362E-0028                       | C/W Signal Generator (requires CW Signal Generator Kit, P/N 69793)   |
|   | S331E-0031     | S332E-0031                       | S361E-0031     | S362E-0031                       | GPS Receiver (requires Antenna)  |
|   |                | S332E-0090                       |                | S362E-0090                       | Gated Sweep  |
|   | S331E-0413     | S332E-0413                       | S361E-0413     | S362E-0413                       | Ethernet Connectivity  |
|    |                | S332E-0431                       |                | S362E-0431                       | Coverage Mapping (requires Option 31)  |
|  |                | S332E-0444                       |                | S362E-0444                       | EMF Measurements (requires Anritsu Isotropic Antenna)  |
|  |                | S332E-0509                       |                | S362E-0509                       | AM/FM/PM Analyzer  |
|  | S331E-0752     | S332E-0752                       | S361E-0752     | S362E-0752                       | CPRI LTE RF Measurements (requires Option 759)   |
|  | S331E-0753     | S332E-0753                       | S361E-0753     | S362E-0753                       | OBSAI LTE RF Measurements (requires Option 759)  |
|   | S331E-0759     | S332E-0759                       | S361E-0759     | S362E-0759                       | RF over Fiber hardware (requires Option 752 or 753)  |
|   | S331E-0098     | S332E-0098                       | S361E-0098     | S362E-0098                       | Standard Calibration to ISO17025 and ANSI/NCSL Z540-1. Includes calibration certificate.                                   |
|   | S331E-0099     | S332E-0099                       | S361E-0099     | S362E-0099                       | Premium Calibration to ISO17025 and ANSI/NCSL Z540-1. Includes calibration certificate, test report, and uncertainty data. |

**Standard Accessories** (included with instrument)



| Part Number | Description  |
|-------------|--|
| 2000-1654-R | Soft Carrying Case                                 |
| 2000-1691-R | Stylus with Coiled Tether                          |
| 2000-1797-R | Screen Protector Film, 8.4 inch (2, one installed) |
| 633-75      | Rechargeable Li-Ion Battery                        |
| 40-187-R    | AC-DC Adapter                                      |
| 806-141-R   | Automotive Power Adapter, 12 VDC, 60 W             |
| 3-2000-1498 | USB A/5-pin mini-B Cable, 10 ft/305 cm             |

**Power Sensors** (for complete ordering information, see the respective data sheets of each sensor)

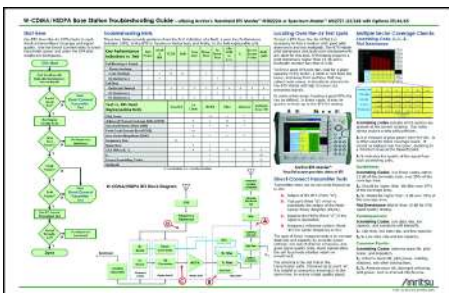


| Part Number | Description  |
|-------------|--|
| MA24105A    | Inline Peak Power Sensor, 350 MHz to 4 GHz, +51.76 dBm                     |
| MA24106A    | High Accuracy RF Power Sensor, 50 MHz to 6 GHz, +23 dBm                    |
| MA24108A    | Microwave USB Power Sensor, 10 MHz to 8 GHz, +20 dBm                       |
| MA24118A    | Microwave USB Power Sensor, 10 MHz to 18 GHz, +20 dBm                      |
| MA24126A    | Microwave USB Power Sensor, 10 MHz to 26 GHz, +20 dBm                      |
| MA24208A    | Microwave Universal USB Power Sensor, 10 MHz to 8 GHz, +20 dBm to -60 dBm  |
| MA24218A    | Microwave Universal USB Power Sensor, 10 MHz to 18 GHz, +20 dBm to -60 dBm |
| MA24330A    | Microwave CW USB Power Sensor, 10 MHz to 33 GHz, +20 dBm                   |
| MA24340A    | Microwave CW USB Power Sensor, 10 MHz to 40 GHz, +20 dBm                   |
| MA24350A    | Microwave CW USB Power Sensor, 10 MHz to 50 GHz, +20 dBm                   |
| MA25100A    | RF Power Indicator   |

**Manuals** (available at [www.anritsu.com](http://www.anritsu.com))

| Part Number | Description                                  |
|-------------|--|
| 10100-00065 | Product Information, Compliance, and Safety  |
| 10580-00252 | Site Master User Guide                       |
| 10580-00241 | Cable and Antenna Analyzer Measurement Guide |
| 10580-00242 | 2-Port Transmission Measurement Guide        |
| 10580-00349 | Spectrum Analyzer Measurement Guide          |
| 10580-00240 | Power Meter Measurement Guide                |
| 10580-00415 | CPRI LTE RF Analyzer Measurement Guide       |
| 10580-00434 | OBSAI LTE RF Analyzer Measurement Guide      |
| 10580-00455 | EMF Measurement Guide                        |
| 10580-00256 | Programming Manual                           |

**Troubleshooting Guides** (available at [www.anritsu.com](http://www.anritsu.com))



| Part Number | Description                   |
|-------------|-------------------------------|
| 11410-00473 | Cable, Antenna and Components |
| 11410-00551 | Spectrum Analyzers            |
| 11410-00472 | Interference                  |

## Optional Accessories

Calibration Components, 50  $\Omega$ **Part Number** **Description**

|             |  |
|-------------|--|
| ICN50B      | InstaCal™ Calibration Module, 38 dB, 2 MHz to 6.0 GHz, N(m), 50 $\Omega$ |
| OSLN50A-8   | High Performance Type N(m), DC to 8 GHz, 50 $\Omega$                     |
| OSLNF50A-8  | High Performance Type N(f), DC to 8 GHz, 50 $\Omega$                     |
| 2000-1914-R | Precision Open/Short/Load, 4.3-10(f), DC to 6 GHz, 50 $\Omega$           |
| 2000-1915-R | Precision Open/Short/Load, 4.3-10(m), DC to 6 GHz, 50 $\Omega$           |
| 2000-1618-R | Precision Open/Short/Load, 7/16 DIN(m), DC to 6.0 GHz 50 $\Omega$        |
| 2000-1619-R | Precision Open/Short/Load, 7/16 DIN(f), DC to 6.0 GHz 50 $\Omega$        |
| 22N50       | Open/Short, N(m), DC to 18 GHz, 50 $\Omega$                              |
| 22NF50      | Open/Short, N(f), DC to 18 GHz, 50 $\Omega$                              |
| SM/PL-1     | Precision Load, N(m), 42 dB, 6.0 GHz, 50 $\Omega$                        |
| SM/PLNF-1   | Precision Load, N(f), 42 dB, 6.0 GHz, 50 $\Omega$                        |

Calibration Components, 75  $\Omega$ **Part Number** **Description**

|           |   |
|-----------|---|
| 22N75     | Open/Short, N(m), DC to 3 GHz, 75 $\Omega$            |
| 22NF75    | Open/Short, N(f), DC to 3 GHz, 75 $\Omega$            |
| 26N75A    | Precision Termination, N(m), DC to 3 GHz, 75 $\Omega$ |
| 26NF75A   | Precision Termination, N(f), DC to 3 GHz, 75 $\Omega$ |
| 12N50-75B | Matching Pad, DC to 3 GHz, 50 $\Omega$ to 75 $\Omega$ |

## Adapters

**Part Number** **Description**

|            |  |
|------------|--|
| 1091-26-R  | SMA(m) to N(m), DC to 18 GHz, 50 $\Omega$                              |
| 1091-27-R  | SMA(f) to N(m), DC to 18 GHz, 50 $\Omega$                              |
| 1091-80-R  | SMA(m) to N(f), DC to 18 GHz, 50 $\Omega$                              |
| 1091-81-R  | SMA(f) to N(f), DC to 18 GHz, 50 $\Omega$                              |
| 1091-172-R | BNC(f) to N(m), DC to 1.3 GHz, 50 $\Omega$                             |
| 1091-433-R | Low PIM Adapter, 4.1-9.5(f) to 7/16 DIN(f), DC to 3.0 GHz, 50 $\Omega$ |
| 1091-434-R | Low PIM Adapter, 4.1-9.5(m) to 7/16 DIN(f), DC to 3.0 GHz, 50 $\Omega$ |
| 1091-465-R | Adapter, DC to 6 GHz, 4.3-10(f) to N(f), 50 $\Omega$                   |
| 1091-467-R | Adapter, DC to 6 GHz, 4.3-10(m) to N(f), 50 $\Omega$                   |
| 510-90-R   | 7/16 DIN(f) to N(m), DC to 7.5 GHz, 50 $\Omega$                        |
| 510-91-R   | 7/16 DIN(f) to N(f), DC to 7.5 GHz, 50 $\Omega$                        |
| 510-92-R   | 7/16 DIN(m) to N(m), DC to 7.5 GHz, 50 $\Omega$                        |
| 510-93-R   | 7/16 DIN(m) to N(f), DC to 7.5 GHz, 50 $\Omega$                        |
| 510-96-R   | 7/16 DIN(m) to 7/16 DIN (m), DC to 7.5 GHz, 50 $\Omega$                |
| 510-97-R   | 7/16 DIN(f) to 7/16 DIN (f), DC to 7.5 GHz, 50 $\Omega$                |
| 510-102-R  | N(m) to N(m), DC to 11 GHz, 50 $\Omega$ , 90 degrees right angle       |

## Precision Adapters

**Part Number** **Description**

|          |  |
|----------|--|
| 34NN50A  | Precision Adapter, N(m) to N(m), DC to 18 GHz, 50 $\Omega$ |
| 34NFNF50 | Precision Adapter, N(f) to N(f), DC to 18 GHz, 50 $\Omega$ |

## Attenuators

**Part Number** **Description**

|            |  |
|------------|--|
| 3-1010-122 | 20 dB, 5 W, DC to 12.4 GHz, N(m) to N(f)                   |
| 42N50-20   | 20 dB, 5 W, DC to 18 GHz, N(m) to N(f)                     |
| 42N50A-30  | 30 dB, 50 W, DC to 18 GHz, N(m) to N(f)                    |
| 3-1010-123 | 30 dB, 50 W, DC to 8.5 GHz, N(m) to N(f)                   |
| 1010-127-R | 30 dB, 150 W, DC to 3 GHz, N(m) to N(f)                    |
| 3-1010-124 | 40 dB, 100 W, DC to 8.5 GHz, N(m) to N(f), Uni-directional |
| 1010-121   | 40 dB, 100 W, DC to 18 GHz, N(m) to N(f), Uni-directional  |
| 1010-128-R | 40 dB, 150 W, DC to 3 GHz, N(m) to N(f)                    |

Optional Accessories (continued)

**Phase-Stable Test Port Cables, Armored w/Reinforced Grip** (recommended for cable & antenna line sweep applications)



| Part Number    | Description                                   |
|----------------|---|
| 15RNFN50-1.5-R | 1.5 m, DC to 6 GHz, N(m) to N(f), 50 Ω        |
| 15RDFN50-1.5-R | 1.5 m, DC to 6 GHz, N(m) to 7/16 DIN(f), 50 Ω |
| 15RDN50-1.5-R  | 1.5 m, DC to 6 GHz, N(m) to 7/16 DIN(m), 50 Ω |
| 15RNFN50-3.0-R | 3.0 m, DC to 6 GHz, N(m) to N(f), 50 Ω        |
| 15RDFN50-3.0-R | 3.0 m, DC to 6 GHz, N(m) to 7/16 DIN(f), 50 Ω |
| 15RDN50-3.0-R  | 3.0 m, DC to 6 GHz, N(m) to 7/16 DIN(m), 50 Ω |

**Interchangeable Adapter Phase Stable Test Port Cables, Armored w/Reinforced Grip** (recommended for cable and antenna line sweep applications. It uses the same ruggedized grip as the Reinforced grip series cables. Now you can also change the adapter interface on the grip to four different connector types.)



| Part Number   | Description  |
|---------------|--|
| 15RCN50-1.5-R | 1.5 m, DC to 6 GHz, N(m), N(f), 7/16 DIN(m), 7/16 DIN(f), 50 Ω |
| 15RCN50-3.0-R | 3.0 m, DC to 6 GHz, N(m), N(f), 7/16 DIN(m), 7/16 DIN(f), 50 Ω |

**Phase-Stable Test Port Cables, Armored** (recommended for use with tightly spaced connectors and other general purpose applications)



| Part Number    | Description  |
|----------------|--|
| 15NNF50-1.5C   | 1.5 m, DC to 6 GHz, N(m) to N(f), 50 Ω   |
| 15NN50-1.5C    | 1.5 m, DC to 6 GHz, N(m) to N(m), 50 Ω   |
| 15NDF50-1.5C   | 1.5 m, DC to 6 GHz, N(m) to 7/16 DIN(f), 50 Ω                                  |
| 15ND50-1.5C    | 1.5 m, DC to 6 GHz, N(m) to 7/16 DIN(m), 50 Ω                                  |
| 15NNF50-3.0C   | 3.0 m, DC to 6 GHz, N(m) to N(f), 50 Ω   |
| 15NN50-3.0C    | 3.0 m, DC to 6 GHz, N(m) to N(m), 50 Ω   |
| 15NNF50-5.0C   | 5.0 m, DC to 6 GHz, N(m) to N(f), 50 Ω   |
| 15NN50-5.0C    | 5.0 m, DC to 6 GHz, N(m) to N(m), 50 Ω   |
| 15N43M50-1.5C  | Test Port Extension Cable, Armored, 1.5 meters, DC to 6GHz, N(m) to 4.3-10(m)  |
| 15N43F50-1.5C  | Test Port Extension Cable, Armored, 1.5 meter, DC to 6GHz, N(m) to 4.3-10(f)   |
| 15N43M50-3.0C  | Test Port Extension Cable, Armored, 3 meters, DC to 6 GHz, N(m) to 4.3-10(m)   |
| 15N43F50-3.0C  | Test Port Extension Cable, Armored, 3 meters, DC to 6 GHz, N(m) to 4.3-10(f)   |
| 15NF43M50-1.5C | Test Port Extension Cable, Armored, 1.5 meters, DC to 6 GHz, N(f) to 4.3-10(m) |
| 15NF43F50-1.5C | Test Port Extension Cable, Armored, 1.5 meters, DC to 6 GHz, N(f) to 4.3-10(f) |
| 15NF43M50-3.0C | Test Port Extension Cable, Armored, 3 meters, DC to 6 GHz, N(f) to 4.3-10(m)   |
| 15NF43F50-3.0C | Test Port Extension Cable, Armored, 3 meters, DC to 6 GHz, N(f) to 4.3-10(f)   |

Optional Accessories (continued)

Directional Antennas



| Part Number | Description  |
|-------------|--|
| 2000-1411-R | 824 MHz to 896 MHz, N(f), 12.3 dBi, Yagi   |
| 2000-1412-R | 885 MHz to 975 MHz, N(f), 12.6 dBi, Yagi   |
| 2000-1413-R | 1710 MHz to 1880 MHz, N(f), 12.3 dBi, Yagi                                       |
| 2000-1414-R | 1850 MHz to 1990 MHz, N(f), 11.4 dBi, Yagi                                       |
| 2000-1415-R | 2400 MHz to 2500 MHz, N(f), 14.1 dBi, Yagi                                       |
| 2000-1416-R | 1920 MHz to 2170 MHz, N(f), 14.3 dBi, Yagi                                       |
| 2000-1659-R | 698 MHz to 787 MHz, N(f), 10.1 dBi, Yagi   |
| 2000-1660-R | 1425 MHz to 1535 MHz, N(f), 14.3 dBi, Yagi                                       |
| 2000-1715-R | Directional Antenna, 698 MHz to 2500 MHz, N(f), gain of 2 dBi to 10 dBi, typical |
| 2000-1726-R | Antenna, 2500 MHz to 2700 MHz, N(f), 14.1 dBi, Yagi                              |
| 2000-1747-R | Antenna, Log Periodic, 300 MHz to 7000 MHz, N(f), 5.1 dBi, typical               |
| 2000-1748-R | Antenna, Log Periodic, 1 GHz to 18 GHz, N(f), 6 dBi, typical                     |
| 2000-1777-R | Portable Directional Antenna, 9 kHz to 20 MHz, N(f)                              |
| 2000-1778-R | Portable Directional Antenna, 20 MHz to 200 MHz, N(f)                            |
| 2000-1779-R | Portable Directional Antenna, 200 MHz to 500 MHz, N(f)                           |
| 2000-1812-R | Portable Yagi Antenna, 450 MHz to 512 MHz, N(f), 7.1 dBi                         |
| 2000-1825-R | Portable Yagi Antenna, 380 MHz to 430 MHz, N(f), 7.1 dBi                         |

Isotropic Antennas



| Part Number | Description                                  |
|-------------|--|
| 2000-1791-R | Isotropic Antenna, 700 MHz to 6000 MHz, N(m) |
| 2000-1792-R | Isotropic Antenna, 30 MHz to 3000 MHz, N(m)  |
| 2000-1800-R | Isotropic Antenna, 9 kHz to 300 MHz, N(m)    |

Portable Antennas



| Part Number | Description   |
|-------------|---|
| 2000-1200-R | 806 MHz to 866 MHz, SMA(m), 50 Ω  |
| 2000-1473-R | 870 MHz to 960 MHz, SMA(m), 50 Ω  |
| 2000-1035-R | 896 MHz to 941 MHz, SMA(m), 50 Ω (1/2 wave)   |
| 2000-1030-R | 1710 MHz to 1880 MHz, SMA(m), 50 Ω (1/2 wave)   |
| 2000-1474-R | 1710 MHz to 1880 MHz with knuckle elbow (1/2 wave)  |
| 2000-1031-R | 1850 MHz to 1990 MHz, SMA(m), 50 Ω (1/2 wave)   |
| 2000-1475-R | 1920 MHz to 1980 MHz and 2110 MHz to 2170 MHz, SMA(m), 50 Ω   |
| 2000-1032-R | 2400 MHz to 2500 MHz, SMA(m), 50 Ω (1/2 wave)   |
| 2000-1361-R | 2400 MHz to 2500 MHz, 5000 MHz to 6000 MHz, SMA(m), 50 Ω  |
| 2000-1636-R | Antenna Kit (Consists of: 2000-1030-R, 2000-1031-R, 2000-1032-R, 2000-1200-R, 2000-1035-R, 2000-1361-R, and carrying pouch) |

Mag Mount and Broadband Antennas



| Part Number | Description   |
|-------------|---|
| 2000-1616-R | 20 MHz to 21000 MHz, N(f), 50 Ω   |
| 2000-1645-R | 694 MHz to 894 MHz 3 dBi peak gain,<br>1700 MHz to 2700 MHz 3 dBi peak gain, N(m), 50 Ω, 10 ft  |
| 2000-1646-R | 750 MHz to 1250 MHz 3 dBi peak gain,<br>1650 MHz to 2700 MHz 5 dBi peak gain  |
| 2000-1647-R | Cable 1: 698 MHz to 1200 MHz, 2 dBi peak gain,<br>1700 MHz to 2700 MHz, 5 dBi peak gain, N(m), 50 Ω, 10 ft<br>Cable 2: 3000 MHz to 6000 MHz, 5 dBi peak gain, N(m), 50 Ω, 10 ft<br>Cable 3: GPS 26 dB gain, SMA(m), 50 Ω, 10 ft |
| 2000-1946-R | Cable 1: 617 MHz to 960 MHz, 3 dBi peak gain,<br>1710 MHz to 3700 MHz, 4 dBi peak gain, N(m), 50 Ω, 10 ft<br>Cable 2: 3000 MHz to 6000 MHz, 5 dBi peak gain, N(m), 50 Ω, 10 ft<br>Cable 3: GPS 26 dB gain, SMA(m), 50 Ω, 10 ft  |
| 2000-1648-R | 1700 MHz to 6000 MHz 3 dBi peak gain, N(m), 50 Ω, 10 ft   |

Optional Accessories (continued)

Filters



| Part Number | Description  |
|-------------|--|
| 1030-114-R  | 806 MHz to 869 MHz, N(m) to SMA(f), 50 Ω                   |
| 1030-109-R  | 824 MHz to 849 MHz, N(m) to SMA(f), 50 Ω                   |
| 1030-110-R  | 880 MHz to 915 MHz, N(m) to SMA(f), 50 Ω                   |
| 1030-111-R  | 1850 MHz to 1910 MHz, N(m) to SMA(f), 50 Ω                 |
| 1030-112-R  | 2400 MHz to 2484 MHz, N(m) to SMA(f), 50 Ω                 |
| 1030-105-R  | 890 MHz to 915 MHz, N(m) to N(f), 50 Ω                     |
| 1030-106-R  | 1710 MHz to 1790 MHz, N(m) to N(f), 50 Ω                   |
| 1030-107-R  | 1910 MHz to 1990 MHz, N(m) to N(f), 50 Ω                   |
| 1030-149-R  | High Pass, 150 MHz, N(m) to N(f), 50 Ω                     |
| 1030-150-R  | High Pass, 400 MHz, N(m) to N(f), 50 Ω                     |
| 1030-151-R  | High Pass, 700 MHz, N(m) to N(f), 50 Ω                     |
| 1030-152-R  | Low Pass, 200 MHz, N(m) to N(f), 50 Ω                      |
| 1030-153-R  | Low Pass, 550 MHz, N(m) to N(f), 50 Ω                      |
| 1030-155-R  | 2500 MHz to 2700 MHz, N(m) to N(f), 50 Ω                   |
| 1030-178-R  | 1920 MHz to 1980 MHz, N(m) to N(f), 50 Ω                   |
| 1030-179-R  | 777 MHz to 798 MHz, N(m) to N(f), 50 Ω                     |
| 1030-180-R  | 2500 MHz to 2570 MHz, N(m) to N(f), 50 Ω                   |
| 2000-1684-R | 791 MHz to 821 MHz, N(m) to N(f), 50 Ω                     |
| 2000-1734-R | Bandpass Filter, 699 MHz to 715 MHz, N(m) and N(f), 50 Ω   |
| 2000-1735-R | Bandpass Filter, 776 MHz to 788 MHz, N(m) and N(f), 50 Ω   |
| 2000-1736-R | Bandpass Filter, 815 MHz to 850 MHz, N(m) and N(f), 50 Ω   |
| 2000-1737-R | Bandpass Filter, 1711 MHz to 1756 MHz, N(m) and N(f), 50 Ω |
| 2000-1738-R | Bandpass Filter, 1850 MHz to 1910 MHz, N(m) and N(f), 50 Ω |
| 2000-1739-R | Bandpass Filter, 880 MHz to 915 MHz, N(m) and N(f), 50 Ω   |
| 2000-1740-R | Bandpass Filter, 1710 MHz to 1785 MHz, N(m) and N(f), 50 Ω |
| 2000-1741-R | Bandpass Filter, 1920 MHz to 1980 MHz, N(m) and N(f), 50 Ω |
| 2000-1742-R | Bandpass Filter, 832 MHz to 862 MHz, N(m) and N(f), 50 Ω   |
| 2000-1743-R | Bandpass Filter, 2500 MHz to 2570 MHz, N(m) and N(f), 50 Ω |
| 2000-1799-R | Bandpass Filter, 2305 MHz to 2320 MHz, N(m) and N(f), 50 Ω |
| 2000-1911-R | Bandpass Filter, 703 MHz to 748 MHz, N(m) and N(f), 50 Ω   |
| 2000-1912-R | Bandpass Filter, 788 MHz to 798 MHz, N(m) and N(f), 50 Ω   |
| 2000-1925-R | Bandpass Filter, 663 MHz to 698 MHz, N(m) and N(f), 50 Ω   |
| 2000-1926-R | Bandpass Filter, 776 MHz to 806 MHz, N(m) and N(f), 50 Ω   |

RF over Fiber Accessories



| Part Number | Description  |
|-------------|--|
| 67-12-R     | Optical Tap; Single Mode/Multi Mode 80/20 Tap                              |
| 67-13-R     | Optical Tap; Single Mode 80/20 Tap   |
| 67-14-R     | Optical Tap; Single Mode/Multi Mode 50/50 Tap                              |
| 67-15-R     | Optical Tap; Single Mode 50/50 Tap   |
| 68-5-R      | SFP (Optical Module), MM (Multi Mode) 4.25 Gbps, 850 nm, 500 m             |
| 68-6-R      | SFP+ (Optical Module), MM (Multi Mode) 8 Gbps FC/10G SR 850 nm             |
| 68-7-R      | SFP (Optical Module), SM (Single Mode) 2.7 Gbps, 1310 nm, 15 km            |
| 68-8-R      | SFP+ (Optical Module), SM (Single Mode) 10 Gbps LR, 1310 nm                |
| 68-9-R      | SFP (Optical Module), SM (Single Mode) 3.07 Gbps, 1310 nm                  |
| 68-10-R     | SFP (Optical Module), MM (Multi Mode) 3.7 Gbps, 850 nm                     |
| 68-11-R     | SFP+ (Optical Module), SM (Single Mode) 10.5 Gbps, 1310 nm                 |
| 68-12-R     | SFP+ (Optical Module), MM (Multi Mode) 10.5 Gbps, 850 nm                   |
| 808-16-R    | Fiber Optic Cable, 3 m, Duplex MM (Multi Mode) 1.6 mm LC/PC LC/PC 50 μm    |
| 808-17-R    | Fiber Optic Cable, 3 m, Simplex MM (Multi Mode) 1.6 mm LC/UPC LC/UPC 50 μm |
| 808-18-R    | Fiber Optic Cable, 3 m, Ruggedized Simplex SM (Single Mode) LC/UPC LC/UPC  |
| 808-19-R    | Fiber Optic Cable, 3 m, Ruggedized Duplex SM (Single Mode) LC/UPC LC/UPC   |
| 2100-29-R   | Fiber Optic Cable, 3 m, Simplex SM (Single Mode) LC/UPC                    |
| 2100-30-R   | Fiber Optic Cable, 10 m, Simplex MM (Multi Mode) LC-SC                     |
| 2100-31-R   | Fiber Optic Cable, 3 m, Duplex SM (Single Mode) LC/UPC                     |
| 971-14-R    | Ferrule Cleaner, 2.5 mm SC   |
| 971-15-R    | Ferrule Cleaner, 1.25 mm LC  |
| 971-16      | Fiber Ferrule Cleaner  |
| 2000-1849-R | SFP 4-slot ESD Box   |

Optional Accessories (continued)

Miscellaneous Accessories



| Part Number | Description   |
|-------------|---|
| 2000-1528-R | GPS Antenna, SMA(m) with 15 ft cable  |
| 2000-1652-R | GPS Antenna, SMA(m) with 1 ft cable   |
| 69793       | CW Signal Generator Kit   |
| 2000-1689-R | EMI Near Field Probe Kit  |
| 2000-1374   | External Charger for Li-Ion Batteries   |
| 633-75      | 7500 mAh High-capacity Battery Pack   |
| 2000-1371-R | Ethernet Cable, 213 cm (7 ft)   |
| 3-806-152   | Cat 5e Crossover Patch Cable, 213 cm (7 ft)   |
| MA2700A     | Handheld Interference Hunter (For full specifications, refer to the MA2700A Technical Data Sheet 11410-00692) |
| 2000-1884-R | PIM Hunter™ Test Probe (For full specifications, refer to the 2000-1884-R Technical Data Sheet 11410-00999)   |
| 2000-1797-R | Screen Protector Film, 8.4 inch   |
| 66864       | Rack Mount Kit, Master Platform   |

NEON® MA8100A Signal Mapper (supported on S332E, S362E models only)



| Model Number | Description   |
|--------------|---|
| MA8100A-001  | NEON Signal Mapper with Anritsu Integration and Tracking Unit. Includes 1 year NEON Software License with 1 year of maintenance and support and 1 year of Cloud Service.                                  |
| MA8100A-003  | NEON Signal Mapper with Anritsu Integration and Tracking Unit. Includes 3 year NEON Software License with 3 years of maintenance and support and 3 years of Cloud Service.                                |
| MA8100A-005  | NEON Signal Mapper with Anritsu Integration and Tracking Unit. Includes 5 year NEON Software License with 5 years of maintenance and support and 5 years of Cloud Service.                                |
| MA8100A-100  | NEON Signal Mapper with Anritsu Integration and Tracking Unit. Includes Perpetual NEON Software License with 3 years of maintenance and support and 3 years of Cloud Service.                             |
| 2300-606     | Perpetual NEON Software License with 3 years of maintenance and support and 3 years of Cloud Service. Part number can also be used to order a perpetual license after a limited term license has expired. |
| 2300-612     | Renewal of 1 year NEON Software License with 1 year of maintenance and support and 1 year of Cloud Service.   |
| 2300-613     | Renewal of 3 year NEON Software License with 3 years of maintenance and support and 3 years of Cloud Service.   |
| 2300-614     | Renewal of 5 year NEON Software License with 5 years of maintenance and support and 5 years of Cloud Service.   |

Backpack and Transit Case



| Part Number | Description  |
|-------------|--|
| 67135       | Anritsu Backpack (For Handheld Instrument and PC)  |
| 760-243-R   | Large Transit Case with Wheels and Handle<br>56 cm x 45.5 cm x 26.5 cm (22.07" x 17.92" x 10.42")  |
| 760-261-R   | Large Transit Case with Wheels and Handle<br>63.1 cm x 50 cm x 30 cm (24.83" x 19.69" x 11.88"), space for MA2700A, antennas, filters, instrument inside soft case, and other interference hunting accessories/tools |
| 760-262-R   | Transit Case for MA2700A, several Yagi antennas and filters  |
| 760-271-R   | Transit Case for Portable Directional Antennas and Port Extender<br>52.4 cm x 42.8 cm x 20.6 cm (20.62" x 16.87" x 8.12")<br>(for 2000-1777-R, 2000-1778-R, 2000-1779-R, 2000-1798-R)                                |
| 760-286-R   | Compact Transit Case with Wheels and Handle<br>55.6 cm x 35.5 cm x 22.9 cm (21.89" x 13.98" x 9.01")   |



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