Quick Fact Sheet

LMR Master™ S412E

Land Mobile Radio Modulation and Signal Analyzer, Vector Network Analyzer, and Spectrum Analyzer

S412E

9 kHz to 1.6 GHz Spectrum Analyzer, 500 kHz to 1.6 GHz Vector Network Analyzer

RUGGED, PORTABLE, POWERFUL

The LMR Master S412E is a compact ,handheld, multi-function analyzer that has been specifically developed for technicians and engineers who install and maintain public safety, utility, and private mobile communications systems. The LMR Master S412E combines our industry-standard cable and antenna analysis with the unmatched performance of our spectrum analyzers, then adds in powerful signal analysis and generation capabilities – including coverage mapping tools for both outdoor and indoor performance analysis – to create the ultimate battery powered LMR field service instrument for system commissioning, preventative maintenance, troubleshooting, and compliance testing of mission critical systems.

Land Mobile Radio Analyzer Highlights

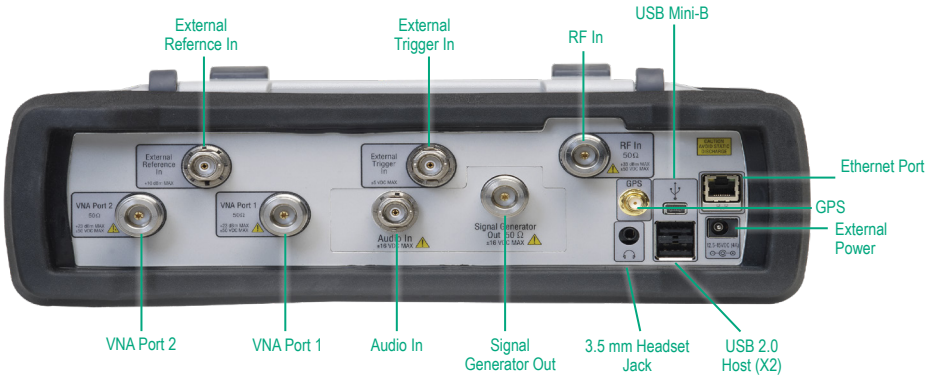
- Analyzes Narrowband FM Analog Systems
- Analyzes P25, P25 Phase 2, DMR (MOTOTRBO™), NXDN™, dPMR, IT-R PTC, and TETRA Digital Systems
- 9 kHz to 1.6 GHz Frequency Coverage (Optional Extension to 6 GHz)
- Internal Signal Generator: 0.1 dB Resolution, 0 dBm to -130 dBm
- P25, P25 Phase 2, NXDN, and DMR BER Test Patterns Including 1011, 1031, and V.52/O.153
- PTC ITCR, PTC ACSES
- Duplex Test: Simultaneous Analysis and Generation of Analog or Digital LMR Signals
- Independent Control of Both Receive/Transmit Frequencies and Test Patterns
- TETRA Base Station Receiver Sensitivity Measurements
- FDD and TDD LTE Analyzer for Public Safety LTE
- GSM Measurements for GSM-R Railway Systems

Vector Network Analyzer Highlights

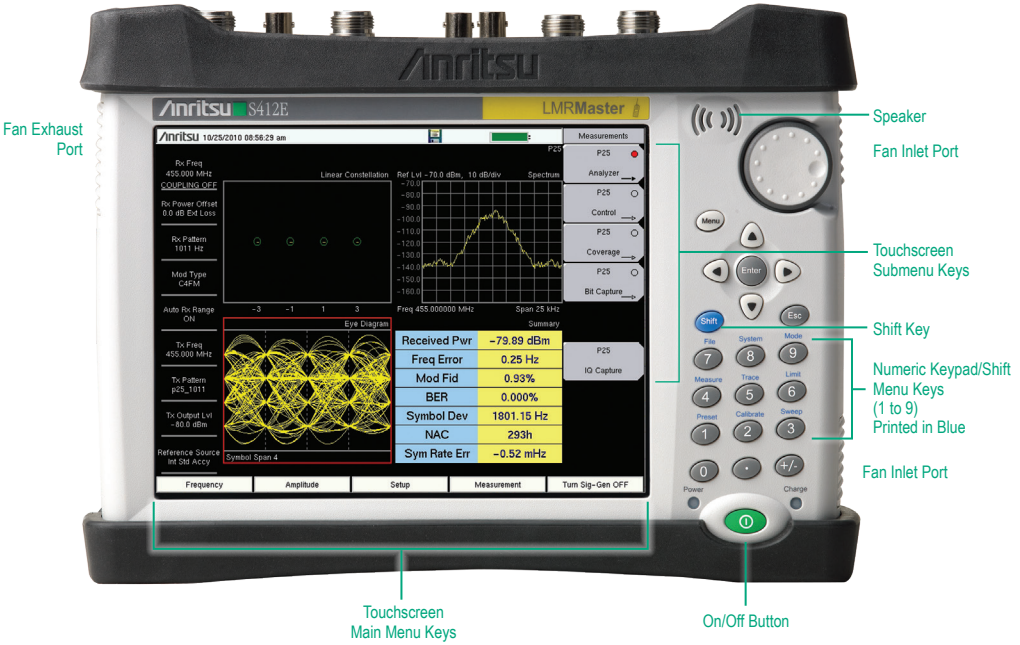
- 1-Path, 2-Port Vector Network Analyzer (VNA) w/ Quad Trace Display
- 500 kHz to 1.6 GHz Frequency Coverage (Optional Extension to 6 GHz)
- Intuitive Graphical User Interface (GUI) with Convenient Touchscreen
- VNA-Quality Error Correction for Directivity and Source Match
- Outstanding Calibration Stability, Up to 16 Hours
- Arbitrary Data Points up to 4001
- IF Bandwidth Selection of 10 Hz to 100 kHz
- 100 dB Transmission Dynamic Range
- 850 µs/Data Point Sweep Speed

Spectrum Analyzer Highlights

- Measurements: Occupied Bandwidth, Channel Power, ACPR, C/I, Coverage Mapping
- Interference Analyzer: Spectrogram, Signal Strength, RSSI, Mapping
- PIM Hunting
- 9 kHz to 1.6 GHz Frequency Coverage (Optional Extension to 6 GHz)
- Dynamic Range: > 95 dB in 10 Hz RBW
- DANL: -152 dBm in 10 Hz RBW



All Connectors are conveniently located on the top panel, leaving the sides clear for handheld use



Handheld Size: 273 x 199 x 91 mm, (10.7 x 7.8 x 3.6 in), Lightweight: 3.6 kg, (7.9 lbs)

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Key Specifications

Land Mobile Radio Analyzer	
VNA Frequency	500 kHz to 1.6 GHz, (Upgradable to 6 GHz)
Receiver Frequency	9 kHz to 1.6 GHz (Upgradable to 6 GHz)
Signal Generator	0 dBm to –130 dBm, 0.1 dB Resolution, 2 dB Accuracy (Typical)
Supported Modes	Analog FM, P25 FDMA and P25 Phase 2 TDMA, NXDN, ETSI DMR, PTC (ITC-R), ETSI TETRA, dPMR
Phase Noise	–100 dBc/Hz Max @ 10 kHz Offset at 1 GHz
General	
Internal Memory	2,000 Traces, 2,000 Setups
External Memory	Limited by the Size of the External USB Flash Drive
Data Connectivity	Ethernet (RJ45), USB (5-Pin Mini B), Connect to PC for Data Transfer
Display	Resistive Touchscreen, 8.4” Daylight Viewable Color LCD, Resolution 800 x 600
Temperature	Operating Temperature –10 ºC to 55 ºC
Battery	Li-Ion, 3.0 Hours Typical
Dimensions	273 mm x 199 mm x 91 mm (10.7 in x 7.8 in x 3.6 in)
Weight	3.6 kg, (7.9 lbs)

Options

Option	Description
Option 10	High Voltage Variable Bias Tee
Option 6	6 GHz Coverage on Spectrum Analyzer
Option 16	6 GHz Coverage on Vector Network Analyzer
Option 15	Vector Voltmeter
Option 19	High-Accuracy Power Meter (Requires External Power Sensor)
Option 25	Interference Analyzer (Option 31 Recommended)
Option 27	Channel Scanner
Option 31	GPS Receiver (Requires Suitable GPS Antenna)
Option 37	IEEE 802.16 Mobile WiMAX Over-the-Air Measurements (Requires Option 6; Option 31 Required For Full Functionality)
Option 46	IEEE 802.16 Fixed WiMAX RF Measurements (Requires Option 6)

Options (Cont'd)

Option	Description
Option 47	IEEE 802.16 Fixed WiMAX Demodulation (Requires Option 6)
Option 66	IEEE 802.16 Mobile WiMAX RF Measurements (Requires Option 6)
Option 67	IEEE 802.16 Mobile WiMAX Demodulation (Requires Option 6)
Option 98	Standard Calibration (ANSI Z540-1-1994)
Option 99	Premium Calibration (ANSI Z540-1-1994) Plus Printed Test Data
Option 431	Coverage Mapping (Requires Option 31)
Option 444	EMF Measurements (Requires Anritsu Isotropic Antenna)
Option 509	AM/FM/PM Analyzer
Option 521	P25/P25p2 Analyzer Measurements
Option 522	P25/P25p2 Coverage Measurements (Requires Options 31 and 521)
Option 531	NXDN Analyzer Measurements
Option 532	NXDN Coverage Measurements (Requires Options 31 and 531)
Option 573	dPMR RF Analyzer Measurements
Option 572	dPMR Coverage Measurements (Requires Option 31 and 531)
Option 541	FDD LTE RF Measurements
Option 542	FDD LTE Modulation Quality
Option 546	FDD LTE Over-the-Air Measurements (Requires Option 31)
Option 551	TDD LTE RF Measurements (Requires Option 541)
Option 552	TDD LTE Modulation Measurements (Requires Option 542)
Option 556	TDD LTE Over-the-Air (OTA) Meaurements (Requires Options 31 and 546)
Option 886	LTE 256-QAM Demodulation (Requires Option 542)
Option 880	GSM/GPRS/EDGE Measurements
Option 581	TETRA Analyzer Measurements
Option 582	TETRA Coverage Measurements (Requires Options 31 and 581)
Option 591	DMR (MOTOTRBO) Analyzer Measurements
Option 592	DMR (MOTOTRBO) Coverage Measurements (requires Options 31 and 591)
Option 721	PTC ITCR Analyzer
Option 722	PTC ITCR Coverage Measurements (requires Options 31 and 721)
Option 731	PTC ACSES Analyzer
Option 733	PTC ACSES Coverage Measurements (requires Options 31 and 731)

For more information go to www.anritsu.com

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