REI®

THE INDUSTRY STANDARD IN TSCM EQUIPMENT

MESA™

MOBILITY ENHANCED SPECTRUM ANALYZER

www.reiusa.net

MOBILITY ENHANCED SPECTRUM ANALYZER

RF applications continue to demand agile, portable, handheld spectrum analyzers to measure the power and frequency of known and unknown transmissions. The **NEW MESA™** spectrum analyzer has the portability and operational features not available in other spectrum analyzers. MESA™ has a frequency range up to 6 GHz or 12 GHz depending on the model and sweeps greater than 200 GHz per second.

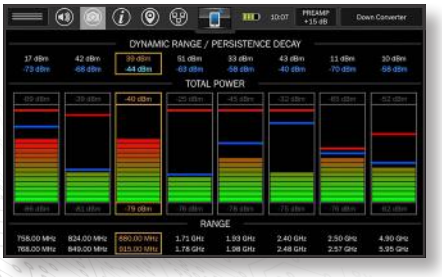
The graphic touch-screen interface makes navigating the MESA™ easy, improving sweep efficiency.

Spectrum Analysis

MESA™ displays a full range of frequency data including span, start and stop frequencies, dB, and RBW between 10 kHz to 6GHz*. Types of signal graphs include live trace, peak trace, Cached Peak™, average trace, alert threshold, RSSI, O-scope and more. RF display features like Persistence and Live Raster Waterfall provide enhanced display of signal events over time. A dynamic Resolution Bandwidth auto adjusts from 312.5 kHz down to .038 kHz dependent on the frequency span - the narrower the span the greater the resolution.

SmartBars™ *Patent Pending*

SmartBars™ mode uses bargraphs to detect and locate RF energy by displaying new signals, or increased RF energy, compared to a reference trace from outside the target sweep area. New energy is indicated by an increase in certain bars. Tapping on the bars reveals spectral views.



Mobile Bands

The Mobile Bands mode allows the user to quickly and easily monitor RF energy levels for multiple specific RF Bands (i.e. WiFi, GSM, etc.) on one screen. Each Band is customizable to user defined spans. This mode is excellent for quickly searching for RF energy in specific spans.

WiFi/Bluetooth®

WiFi and Bluetooth® modes display nearby WiFi access points and Bluetooth® pairings, relative signal strength, and links to the Spectrum View to view it in live frequency trace mode.

Cached Peak *Patent Pending* - The MESA™ dynamically adjusts resolution bandwidth depending on viewed frequency span. The Cached Peak maintains multiple peak traces to reflect the appropriate frequency span and associated resolution bandwidth.

Persistence - Displays a trace with varying color brightness based on the persistence of signals. This provides the ability to determine if multiple signals occupy the same frequency bands.

Waterfall Display - Generates a spectrogram view of raster waterfall spectral data.

Average Trace- Displays averages between 2 and 64 traces.

Spectral Power Histogram / RSSI -Displays a histogram of average RF power over a user defined spectral bandwidth. Time windows available: 30 sec, 1 min, 2 min, or 4 min.

Signal List Generation - Generate signal lists manually in Spectrum View or automatically in SmartBars Signal Resolution mode.

Alerts - Visual, Audio, Haptic indications of signal energy exceeding a user defined mask threshold.

Screen Capture - Take screen shots of display and store to USB.

Attenuation - Apply attenuation 0dB, 10dB, 20dB, Auto, and +15dB Preamp.

Antenna Probe Recognition - The MESA™ automatically detects and adjusts to REI probes and antennas.

ACCESSORY ANTENNAS/PROBES

MESA™ automatically recognizes attached antennas/probes, identifies it on the screen, and displays the corresponding frequency span.

A HYBRID WHIP ANTENNA: 30MHz - 6GHz
A hybrid broadband antenna with sensitivity for many applications.

B FIXED HYBRID ANTENNA: 85MHz - 6GHz
A sophisticated hybrid antenna that connects directly to the MESA™ allowing users to move around freely without cables.

C DOWN CONVERTER ANTENNA: 500MHz - 12GHz
Log-Periodic antenna with built-in down-converter to operate below 6GHz or 6-12GHz.

D DIRECTIONAL ANTENNA: 70MHz - 500MHz
Unique Flag antenna design to proivide directional antenna gain for low frequency signals.

E VLF LOOP: 10kHz - 30MHz
Detects very low RF frequencies.

F LOCATOR PROBE: 20MHz - 6GHz
Effective in high RF noise environments within close proximity to transmitter.

G MULTI CARRIER PROBE (MCP): 100kHz - 60MHz
Tests power lines up to 250 Volts for modulated signals. Measures Hot/Neutral, Neutral/Ground, and Hot/Ground pair configurations.

H VISIBLE LIGHT/INFRARED: 10kHz - 50MHz
Detects infrared and visible light transmissions.

I ULTRASONIC PROBE: 15kHz - 80kHz
Detects sound waves operating above the upper limit of human hearing capabilities.

J AUDIO TRANSFORMER: 300Hz - 20kHz
Applies positive and negative bias voltage to activate microphones and tests low voltage wiring for unmodulated signals.

K ACOUSTIC LEAKAGE DETECTOR: 300Hz - 20kHz
Detects acoustic leakage vulnerability on structures (walls, windows, etc.).

L GPS USB Dongle
Acquires live GPS location data.

Designed with mobility in mind, the MESA™ is handheld to allow it to move freely through a target area.

The 7-inch capacitive touchscreen display provides zoom, and drag capabilities with the response expected on modern touch devices.

Applications

- Detects RF emissions such as WiFi, Bluetooth®, cell phones, illicit transmitters
- Interference detection & troubleshooting
- RF research and development
- Wireless industry developers
- Hobbyists and RF enthusiasts
- Educational institutions
- Communications Site Surveys
- Detecting illicit eavesdropping signals
- RF emissions analysis
- Spectrum misuse investigation

PRODUCT CHARACTERISTICS

Receiver

Sweep Speed	>200 GHz/second
Operating Freq. Range	10 kHz - 6 GHz /*12 GHz
Resolution Bandwidth	Variable depending on span: 0.0380 kHz to 312.5 kHz
Instantaneous Bandwidth	25 MHz
DANL - Noise Floor	500 kHz RBW with Pre-amp: -102 dBm
Attenuation	0 dB, 10 dB, 20 dB, Auto
Preamp	+15 dB
Detection Types	RF, Carrier Current, Acoustic Leakage, IR/Visible Light, Ultrasonic
Spurious Free Dynamic Range	81.6 dB
Receiver Type	Swept-tuned Superheterodyne
Audio Demodulation	AM/FM demodulation with filter options: Auto, 200 kHz, 20 kHz, 5 kHz
Input Port	QMA connector (RF input) for included and auxiliary RF antennas

Features

Operation Modes	Spectrum Analyzer, SmartBars™, Mobile Bands, WiFi, Bluetooth®
Alert Types	Haptic, audible, and visible alerts
Display/Controls	7in/18 cm capacitive touch screen, brightness control
Display Features	Zoom, screen lock, frequency span, start/stop frequencies, resolution bandwidth, center frequency, automatic probe recognition. Display types include RF spectral display, *Patent Pending* SmartBars bar graph, *Patent Pending* Cached Peak, WiFi/Bluetooth Scanner, Waterfall display, Persistence display, RSSI, Average Trace
Remote Access	Ethernet port for VNC remote access
Signal List Generation	Manual or automatic depending on mode
GPS	Removable USB, captures and saves GPS data
Audio	Built-in speaker and external headphones with adjustable volume control. Microphone port for Acoustic Leakage Probe and Audio Transformer
Data Ports	2 USB 2.0 Type A ports for software upgrades, file storage, file transfer and GPS dongle; Gigabit Ethernet port

Power

Supply	AC: 100-240V/50-60 Hz; rechargeable Li-ion battery (+1 spare)
Run Time	~3 hours (typical) per battery
Charge time	~3 hours per battery (typical), external recharger included with Deluxe model

MECHANICAL

Unit Dimensions	5 x 8 x 2 in /13 x 20 x 5 cm
Unit Weight	2.4 lbs/1.1 kg including battery
Case Dimensions	6 x 15 x 18.5 in / 16 x 38 x 47 cm
Case /Contents Weight	15 lbs. / 6.8 kg

Environmental

Operating temperature	-10° to 53° C
Battery charging temperature	5° to 37° C
Storage temperature	-20° to 60° C

Note: extended storage at temperatures above 40° C could degrade battery performance and life.

**Down Converter antenna (Deluxe model)*

MESA™ Antennas/Accessories	Basic	DLX
Whip Antenna	▪	▪
Fixed Dipole Antenna		▪
Down Converter Antenna		▪
Flag Directional Antenna		▪
VLF Loop Antenna	▪	▪
Locator Probe		▪
MCP (Multi-Carrier Probe)	▪	▪
Visible Light/ Infrared		▪
Ultrasonic Probe		▪
Audio Transformer		▪
Acoustic Leakage Detector		▪
GPS Dongle		▪
External battery charger		▪
2 Li-ion rechargeable batteries	▪	▪

REI Training Center

The largest commercially-available TSCM training facility in the world. REI Training courses teach basic and advanced procedural concepts for conducting a counter surveillance investigation. All courses include hands-on exercises in dedicated project rooms that simulate threat scenarios. Custom, on-site training courses are also available. View course dates and register online at: *www.reiusa.net.*

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