



# Radio Explorer II

## MOBILE FM BAND COVERAGE AND MODULATION ANALYZER RDS/RBDS DECODER-READER WITH BUILT-IN GPS RECEIVER

The Radio Explorer II is a full-featured device designed to cater for all market requirements. This easy for use mobile tool evaluates the FM broadcast band congestion and stores all important radio broadcast parameters in a Log file. The built-in FTP system allows downloading and managing of the files through DEVA Device Manager Software. The fully DSP- based FM radio frontend tuner utilizes the latest technologies in the DSP processing of the FM signal.

The Dual DSP-based, compact and affordable Radio Explorer II is a product of highly valued performance. This device is the perfect solution for field surveys and on site monitoring of station complete signal. With just a click on the button, Radio Explorer turns into an excellent tool for analyzing of the signal strength and quality after repairs or set-up of new equipment. This cost-effective device can measure RF level, MPX deviation, Left & Right Audio levels, RF field strength, RDS and Pilot injection levels. All measurements are visualized on easy to read OLED Graphical display.

Designed for signal surveillance on the field where the listeners are, all that is needed is a vehicle and Radio Explorer II. There are two campaign modes:

1. Radio Explorer II can be set to measure automatically one or multiple preselected frequencies (Up to 50);
2. RDS PI / RBDS Call campaign – up to 10 stations can be chosen. Radio Explorer II will automatically detect the used frequency. While the campaign is running, the chosen stations will be monitored; Radio Explorer II will automatically switch between the variable frequencies during movement - just as the car radio of your listeners.



When the campaign is over, using the supplied free of charge Windows software the log files could be converted into KMZ format and visualized in Google Earth. Such functionality is irreplaceable when current information of the FM broadcast band congestion and coverage is needed. As an addition, the Log file can be also exported and saved as a transitional format for future analysis.

The band scan mode guarantees real-time live visualization of either the FM band or a particular predefined part of it with down to 10 kHz resolution. Radio Explorer II can be controlled through:

1. The built-in Web server - a standard web browser can be used to monitor its status or to make some adjustments. iOS and Android devices are also supported. The Main Screen of the WEB Interface shows all mandatory parameters represented as LED bar graph readings;
2. The supplied free of charge DEVA Device Manager Software – the easy-to-use interface allows quick and easy connection to the device. The dedicated module ensures managing of all the device's logs and displays respectively all the events in a handy manner;
3. The very intuitive user interface with OLED screen, Front panel navigational and soft buttons ensures an easy usage of the device's build-in features.

Supporting both RDS/RBDS standards and measurement units, the Radio Explorer II is a suitable choice for broadcast engineers from all around the world. The device offers various bar-graphs, data plots, histograms, etc. therefore it will meet the expectations of the most demanding broadcasters.

## FEATURES

- Fully DSP based FM radio frontend
- FM Band 65÷108 MHz Basic Spectrum Analyzer
- Selectable IF bandwidth
- Built-in Stereo decoder
- Stereo Presence Detection
- LEFT and RIGHT demodulated audio level meters
- RDS and RBDS decoder
- RDS/RBDS Stream BER meter
- Powerful Dual DSP-based core
- Built-in 50-channels GPS Receiver
- Front panel OLED Graphical Display
- Very Intuitive Application Interface
- SNMP for adjustments and control
- Dual antenna ports supporting up to 100 dBµV direct RF Antenna Input
- MPX, PILOT, RDS deviation meters and RF Field strength
- Full control and monitoring via LAN & USB connection
- Easy to use WEB Interface
- Maintenance via DEVA Device Manager Software
- Measurement results visualisation in Google Earth
- Accurate front-panel metering for local use
- Headphone output with front panel level control
- RF and RDS Measurements (real time & average)
- FM/RDS/RBDS Data Logger
- 3 General purpose outputs – GPS Fix, Multipath, Low RF Level
- Built-in FTP Server for easy download of the Log files
- Robust, custom made Metal Case for high RF immunity

## SPECIFICATIONS

RF Input	
Tuning Range	FM Band 65 to 108 MHz
Tuning Step	10, 20, 50, 100 kHz
Tuner Sensitivity	30 dB $\mu$ V
Antenna Ports	Dual, 2 x BNC Connectors, 50 $\Omega$
Antenna Ports Isolation	> 40 dB
Internal Attenuator	0, 10, 20 and 30 dB
Dynamic range	100 dB

FM Demod	
IF Filter Bandwidth	15 Increments (25kHz - 157kHz, Auto)
Frequency Response	$\pm$ 0.1 dB, 10 Hz to 86 kHz
MPX Power	$\pm$ 12 dB, 20 sec. integration
Dynamic range	90 dB

Stereo Decoder	
Frequency Response (L&R)	$\pm$ 0.1 dB, 10 Hz to 15 kHz
SNR (Stereo)	60 dB, 50 $\mu$ s de-emphasis
THD	0.15% @ 1kHz, 0.4% - 10Hz+15kHz, 50 $\mu$ s de-emphasis
Separation	50 dB, 50 Hz to 10 kHz, 50 $\mu$ s de-emphasis
Crosstalk	52 dB

FFT Spectrum Analysis (RF, Composite, Audio)	
Signal Sources	RF (IF), MPX, Left, Right
FFT length	2048 points
Dynamic range	90 dB

Scope Analysis (RF, Composite, Audio)	
Signal Sources	RF (IF), MPX, Pilot, RDS, Main, Sub, L, R
Record length	4096 points
Dynamic range	90 dB

Metering Accuracy	
RF Level	$\pm$ 1 dB, 0 to 100 dB $\mu$ V
MPX Power	$\pm$ 0.2 dB, -12 to 12 dB, 0.1 dB resolution
Total, Pos, Neg	$\pm$ 2 kHz, 10 to 100 kHz, 1 kHz resolution
Pilot, RDS	$\pm$ 0.5 kHz, 1 to 12 kHz, 0.2 kHz resolution
Audio	$\pm$ 1 dB, +10.0 to -55.0 dB, 0.1 dB resolution

RDS Decoder	
Standards	European RDS CENELEC United States RBDS NRSC
Error Correction & Counting	Yes
AF, CT	Yes
PI, PTY, DI, MS, TA, TP	Yes
PS, RT, RT+	Yes
TMC, ODA	Yes
Group Analyzer	Yes
BER Analyzer	Yes
Group Sequence Display	Yes
RDS RAW Data Display	Yes

Outputs	
Audio (L, R)	+6 dBu, 600 $\Omega$ balanced XLR Connector
AES3 (L, R)	5.0 Vp-p, 110 $\Omega$ , balanced XLR Connector
Alarms	Terminals on rear panel, optoisolated
Headphone	6,3mm (1/4") Phone Jack

Communication Interfaces	
USB	B-type Connector
Ethernet 10/100 Base-T	RJ45 Connector

Measurement Storage	
Storage	2GB Build-in Memory Card
Data format	Text, CSV

GPS Receiver	
Number of channels	50
Antenna	Pre-amplified, 5m of cable, magnetic
Connector	SMA, rear panel

Power Requirement	
Power Supply	12 DC (11-15V) / 2A max at 12V
Connector	XLR (on rear panel)

Size and Weight	
Dimensions (W;H;D)	210 x 76 x 215 mm
Shipping Weight	470 x 180 x 310 mm / 4.031 kg

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