# 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.

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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**

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## SPECIFICATIONS

| RF Input | |
|---|---|
| Tuning Range | FM Band 65 to 108 MHz |
| Tuning Step | 10, 20, 50, 100 kHz |
| Tuner Sensitivity | 30 dBµV |
| Antenna Ports | Dual, 2 x BNC Connectors, 50Ω |
| 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 | ±;0.1 dB, 10 Hz to 86 kHz |
| MPX Power | ±12 dBr, 20 sec. integration |
| Dynamic range | 90 dB |

| Stereo Decoder | |
|---|---|
| Frequency Response (L&R) | ±0.1 dB, 10 Hz to 15 kHz |
| SNR (Stereo) | 60 dB, 50 µs de-emphasis |
| THD | 0.15% @ 1kHz,<br>0.4% - 10Hz÷15kHz, 50 µs de-emphasis |
| Separation | 50 dB, 50 Hz to 10 kHz, 50 µs 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 |

| 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 |

| RDS Decoder | |
|---|---|
| Standards | European RDS CENELEC<br>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, 600Ω balanced XLR Connector |
| AES3 (L, R) | 5.0 Vp-p, 110Ω , 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 |

| Metering Accuracy | |
|---|---|
| RF Level | ±1 dB, 0 to 100 dBµV |
| MPX Power | ±0.2 dBr, -12 to 12 dBr, 0.1 dBr resolution |
| Total, Pos, Neg | ±2 kHz, 10 to 100 kHz, 1 kHz resolution |
| Pilot, RDS | ±0.5 kHz, 1 to 12 kHz, 0.2 kHz resolution |
| Audio | ±1 dB, +10.0 to -55.0 dB, 0.1 dB resolution |

| Operating conditions | |
|---|---|
| Temperature | -15°C to 55°C |
| Humidity | < 95%, non-condensing |
| Altitude | 0 to 5000m above sea level |

| 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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