The DRM Monitoring Receiver DT700 is a professional monitoring receiver perfectly suited for DRM reception and transmitter monitoring. It features a high-performance front end based on a direct sampling reception technology. Together with a 12-band fix-tuned preselector filter bank the DRM Monitoring Receiver DT700 guarantees an outstanding reception performance and low phase noise. The receiver’s signal processing is based on a Software Defined Radio (SDR) construction the core of which is an embedded Linux PC.

**Applications**

- General Purpose DRM/AM/SSB Reception
- Transmitter Monitoring
  - Modulation quality measurement (up to 40 dB S/N)
  - Modulation parameters
  - Two configurable alarm signals (relay switch)
- Spectrum Monitoring
  - Spectrum plot with default DRM parameters
  - Span up to 60 kHz

**Concept**

The DRM Monitoring Receiver DT700 features:

- Stand-alone operation
- High-reliability hardware built for continuous operation
- Well-tested DRM receiver software based on Fraunhofer Software Radio
- Easy to use due to comfortable LCD menus
- Full remote control via remote PC and Ethernet
- Easy software update via built-in DVD drive

**Monitoring Networks**

- Full remote control via LAN
- Logging of RSCI
- RSCI output (compatible to ETSI TS 102 349 V1.2.1) via LAN
- Alarm signals configurable with trigger conditions (e.g. audio dropouts or field strength)
- QoS (Quality of Service) monitoring
- Highly accurate field strength measurement
The latter features an easy software update via built-in DVD drive. Based on the embedded Linux platform a web server allows for easy remote access to all of the receiver’s control functions.

Available models and options:

**Basic Model B1**
- DRM Monitoring Receiver stand-alone unit for the monitoring of DRM signals
- Accuracy of internal reference oscillator 5 ppm

**Basic Model B2**
- DRM Monitoring Receiver as listed above
- Built-in high-accuracy OCXO reference oscillator
  - Offset < 0.1 ppm
  - Aging < 0.1 ppm/year
- 10 MHz reference input for GPS synchronization

**Software Option O1**
- Audio decoders for CELP and HVXC (according to ETSI ES201980 V3.2.1)
- CELP/HVXC decoder licensed by Dolby

**Mechanical Specifications**
- Width 43.2 cm
- Height 13.3 cm, 14.5 cm with pedestals
- Depth 40.6 cm, 46 cm with connectors
- Weight 10 kg
- 19” rack mounting possible

**Environmental Specifications**
- Temperature range: 0–40° C
- Humidity: 20–80% non-condensing
- Voltage range: 110–230 V, 50–60 Hz AC

**Interfaces**
- Built-in loudspeaker with volume control
- Outputs for headphones and external speaker
- Line and balanced audio outputs
- Two relay outputs
- Two RS232 and USB 2.0 connectors
- Antenna input N type female (50 Ohms)

**RF Front-end**
- Input frequency range 100 kHz to 27.4 MHz
- 12-band fix-tuned preselector filter bank
- Level measurement accuracy ±1 dB true RMS
- RF data bandwidth 40 kHz, ripple 0.2 dB
- DRM spectrum mask monitoring within ±30 kHz
- Input level -110 to 20 dBm for DRM decoding
- In-channel IP3: +15 dBm (noise figure 15 dB)
- Out of band IP3: +30 dBm (noise figure 15 dB)
- Phase noise at ± 20 Hz: -80 dBc/Hz
- Phase noise at ± 20 kHz: -130 dBc/Hz
- Spectral inversion of input signal possible

**DRM Receiver**
- DRM parameters according to ETSI ES 201 980 V2.1.1
  - 4.5, 5.0, 9.0, 10, 18 and 20 kHz
  - Modes A, B, C and D
  - QAM 4, 16, 64
  - All code rates
  - EEP and UEP
  - Hierarchical modes
  - Simulcast modes

**Audio decoder**
- xHE-AAC
- HE-AAC + SBR + PS
- HVXC + SBR, CELP + SBR
  - according to ETSI ES201980 V3.2.1
  - requires option O1
Monitoring

- Display, recording and online UDP output (RSCI) of
  - Field strength (antenna factor can be specified)
  - Estimated signal-to-noise ratio
  - Estimated delay spread
  - Estimated Doppler spread
  - Audio quality
  - Frequency offset

- Scripts for the conversion of RSCI files into Comma Separated Value (CSV) files for further processing with a spreadsheet or graphics program

- Location information via external NMEA-compliant GPS receiver
  Interface: RS232 or USB
  RSCI output contains GPS information (TAG rgps)

- Display of
  - Power spectrum
  - Channel impulse response

Alarm

Two independent alarms (associated with relays) configurable to multiple trigger conditions:

- Spectrum mask violated above specified level
- RF level below specified value
- S/N level below specified value
- Audio dropouts above specified ratio
- Audio level below specified value
- MDI errors above specified rate
- Frequency offset above specified value (Basic Model B2)

Remote Control

- Via graphical user interface
- Via RSCI (Receiver Status and Control Interface)
- Via web interface
Exemplary Screenshots

**Alarm configuration screen** allows enabling and setting of limits for each alarm condition.

**Spectrum screen** features display of DRM/AM spectrum mask.

**Monitoring screen** features display of important DRM parameters.

**Scheduler** for automatically controlled monitoring of transmission slots.