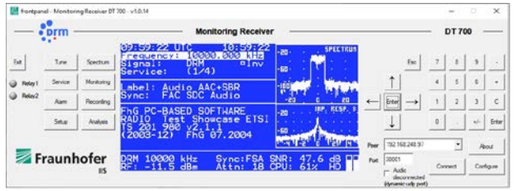
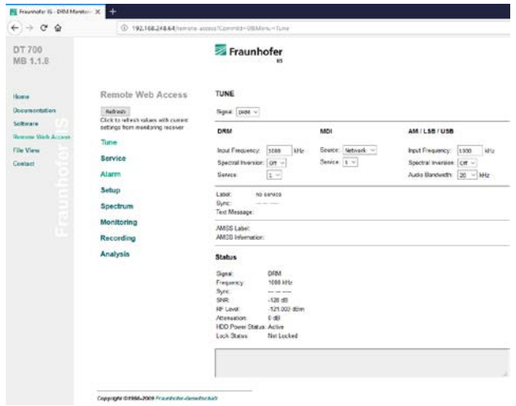



*Remote front panel executable on Windows and Linux PCs*




*Remote access via web browser*

**Monitoring**

- Display, recording and on-line UDP output (RSCI, Receiver Status and Control Interface) 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
  - Field strength
  - Signal-to-noise ratio

**Alarm**

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

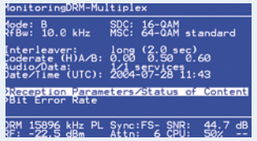
- Spectrum mask violated above specified level
- RF level below specified value
- S/N level below specified value
- Audio dropouts above specified ratio
- Audio level below specified value
- MDI errors above specified rate
- Frequency offset above specified value

**Remote control**

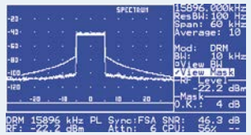
- Via graphical user interface
- Via RSCI
- Via web interface

## Exemplary screenshots


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




*Monitoring screen features display of important DRM parameters*




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


*Scheduler for automatically controlled monitoring of transmission slots*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**Fraunhofer Institute for Integrated Circuits IIS**

Management of the institute
Prof. Albert Heuberger (executive)
Prof. Bernhard Grill
Prof. Alexander Martin

Am Wolfsmantel 33
91058 Erlangen, Germany
Phone +49 9131 776-0
info@iis.fraunhofer.de
www.iis.fraunhofer.de

Contact
Communication Systems Division
bc-info@iis.fraunhofer.de

# DRM Monitoring Receiver DT700

**www.iis.fraunhofer.de/dt700**

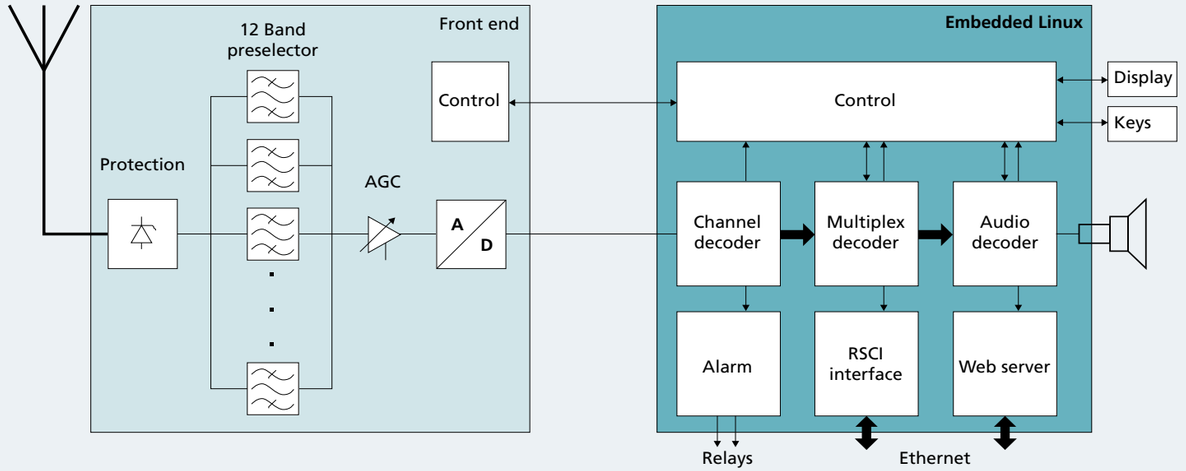
# Professional monitoring receiver for DRM

## DRM Monitoring Receiver DT700

- 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

## Applications

- General purpose DRM/AM/SSB reception (high performance front end)
- 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
- Monitoring networks
  - Full remote control via LAN
  - Logging of RSCI (Receiver Status and Control Interface)
  - 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 architecture of the DRM Monitoring Receiver DT700*

## Concept

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.
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.

## Basic model

- DRM monitoring receiver stand-alone unit for the monitoring of DRM signals
- 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, 46.0 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, 10.0, 18.0 and 20.0 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