



Fraunhofer Institut
Integrierte Schaltungen

Fraunhofer Software Radio

Professional Monitoring Receiver for DRM Signals



Professional Receiver for DRM

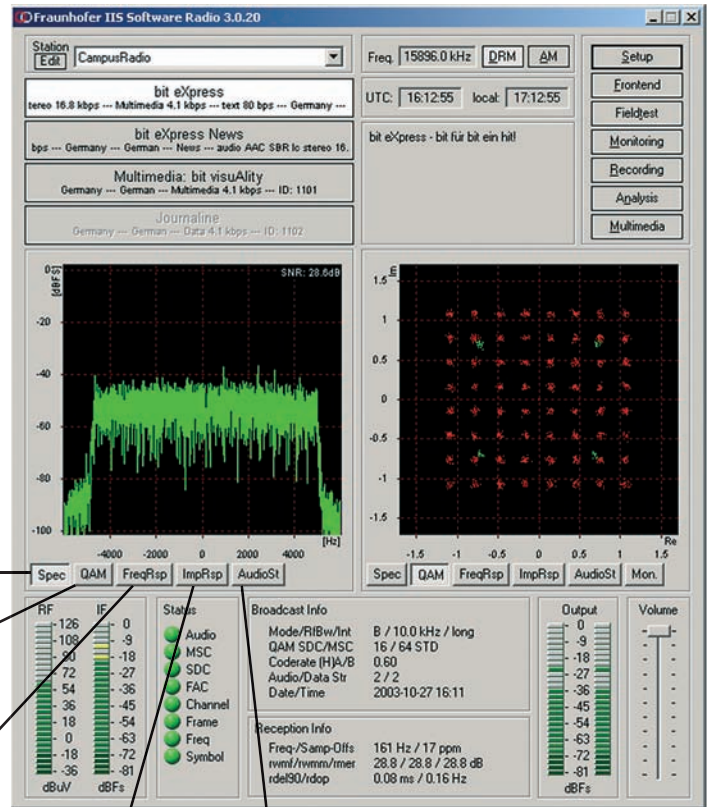
- Shipped within six weeks of ordering
- Can be used on state-of-the-art PC
- Used for field tests within DRM
- Easy to use
- Graphical user interface
- Multiple options available
- Supplied with professional front-end receiver AOR7030
- Uses audio decoder technology provided by CodingTechnologies



Spectrum

Constellation diagram

Frequency response



Impulse response

Audio status

Figure 1: Graphical user interface

Monitoring and Recording

- Continuous monitoring and logging of:
 - Field strength
 - Estimated signal-to-noise ratio
 - Audio quality
- Recording of DRM RF signal
- Recording of defined status signals
- Monitoring output via UDP compliant to ETSI TS 102 349 V1.2.1

Signal Analysis

- Inspection of input signal and processed signal at various stages in the decoder. The signal can be displayed in a plot or recorded on a file on harddisk
- Wide selection of decoder points, selection list for monitoring or recording

Graphical Display

- The graphical display provides different types of plots:
- Time-scrolled plots of a signal (similar to oscilloscope)
 - Y plot of single input data
 - XY plots of two-dimensional signals (e.g. QAM constellation)
 - Spectral view of the signal using FFT
 - Histogram plots
 - Band-power makers which can be used to calculate the C/N automatically

System Requirements

Windows 2000, Windows XP

AT-compatible PC

- 500 MHz Intel Pentium processor (or equivalent) for versions up to 4.0.26
- 600 MHz Intel Pentium processor (or equivalent) for versions 4.0.30 and above
- 64 MB RAM
- 50 MB free disk space
- 16-bit SoundBlaster (or compatible) soundcard that supports full duplex at 48 kHz sampling rate for input and output. The input must be without AGC (Automatic Gain Control). "Creative SoundBlaster Live" or "Creative SoundBlaster MP3+" (USB) recommended
- One USB connector or one PCMCIA type II slot or one printer port (IEEE 1284) or one serial port/EIA232, connector DB25) for hardware lock (dongle)

LAN network connection
(for client/server options)

AOR7030 Features

- Frequency coverage 0-32 MHz
- Mode reception: USB, LSB, CW, AM, synchronous AM, NFM, DATA
- Advanced IP3 greater than +35 dBm
- Very high dynamic range
- >100 dB in AM mode with 7 kHz filter
- >105 dB in SSB mode with 2.2 kHz filter
- >110 dB in CW mode with 500 Hz filter
- Seamless tuning using single loop DDS, no tuning „plops“ at regular intervals
- TCXO frequency standard fitted
- Variable bandwidth synchronous detector with selection of USB, LSB, DSB or anything in between
- Automatically calibrated and aligned filters
- Specially developed AGC release characteristic
- Passband tuning +/-5 kHz
- Audio pitch tune in CW & DATA modes
- DOT MATRIX rear illuminated LCD with plenty of on-screen information
- Assignable controls
- Re-configurable receiver, switch between several favorite set-ups
- Clock and timer facility
- Supplied with full function infrared remote control

Fraunhofer Software Radio Features

Front-end AOR 7030:

- Sensivity < -102 dBm for mode A, 64 QAM, coderate 0.6
- Sensivity < -108 dBm for mode B, 16 QAM, coderate 0.62
- Maximum input level > 5 dBm
- Output at 12 kHz IF
- Original AOR7030 functions still available (AM, SSB, ...)
- Remotely controllable via PC
- 4.5 and 5.0 kHz
- 9.0 and 10.0 kHz

Channel decoder:

- 4.5 and 5.0 kHz
- 9.0 and 10.0 kHz
- Mode A, B, C, D
- Automatic mode detection
- 4 and 16 QAM for SDC
- 16 and 64 QAM for MSC
- MLC with two iterations
- All code rates
- UEP
- Hierarchical modes
- Simulcast
- Complete FAC and SDC decoding
- BER calculation on data streams at any data rate
- All implemented features ETSI ES 201 980 V2.1.1 compliant
- Receiver status and control according to ETSI TS 102 349 V1.2.1

Audio decoder:

- MPEG4 AAC + SBR
- CELP + SBR
- HVXC + SBR

Customer Service

- Latest user manual freely available (please see our web page)
- Support via e-mail: fraunhofer-swr-support@iis.fraunhofer.de
- Newsletter via e-mail. For subscription please see our web page
- Software updates via e-mail

For further information visit our web page:

www.iis.fraunhofer.de/dab/products/drmreceiver/index.html

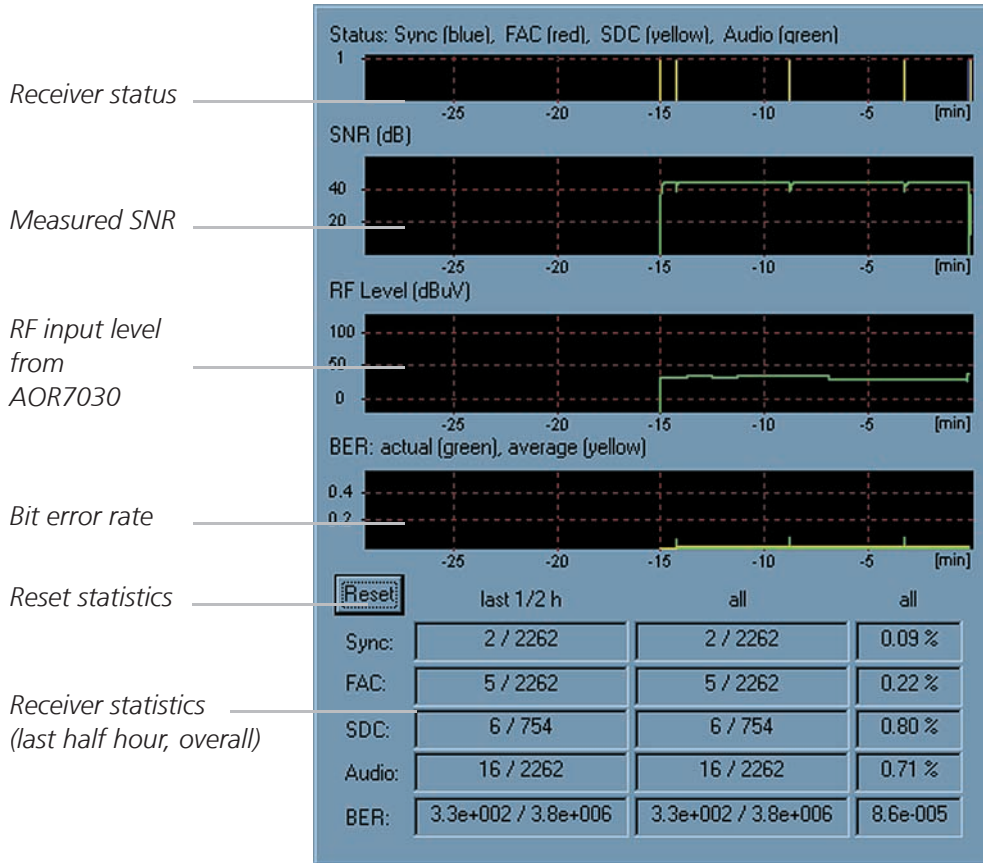


Figure 2: Monitoring View

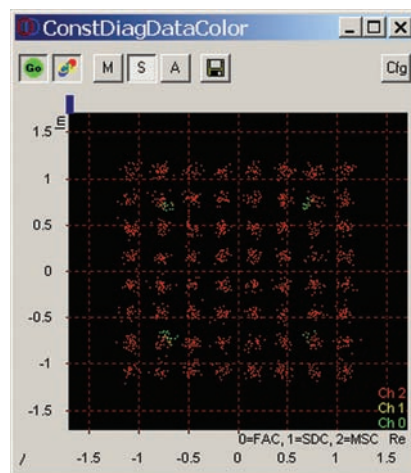


Figure 3: Analysis functions: constellation diagram

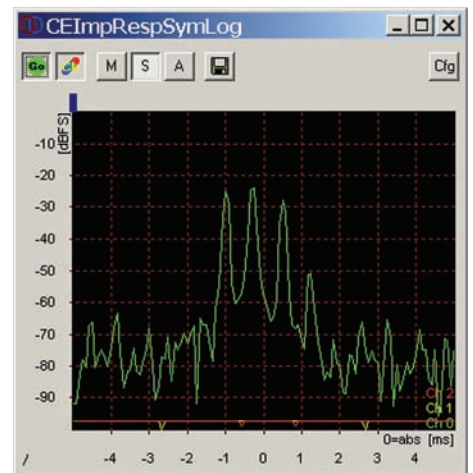


Figure 4: Analysis functions: impulse response

These are only two out of more than 50 possible plots

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