

**ONE-STOP SHOP FOR RADIO BROADCASTING**

Regardless of whether you want to manufacture transmission equipment or design a receiver: Fraunhofer IIS has the technologies you need.

Fraunhofer technologies underpin not only the basic digital radio standard, from audio compression to data services and signal rendering, but also form an integral part of many products that enabled the successful introduction of digital radio.

Many of the radio encoders used by broadcasters and made by different manufacturers are based on Fraunhofer's ContentServer technology. These highly compact solutions combine real-time audio encoding with the complete management of all standardized data services, and the production of the final digital broadcast signal.

On the receiving end, Fraunhofer technologies offer radio manufacturers a wide range of options. These extend from software defined radio solutions for DAB and DRM reception, to decoder components for audio and additional services such as Journaline® and EWF (Emergency Warning Functionality), through to complete PC-based radio solutions. Supporting our customers in implementing complete radio receivers is also an integral part of our service.

**WWW.IIS.FRAUNHOFER.DE****DIGITAL RADIO  
TECHNOLOGIES FOR THE ENTIRE  
BROADCAST CHAIN****Fraunhofer Institute  
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# DAB AND DRM TECHNOLOGIES FOR THE ENTIRE BROADCAST CHAIN

## SOFTWARE DEFINED RADIO SOLUTIONS

### FRAUNHOFER CONTENTSERVER™

The Fraunhofer ContentServer™ technology is a flexible and highly reliable professional broadcasting solution for the digital radio standards DAB and DRM. It combines internal audio encoding, support for external audio encoders, data service management and multiplex generation. A convenient user-friendly web interface enables configuration and system monitoring via remote access.

#### Always up to date

The ContentServer technology provides broadcasters with the latest standard upgrades and improvements, such as effortless configuration of the Emergency Warning Functionality (EWF), DAB 2.1 adjustments or xHE-AAC for DRM.

#### Perfect match

Whether a local broadcaster or international network provider, the system’s functionality complements your needs. Various versatile interfaces for audio and content provision allow straightforward integration into broadcasters’ and network providers’ environments.

#### Keeping you on air – at all times

The ContentServer technology has earned a worldwide reputation for the highest reliability and quality. This is further enhanced by powerful redundancy features (even linking remote sites).

### TEST AND MONITORING EQUIPMENT

Fraunhofer IIS offers professional DRM receivers and signal generators for broadcasters, network providers, regulatory bodies, and radio manufacturers:

#### DRM Test Equipment DT230

Professional test equipment for the recording and playback of complex baseband DRM signals in the AM bands available with optional channel simulator and real-time modulator. Simulations may be used for the evaluation of a DRM receiver’s performance namely its front-end and baseband decoding under controlled conditions.

Input/output frequency range: 100 kHz to 27.4 MHz.

#### DRM Monitoring Receiver DT700

Professional receiver for reception of DRM/AM/SSB signals in the AM bands and transmitter monitoring featuring a high-performance, direct-sampling RF front-end. Together with a 12-band fix-tuned preselector filter bank the DRM Monitoring Receiver DT700 guarantees an outstanding reception performance and low phase noise.

Input frequency range: 100 kHz to 27.4 MHz.

### BASEBAND DECODER

Radio receivers for car and home entertainment require flexible software defined radio solutions supporting multiple radio standards. Our software libraries provide this flexible software option for radio platforms.

Terminal manufacturers can efficiently enhance their radio platform with the full range of DAB and DRM feature set, optionally combined with FM (incl. RDS) and AM (incl. AMSS) decoding.

The libraries are available as C- or object code optimized for typical DSP cores and memory systems. With their flexible data interface, they can be easily combined with external applications. The API interface is adoptable to the customer’s framework.

#### DAB Baseband Decoder

The DAB software development supports the demodulation of the DAB/DAB+/T-DMB signal for DAB mode I to IV on state of the art SoC platforms.

#### DRM Baseband Decoder

The DRM software development supports the demodulation of the DRM signal for transmission mode A to E on state of the art SoC platforms.

### SERVICE LAYER DECODERS

#### Audio Codecs

The audio codecs HE-AAC and xHE-AAC are available for various operating systems and embedded platforms. HE-AAC is used in DAB+, while xHE-AAC is the mandatory codec for DRM and provides high quality audio for speech and music content even at very low bitrates.

#### Journaline

The text information service Journaline® is the digital radio equivalent to the teletext service on TV. Whether background information on the current program, news, or sports results – users can access the data any time at the radio set and free of charge.

#### MultimediaPlayer Radio App

The DAB/DRM MultimediaPlayer radio app allows the full operating potential of digital radio on smartphones, tablets and PCs. It combines service selection, the full set of data applications and stereo/surround audio playback. The user interface is adjustable to manufacturers’ visual style. The Professional Edition for broadcasters offers advanced statistics, EDI/MDI multiplex input and remote access via HTML5.