RFmondial RF-DCP – DCP Player for DRM / DAB broadcasts

1 Overview

RF-DCP is a professional software tool for playing pre-stored DCP files for DRM and DAB broadcasting applications.

Applications

The tool can be used for various applications:

- Usage in DAB and DRM digital broadcasting environments
- Testing of modulators
- Testing of receivers together with an exciter with DCP input
- Verification of standard compliance regarding audio decoding, service decoding, or signalling

Specification

- RF-DCP is a player for pre-stored DCP files, which are send standard-compliant to one or more devices over DCP/UDP
- Files can be selected, played, stopped, and looped
- All important options (Robustness mode, spectrum occupancy,SDC and MSC modes and protection levels, data and audio services, language) of selected file graphically depicted
- Intuitive and easy file selection using text-based as well as pre-defined filtering
- Output to DCP/UDP via definable IP-address and port
- Unicast and multicast possibility
- The RF-DCP player complies to the following standards:
  ETSI TS 102 821: "Digital Radio Mondiale (DRM); Distribution and Communications Protocol (DCP)".
  ETSI TS 102 820: "Digital Radio Mondiale (DRM); Multiplex Distribution Interface (MDI)".
  ETSI TS 102 693: Digital Audio Broadcasting (DAB); Encapsulation of DAB Interfaces (EDI)

2 DCP files

RF-DCP can be delivered with a rich set of pre-stored DCP files, which represent a comprehensive set of the respective standard.

- MDI-files are up to date, i.e. they are conform to the latest DRM system specification ETSI ES 201 980 V4.1.1 (2014-01). This includes files with the new audio encoder xHE-AAC and all other necessary files to allow proper receiver development
- A very extensive set of possible configurations of the respective standard results in more than 400 pre-stored files

DRM DCP files

- For the DRM standard, variations of the following parameters are available:

DRM30:

- Robustness modes A, B, C, D
- Spectrum occupancy
  4.5, 5, 9, 10, 18, 20 kHz
- MSC modes 16 QAM, 64 QAM, and hierarchical (HMmix, HMsym)
- SDC modes 4 QAM and 16 QAM
- Interleaver length 0.4s and 2s
- EEP and UEP with various protection ratios / code rates

DRM+:

- Robustness mode E
- Spectrum occupancy 96 kHz
- MSC modes 4 and 16 QAM
- SDC modes 4 QAM, CR 0.5 & 0.25
- Interleaver length 0.6s
- EEP and UEP with various protection ratios / code rates

Services and signalling

Variations of different services and signaling are available, including

- Encoded audio with xHE, AAC, CELP, HVXC at different sampling rates, mono/parametric stereo/stereo/5.1/7.1, SBR
- Encoded services TextMessages, Journaline, MOT Slideshow
- Encoded signalling: Reconfiguration, Emergency Warning Feature
- Inclusion of Unicode, e.g. Korean characters for TextMessages and Journaline applications.

Enhancement

- User-specific files can be added to the system. They can be generated e.g. with an RFmondial ContentServer or any other standard compliant multiplexer

Compatibility

- RF-DCP is compatible to all other DCP based applications
- Together with the RFmondial DRM DAB Multimediaplayer Professional it can be used as a tool to verify receiver implementations as well as broadcast multiplex configurations. Together with RFmondial LV1e DRM Exciter it can be used as a DRM signal generator for laboratory analysis and testing

3 Option: Seamless Alternative Frequency Signalling (AFS)

The RF-DCP tool can be extended with an option to verify seamless receiver switching between DRM, DAB, AM and FM broadcasts. The following capability is implemented in the tool:

- Synchronous playout of MDI, EDI and audio streams
- Configurable delay per stream
- Provision of test files with fix AFS information (i.e. frequency, service name)
- The output must be fed to respective DAB, DRM, AM and FM transmitters or signal generators.

4 Availability

Versions

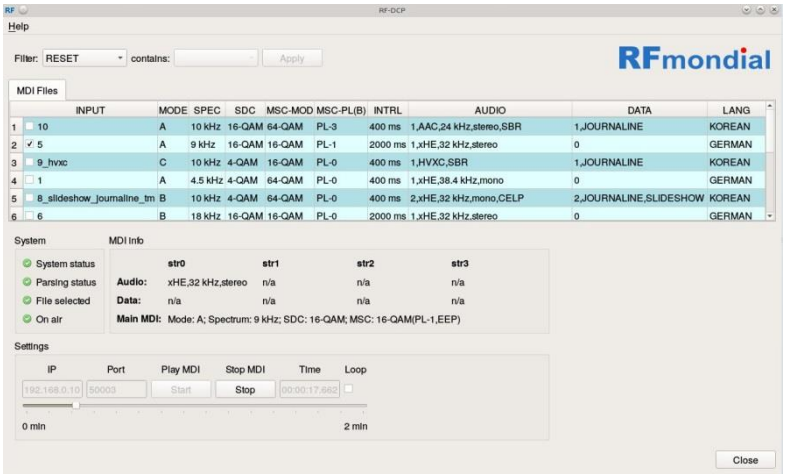
- Either DRM or DAB or AFS version
- Either with DCP files or without
- Copy-protection: USB dongle

Operating system

Presently, the RFmondial RF-DCP is obtainable for the following platforms:

- Linux
- Windows

Support for other platforms on request.



5 Ordering information

RF-DCP-DRM:
DRM player

RF-DCP-DRMNF:
DRM player without files

RF-DCP-DAB:
DAB player

RF-DCP-DABNF:
DAB player without files

RF-DCP-AFS:
Seamless Alternative Frequency signalling version (only includes synchronous files for AFS testing)