ODR-mmbTools – Open-Source Software-Defined DAB+ Transmitter

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http://opendigitalradio.org

FOSDEM’15
https://fosdem.org

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About the speaker
Matthias P. Brändli

Lead developer of the ODR-mmbTools
Studied in Lausanne
Member of student radio station
• ODR-DabMux
• ODR-DabMod
• fdk-aac-dabplus
• toolame-dab
• Scripts, examples, monitoring, documentation

Everything on http://opendigitalradio.org and GitHub.
ODR-mmbTools
History

It all started at Communications Research Centre Canada

2002  First DAB developments at CRC
2009  CRC-DABMUX open-source
       Availability of CRC-DABPLUS encoder
2010  CRC-DABMOD open-source
2012  Tools used in production in DK
       mpb mmbtools-SFN development
2013  fdk-aac goes open-source
2014  MOT Slideshow by CSP.it
       CRC involvement stops, development taken over by ODR
ODR-mmbTools
Single-Frequency Network

Multiplex operator

Multiplexer
ODR-DabMux
Includes timestamps into ETI stream

IP Network

Modulator
ODR-DabMod

USRP

10MHz & 1PPS

Time standard

Transmitter site #1

Several km

Transmitter site #2

ODR-mmbTools
ODR-mmbTools

Single-Frequency Network on the Scope
ODR-mmbTools

ARM platform

Odroid U3, Source: Hardkernel website
Monitoring Buffers
Monitoring
Encoder Audio Level

Contribution sub_r74 audio level (peak) - by week

-90.00
-80.00
-70.00
-60.00
-50.00
-40.00
-30.00
-20.00
-10.00

peak audio level during last second

20 21 22 23 24 25 26 27

Cur: -90.00  Min: -90.00  Avg: -58.59  Max: -30.00m
Left channel audio level

Cur: -90.00  Min: -90.00  Avg: -58.01  Max: 0.00
Right channel audio level

Last update: Fri Jun 27 22:10:02 2014

Munin 2.0.6-4+deb7u2
Conclusions

Development and testing community getting bigger

Tools used in production environment
Questions?

http://opendigitalradio.org