MULTISTANDARD RECEIVERS WITH DRM

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Prerequisites (1)
Available ICs?

From Frontier Silicon there is

Kino 4 and Kino 3 IC (besides complete modules)

Features

- fully integrated single chip radio receiver SoC containing RF tuner, baseband, application processor, audio decoder and DAC functionality
- RF-bands: LW/MW/SW, FM, DAB-III and DAB-L.
- Supports all major digital radio broadcast standards (DAB/DAB+/DMB, HD, DRM)
- http://www.frontier-silicon.com/sites/default/files/Kino4_PB.pdf

Prerequisites (2)
Available ICs?

From ST Microelectronics there is

STA610 + STA662 Chipset

Features

- 2 IC solution
- Quad-band: AM(LW/MW/SW) Band, Band II-III, L-Band
- Dual AM/FM reception with digital IF Processing
- Digital radio support for dual-channel HD-Radio™ and DAB/DRM reception through external coprocessor
- Integrated phase antenna diversity processing for FM
- http://www.st.com/st-web-ui/static/active/en/resource/technical/document/data_brief/DM00152550.pdf

Prerequisites (3)
Available ICs?

From NXP there is

TEF664x + SAF360x family

Features

- HD Radio / DAB / DAB+ / T-DMB / DRM solution (prepared for DRM+)
- Quad-band: AM(LW/MW/SW) Band, Band II-III, L-Band
- Dual channel DAB & AM/FM reception with digital IF Processing
- DAB<->FM blending
- antenna diversity
- http://www.nxp.com/products/automotive-products/media-and-audio-processing/multi-standard-digital-radio/digital-radio-and-processing-system-on-chip:SAF3600EL

Prerequisites (4a)
Available SW?

New trend is Software Defined/Based Receiver (SDR/SBR)

Example: Continental

Features

- generic HW platform (like in tabletts & smart phones)
- multiple RF front-ends can be connected

- http://continental-software-defined-radio.com/#

Prerequisites (4b)
Advantages of SDR/SBR

- same HW can be flexibly adjusted to local market needs
- tuners can be time multiplexed for background tasks or diversity reception
- exchange/mirroring of functions with smart phone (e.g.MySpin, Mirrorlink)
- SW upgrade for new systems/decoders in principle possible (e.g.DRM+!)

Next generation radio
“Radio as an App”?

- DAB radio app on LG Stylus 2 recently published
- Demonstrates “service following” between DAB and Internet streaming
- Tuner API to control DAB-IC
- Promises to save power compared to streaming

- General solution:
  - Tuner IC instead of DAB chip
  - Open Tuner API just for tuning
  - Full channel&source decoding on one of the cores (SBR)
  - Only suited for DRM+ (antenna)

- Source: http://worlddabeureka.org/2016/03/24/double-dab-breakthrough/

Summary

- Limited market penetration with DRM receivers has no technical reasons
- DRM could be added on most popular receiver platforms
- with limited cost (can be reduced to licensing)
- and with limited effort (just HMI needs to be adjusted to serve the API)
- Main reasons are the availability and attractiveness of services
- The case of India shows that a political decision can create some demand

- Availability of relevant content is the key to
- trigger demand from the automotive industry
- raise interest for listeners
- High receiver (add-on) prices can cool down the demand
- Is it really worth the benefit?
- Originally promised 5$ goal (as add-on “material” price) is now in near reach

Outlook for DRM+

- Situation in Europe difficult for DRM+
- Most countries have decided for DAB as main distribution channel
- Local radio station are commercially to weak to raise interest
- Steps required to pave the road
- A relevant country like India for DRM30 needs to decide for DRM+ as its major broadcast distribution channel
- This could raise demand for portable and car receivers so that production starts
- Most helpful would be a political decision that all receivers had to support the new system
- Smart phones + tablets with integrated tuner chip could jump on the train with a proper and inexpensive “Receiver App” and spread into other countries, too
- However, at the end the content offered has to attract the younger generation from Youtube, Facebook &Co.