# DIGITAL RADIO IN EUROPE

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EBU TECHNOLOGY & INNOVATION

3RD JULY 2014

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OPERATING EUROVISION AND EURORADIO

## MANY HATS

**European Broadcasting Union**
**Media Technology&Innovation**
**Senior Project Manager**

**RadioDNS**
**Secretary**

**WorldDMB**
**TC Vice-chair**

**OpenDigitalRadio.org**
**President**

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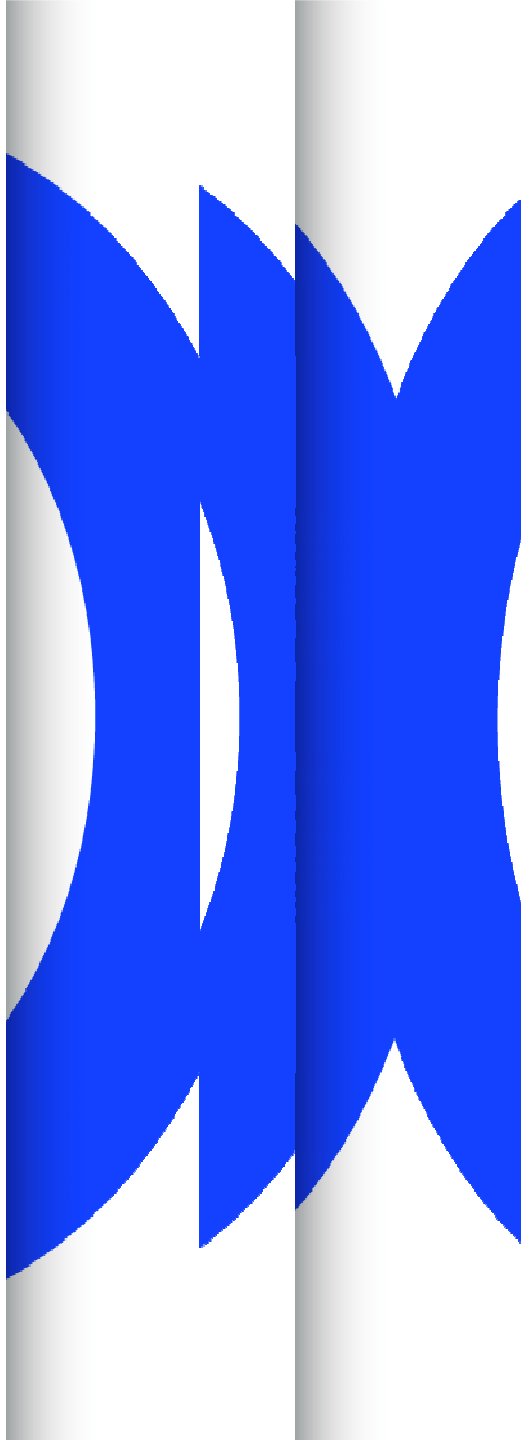
# DIGITAL RADIO IN EUROPE



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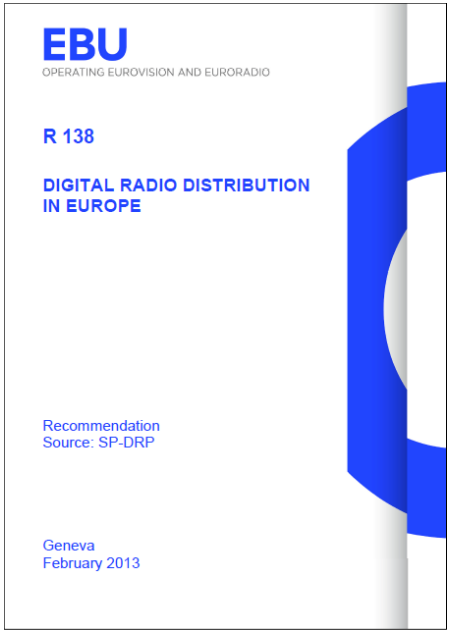
# EBU R138 RECOMMENDATION

- Objective: Set the standards for terrestrial radio in Europe

Recommends:

- DAB+ for immediate deployment. VHF Band III
- DRM when DAB+ is not applicable. AM bands, Band II
- Enhanced features with text, images, program guides
- Hybrid Services (RadioDNS) alongside broadcast
- A coordinated strategy for FM switchover can be beneficial



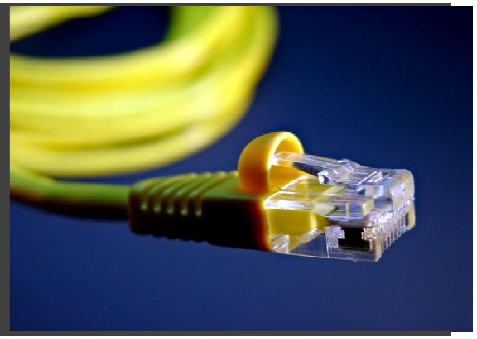

https://tech.ebu.ch/docs/r/r138.pdf

# HYBRID RADIO APPROACH

Broadcast works for the mass market
Low Cost, Ubiquitous, Free

+

The Internet adds value
Enhanced content,
Personalisation & Transactions



# BROADCAST + IP = HYBRID RADIO

Radio DNS
HYBRID RADIO


**Radio VIS**
Visual Radio

**Radio TAG**
Bookmarking and Interaction

**Radio EPG**
Station Information and Service Following

## FACTORS FOR DIGITAL RADIO SUCCESS

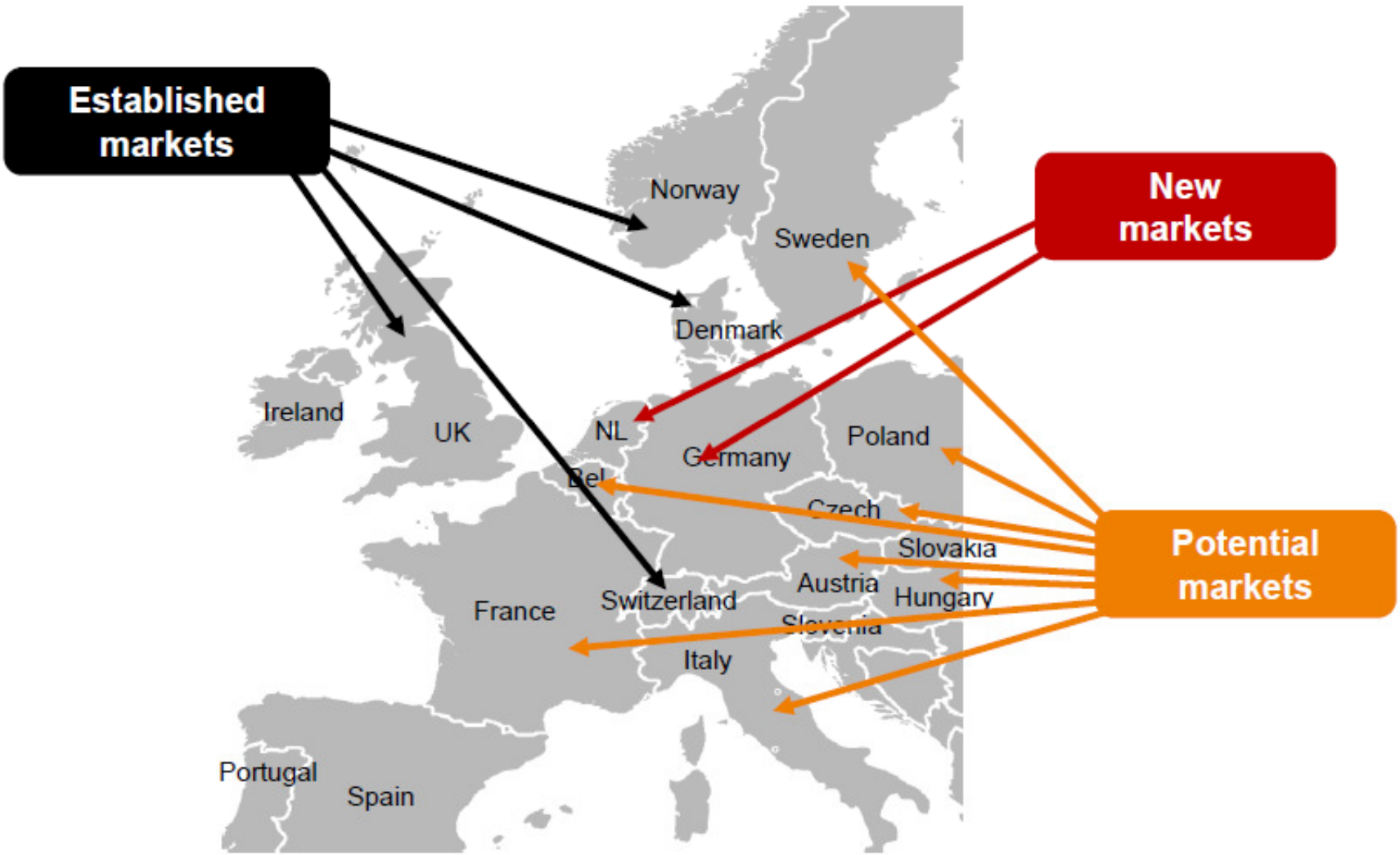
- **Variety of content**
  Broadcasters must put programs on air

- **Good network coverage**
  As good or better than FM

- **Promotion, Marketing and communication**
  Including retailers, people must be informed

  Must have receivers available in shops

# DAB+ IN EUROPE

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Source: WorldDMB Executive Summary 06/2014

# EBU SMART RADIO INITIATIVE (EX-EUROCHIP)

- Campain for integration of broadcast radio in devices
- Recently backed by World Broadcasting Union (WBU)
- Memorandum Of Understanding (MoU) signed by broadcasters
- ARD, APR, BBC, Czech Radio, Deutschland Radio, EBU, Fun Radio, Klassik Radio, MTG, Die Neue Welle, NRK, NPO, P4, Polskie Radio, RTBF, Regiocast, RTL, RAI, Sky Radio, SRG, Sveriges Radio

# DIGITAL RADIO RECEIVERS

## RECEIVERS

Home


Car


Mobile


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## UNIVERSAL SMARTPHONE RADIO PROJECT

*Make broadcast look like an app*

Hybrid Radio app

Radio abstraction layer

Broadcast Radio Tuner | Cellular Modem

DAB | FM/HD | DRM | IP

- Abstracted APIs
- 'App-friendly'
  - Scan
  - Services List
  - Event Information

# LOCAL DAB+ RADIO BROADCASTING

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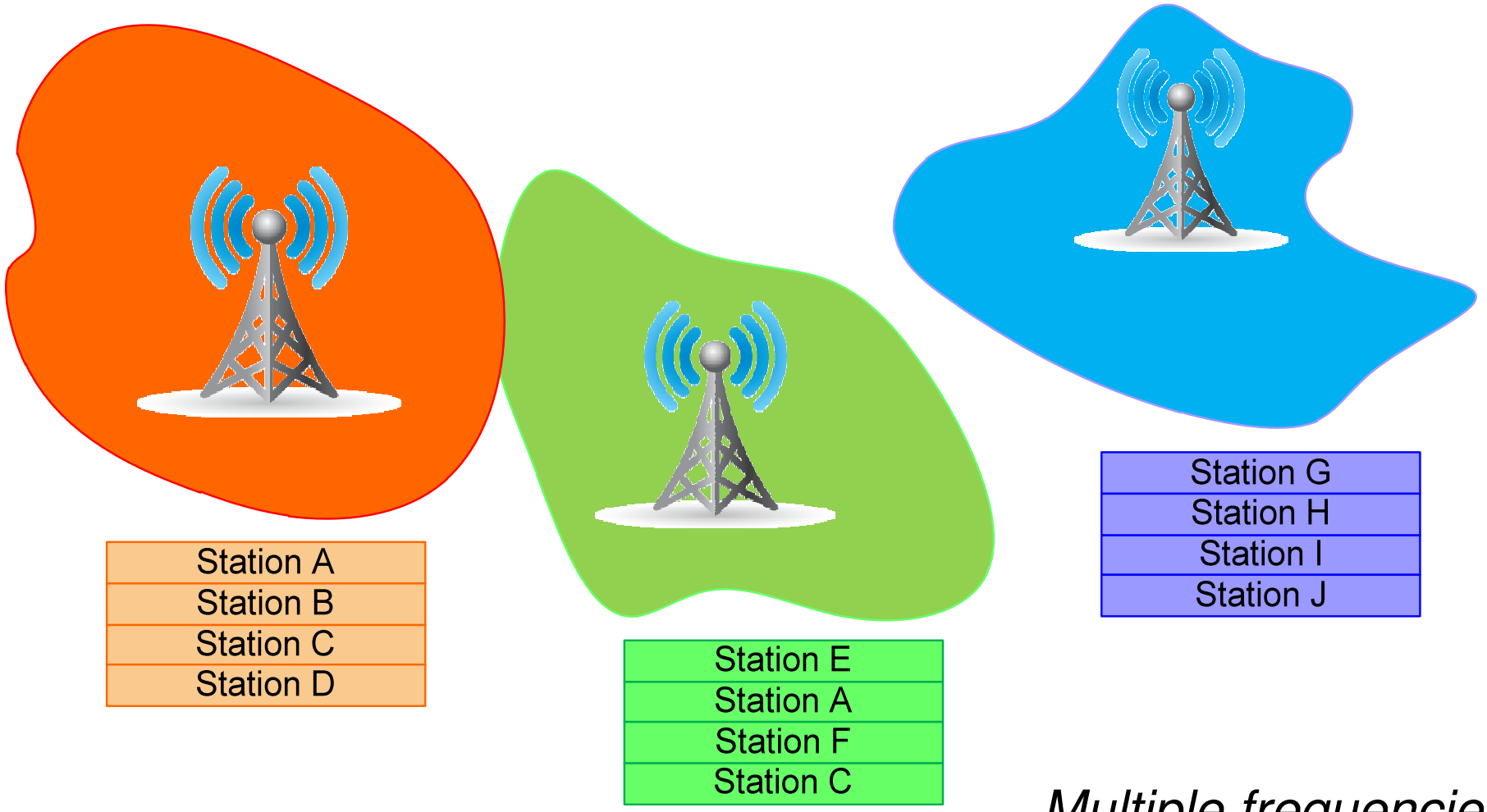
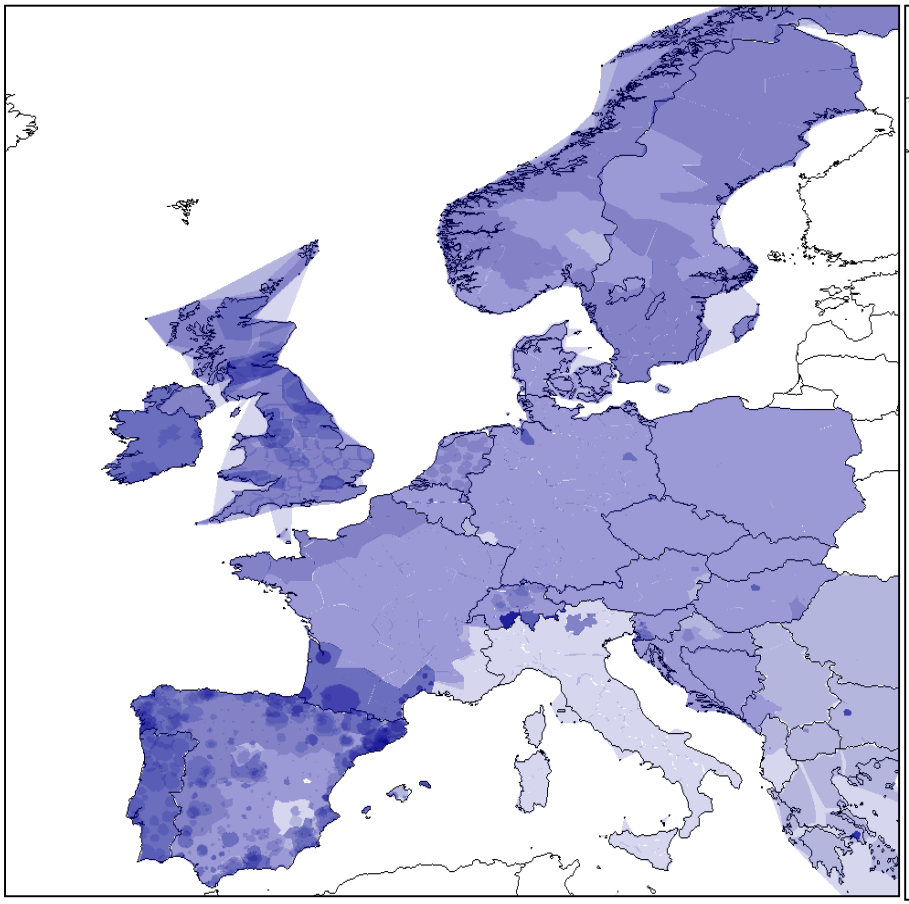
# Local urban islands (≠ regional)

DAB Islands Scenario

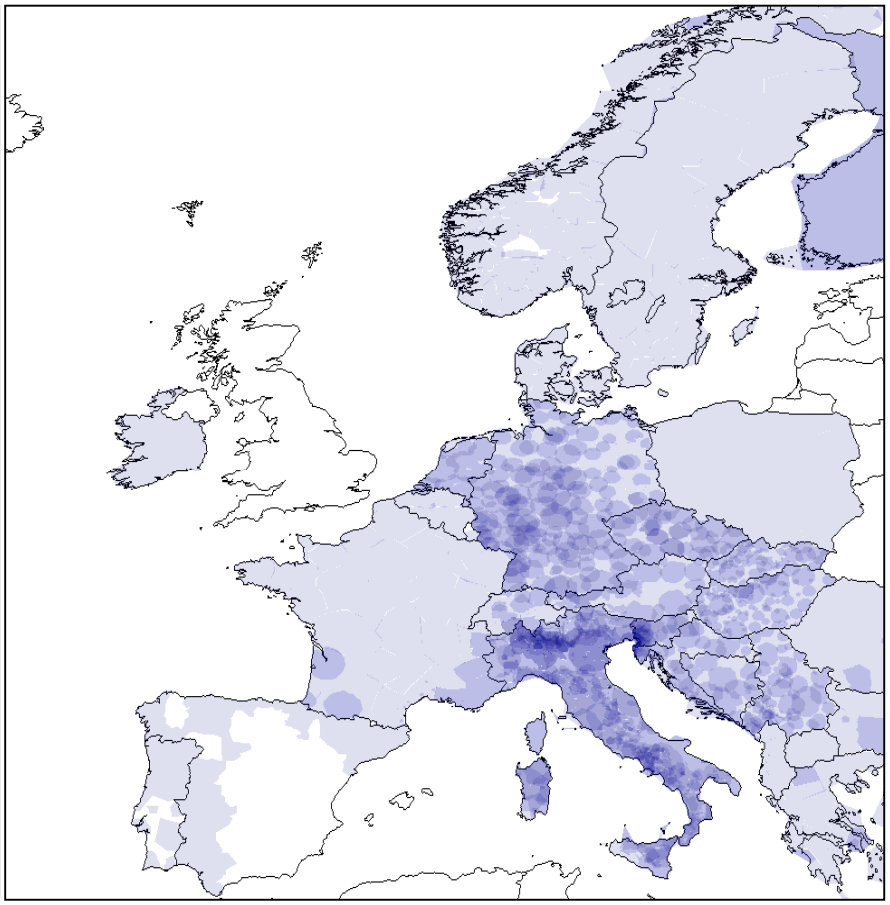



*Multiple frequencies*

# VHF BAND III SPECTRUM IN EUROPE



DAB coverages



DVB-T coverages = 4xDAB

Average: space for 6-8 DAB multiplexes

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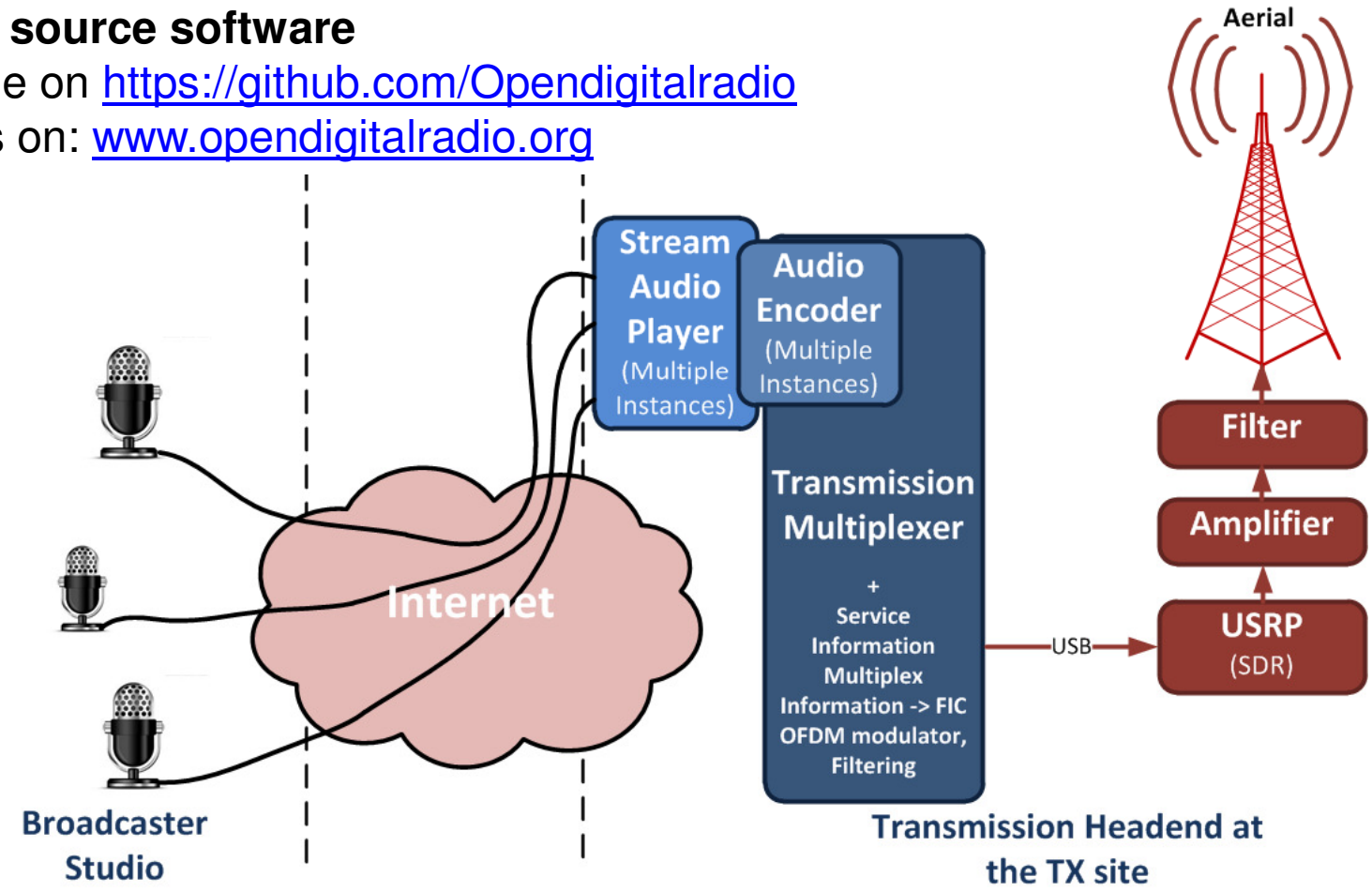
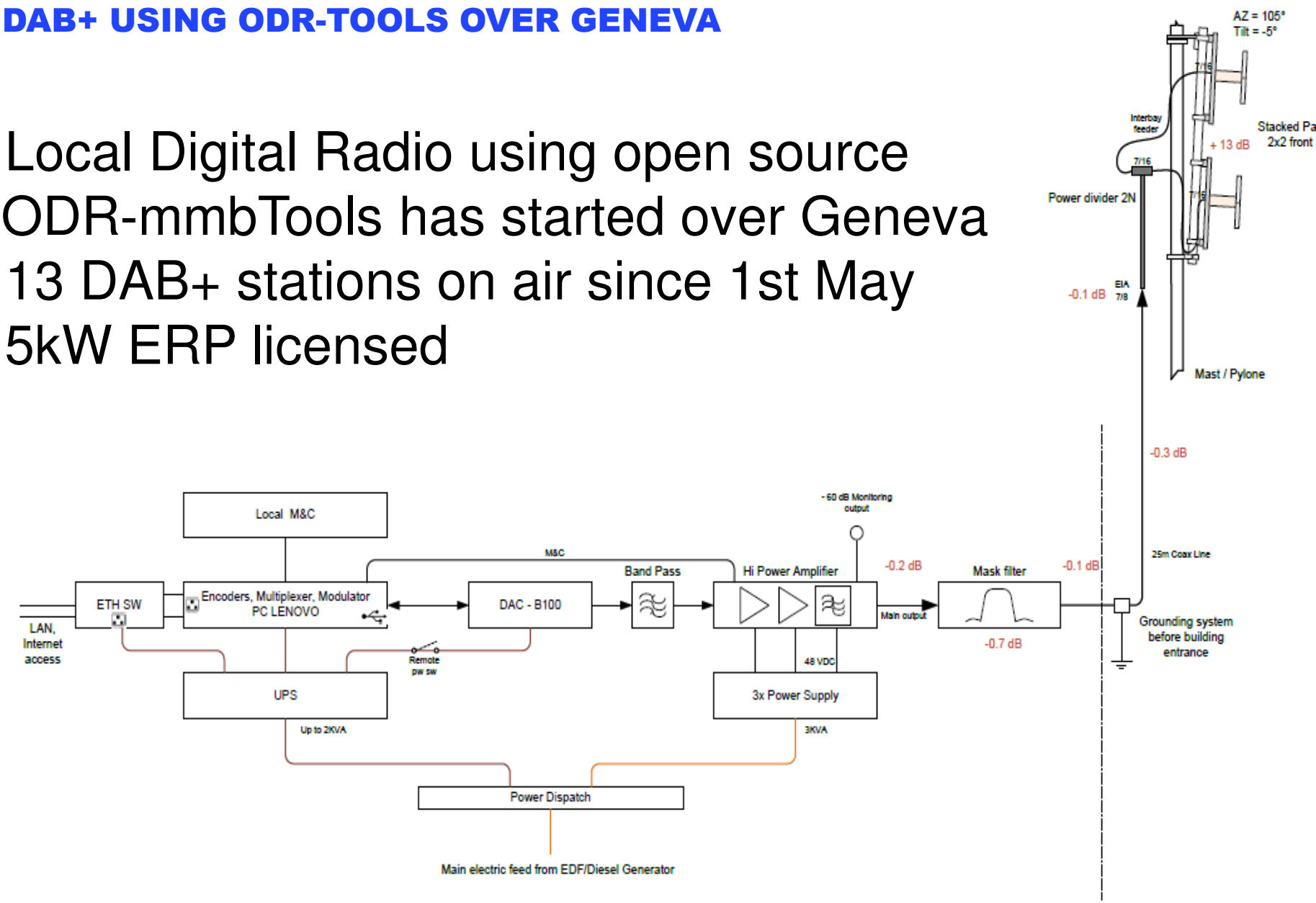
# LOW COST ALL-IN-ONE AND ON SITE DAB+ SOLUTION

**Use Internet contribution**
**Generic hardware: PC + USRP**
**Free/Open source software**
Source code on https://github.com/Opendigitalradio
Instructions on: www.opendigitalradio.org



# DAB+ USING ODR-TOOLS OVER GENEVA

- Local Digital Radio using open source ODR-mmbTools has started over Geneva
- 13 DAB+ stations on air since 1st May
- 5kW ERP licensed



# OTHER LOCAL DAB+ DEPLOYMENTS, TRIALS

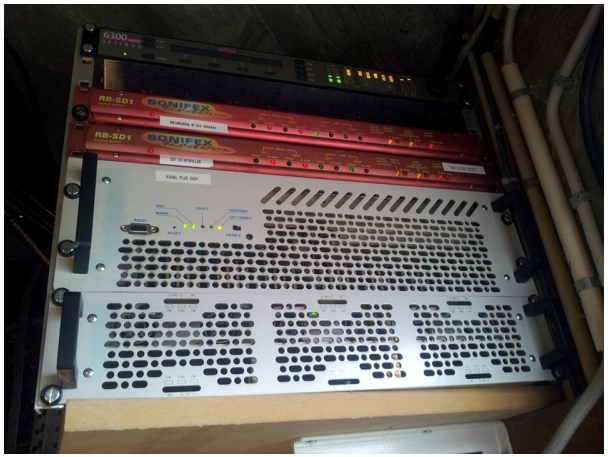
Denmark: Niva, Kanal Plus, since 2011

UK: Brighton, Trial by OFCOM in 2013

Germany: Kaiserslautern trial

France: Marseille, Association de Diffusion Numérique, just started

Interests in Belgium, Italy, Austria, Norway, Australia, …



## DIFFICULTIES

**Transmission sites acquisition**

- Radiation limits: 6V/m in Switzerland for near houses

**Transmitter site planning and construction is not easy, requires expertise and experience**

**Be careful with high power amplification, expensive**

**Coordination of all stakeholders in the project**

- New concept, have all of them to understand, agree
- A lot of work
- Different level of service as for normal DAB networks


**Free software = Free as in freedom of speech, not free beer !**

**THANK YOU FOR YOUR ATTENTION**

**Digital Radio Summit: 11 Feb 2015**
**Digital Radio week: 9-12 Feb 2015**
**RadioHack 9-10 Feb 2015**

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