

Why harmonization of digital dividend spectrum important?

Radiocommunication Bureau



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Agenda

- Lessons from History
- Digital Dividend – A national decision?
- International aspects to be considered
 - Case study – French and neighbouring countries
- Conclusions



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3 Lessons from history

- Three great consumer revolutions of the past 20 years
 - World Wide Web – 1.5 billion connected machines
 - Personal Computer = several billion
 - The GSM mobile phone – 4 billion.

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The Questions

- Why have they become global?
- What do they have in common?

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Answers

- A common technical standard
- In case of GSM, harmonized frequency bands

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GSM

- Engagement by governments with the long term direction of national mobile infrastructures and a willingness to do this at the European level.
- This led to the statement from the 1986 European Council. This political support gave the mandate to the European Commission to issue the GSM Directive..

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GSM (2)

- Whilst this might be seen as governments imposing a technology on the market, the actual mechanism was that governments' offers new spectrum "with strings attached" to support a public good of a harmonised system across Europe.

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Digital Dividend - A national decision?

- To take the decision on Digital Dividend at the national level, it is important to take measures at the international level:
 - Agree on a common allocation to the mobile service as part of the digital dividend
 - Coordinate frequencies and technical characteristics of national television assignments in the band allocated to broadcasting, to enable the digital dividend for broadcasting
 - Harmonize the timing of transition from analogue to digital
 - Resolve any interference problems

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Western Europe - Case study

- Needed to coordinate between Western European countries: Belgium, France, Germany, Ireland, Luxembourg, Switzerland, The Netherlands and UK
- Bilateral and multi lateral meetings
- A dedicated group WEDDIP established in September 2009

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WEDDIP (Western Europe Digital Dividend Implementation Platform)

- Covered strategic topics related to the implementation of the Digital Dividend (DD) in the scope of frequency management related issues.
- Discussions on these issues proved beneficial for all Administrations involved in bilateral/multilateral negotiations processes.

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WEDDIP objectives

- Discuss issues from a strategic perspective;
- Exchange views on possible solutions for network requirements;
- Sharing plans and ideas on possible approaches for identifying (additional and/or alternative) resources);

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WEDDIP Objectives (2)

- Discuss alternative solutions/approaches for the DD implementation;
- Discuss background for chosen solutions;
- Identify overlapping activities and stumbling blocks;
- Facilitate the negotiation processes (with the aim to advise negotiation teams on relevant topics);

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Re-planning of broadcasting services

- Modifications of initial requirements of allotment and assignment formulated for the establishment of the Plan.
- Minimizing the interference potential on neighbouring co-channel GE06 Plan entries with lower power transmitters instead of planning one.



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Re-planning of Broadcasting Services (2)

- Restricting transmit power in certain directions for broadcasting networks implemented in conformity with the GE06 Plan entries or/and changes in transmitter characteristics (e.r.p., antenna diagram, tilt, etc.) of planned and implemented broadcasting networks interfering towards new requirements.



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Re-planning of Broadcasting Services (3)

- Accepting that modifications of GE-06 plan entries involve additional investment costs.

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Planning principles – Mobile services

- European administrations practice the recommendations given in the CEPT Report 29 “Guideline on cross border coordination issues between mobile services in one country and broadcasting services in another country”.

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Planning principles – Mobile services (2)

- This report provides reference field strength trigger values for coordination. The values are derived from the GE06 Agreement.
- <http://www.erodocdb.dk/Docs/doc98/official/pdf/CEPTREP029.PDF>



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Digital Dividend in the Future

- UHF Band IV/V
- Europe by 2015 (Africa, Middle East)
 - 40 channels (*8 MHz) Broadcast service (470-790 MHz)
 - 9 channels (*8 MHz) Mobile (IMT) (790-862 MHz)
- America, several Asia Pacific counties for WRC-2016
 - 28 Channels (*8 MHz) Broadcast Service (470-694 MHz)
 - 12+9 Channels (*8MHz) Mobile (IMT) (694-862 MHz)
- Growing demand for 3G/4G mobile downlink capacity will place further demands on spectrum



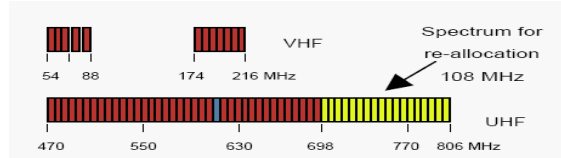
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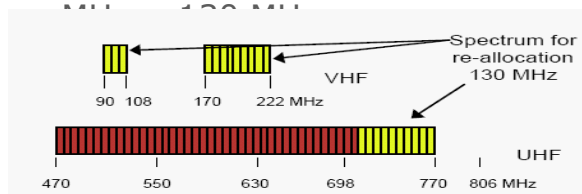
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Examples

- **USA:** UHF $18 \times 6 \text{ MHz} = 108 \text{ MHz}$



- **Japan:** 10 UHF channels, 60 MHz; VHF, 70 MHz



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Examples

- **Germany:**
 - spectrum auctioned: 358.8 MHz
 - $6 \times (2 \times 5) = 60 \text{ MHz}$ spectrum in the 800 MHz band
 - 298.8 MHz in 1.8, 2.0, 2.6 GHz bands
 - 3.57 billion € for bands in 800 MHz (81.5% for 60 MHz)
 - 0.81 billion € for the rest (18,5% for 298,8 MHz)
- **Sweden**
 - Auction ended in March 2011
 - $6 \times (2 \times 5) = 60 \text{ MHz}$ spectrum in the 800 MHz band
 - 325.000.000 US\$
 - License holders are prohibited from causing interference to the reception of terrestrial TV in the 470-790 MHz range

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Issues to consider

- Interference
 - 1. LTE
 - 2. Cognitive Radio/ White Spaces
 - 3. Power Line Telecommunications
- Developing DTT(HD, 3D) requires spectrum availability
- Portable DVB-T reception
- Regulators should define protection conditions
- Consider how the citizen will be better served
- Regional and local television services
- Field trials for deciding on the protection requirements



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Thank you for your attention!



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