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What does the Digital Dividend mean?

- Since digital television needs less spectrum than analogue television for roof-top reception some spectrum may be released after the analogue TV services have been closed down.
- This release of spectrum is usually referred to as “the digital dividend” (DD).

How to use the released spectrum?

Opinion 1

- Increasing the number of digital terrestrial broadcasting services (e.g. designed for reception on roof-top antennas or set-top antennas);
- Improving the coverage of digital TV transmissions enhancing indoor, portable and mobile reception;
- Digital TV services designed for reception on hand-held receivers (e.g. DVB-H);
- Enhancing sound and picture quality, in particular High Definition TV;
- Non-broadcasting services, such as WiMAX, IMT, etc.

How to use the released spectrum?

Opinion 2

- A fair and well-balanced reallocation of the spectrum between the mobile broadband, broadcasting and ICT industries will ensure that society reaps the full social and economic benefits of the Digital Dividend
- The Digital Dividend spectrum is located between 200 MHz and 1GHz. This spectrum band offers an excellent balance between transmission capacity and distance coverage
- If just 25%, or around 100MHz, of the spectrum currently used by analogue TV (470 - 862 MHz) was re-allocated to mobile communications, the mobile industry could dramatically speed up the rollout of broadband communications and increase coverage

Who told it ?

- Opinion 1
  - EBU
- Opinion 2
  - GSM Association

Use of Digital Dividend

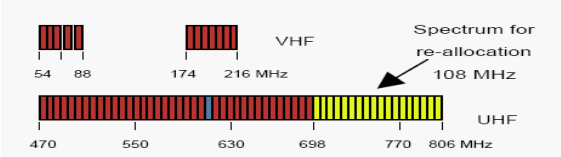
- Broadcasting services (e.g. provision of more programs, high definition, 3D or mobile television)
- Other services, such as the mobile service, in a frequency band which could be shared with broadcasting (e.g. short range devices) or in a distinct, harmonized allocation (e.g. IMT); emergency services, etc.

Digital Dividend in the Future

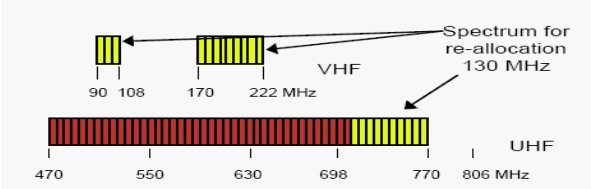
- UHF Band IV/V
- Europe by 2015 (Africa, Middle East)
  - 40 channels (*8 MHz) Broadcast service (470-790 MHz)
  - 9 channels (*8 MHz) Mobile (IMT) (790-862 MHz)
- America, several Asia Pacific counties for WRC-2016
  - 28 Channels (*8 MHz) Broadcast Service (470-694 MHz)
  - *12*+9 Channels (*8MHz)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

Examples

- **USA**: UHF 18 X 6 MHz = 108 MHz



- **Japan:** 10 UHF channels, 60 MHz; VHF, 70 MHz = 130 MHz



Examples

- Germany:
  - spectrum auctioned: 358.8 MHz
    - 6*(2*5)= 60 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*(2*5)= 60 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

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

Broadcast vs. broadband (EBU)

	Terrestrial TV	Mobile broadband
+	• universal coverage • any reception mode • guaranteed, predictable quality • cost-efficient delivery to large audiences (independent of the number of simultaneous users) • every user has access to the total capacity of the network	• bi directional • mobile • potentially unlimited choice of services • well suited to serve small audiences • growing population of user equipment • IP
-	• one-way, no return channel • the offer is limited by the platform capacity (no niche channels) • no access to IP-only devices • delivery to mobile environment	• limited coverage (with sufficient quality) • best effort QoS • cost proportional to the number of users, not suitable for large audiences • total capacity is shared between users

Terrestrial TV and mobile broadband are complementary!

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