

EBU view



How should we use the digital dividend?

Long-term public interest
versus
short-term profit

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How should we use the digital dividend?

Radio spectrum is a scarce natural resource, and all users should support efficient use of it in all frequency bands. European broadcasters have shown commitment to efficiency by driving forward the digital switch-over; they are investing heavily in digital radio and television technology and programming. Where spectrum is released in the UHF bands thanks to the broadcasters' investment in the digital switch-over, Member States should use the potential of the digital dividend and foster the introduction of new services. New services will also include enhanced and new broadcasting services (e.g. HDTV and mobile TV) tailored to the evolving needs and legitimate expectations of citizens.

The EBU's key concerns:

- **Switch-over policies should respect consumer rights and interest, and their investment in technology**
- **Use of the digital dividend has to reflect national media and audiovisual policies, and not be driven solely by a market approach**
- **The size of the digital dividend, and when it will be available will differ in EU Member States; a harmonised approach at European level would bring with it new obstacles to the smooth rollout of the DTT platform (cost, delays, confusion for consumers . . .)**
- **Interference is a problem, in particular between broadcasting and two-way mobile services**
- **Digital terrestrial television can be efficiently delivered only in the UHF band 470-862 MHz**
- **Spectrum policy has to be dynamic, and should enable broadcasters to develop new services**

Why is the EBU concerned?

- Switch-over policies should **respect the rights and legitimate interests of the consumers**. Consumers will invest in digital equipment only if the switch-over is accompanied by an appealing offer of additional and enhanced (in particular free-to-air) services. Consumers have already invested in HDTV sets, and they will expect High Definition programmes to be transmitted over a variety of platforms, including digital terrestrial television. Moreover, **viewers and listeners must be guaranteed stable reception, and high-quality sound and video without interference**.
- **Use of the digital dividend should reflect national media and audiovisual policies**. Market-based methods for spectrum allocation on a service and technology-neutral basis,¹ such as **auctions**, can be in contradiction with the pursuit of policy goals, such as media pluralism and cultural diversity. They also **favour the wealthiest bidder, whose primary interest is not necessarily the efficient use of spectrum or the long-term public interest**. In addition, **the problem of interference limits the principles of service and technology neutrality**. Interference occurs, in particular, when broadcasting and mobile services are delivered in the same bands.
- **The size of the dividend will vary from one country to another**, owing to national circumstances, such as the geographical position, size and topography, penetration of satellite/cable services, the requirements for regional or minority services, and spectrum usage in adjacent countries. The size of the dividend will also depend on the technology being used.

¹ *The possibility to provide any service using any technology on any frequency.*

- Digital broadcasting technology is continually evolving, this facilitates increasingly efficient use of spectrum and the introduction of new, innovative services. There will probably be **several switch-over phases**, and development will **vary from one country to another** in terms of the timing and the choice of technology.
- **Spectrum policy has to be dynamic.** It should not foreclose the broadcasters' ability to use future new technology and develop new services. On the contrary, it should enable them to continue to play an important role in helping ensure cultural diversity and media pluralism, meeting the evolving expectations of the public.
- **The UHF band (470-862 MHz) is the only band for widespread development of digital terrestrial television services**, whereas mobile telecommunications services, including wireless broadband services (e.g. WiMAX), can be deployed in other frequency bands.
- While better cooperation on spectrum policy between EU Member States could lead to more efficient use of spectrum, it is **difficult to harmonize the use of the digital dividend at the European level**. Any such move should be progressive, voluntary and led by Member States.



Where are we today in the regulatory and policy process?

The **World Radiocommunications Conference (WRC-07)** November 2007 allocated the 790-862 MHz sub-band in Region 1 (covering the European Broadcasting Area and Africa) to the Mobile Service (for IMT applications like 3G, 4G, WiMAX) with a co-primary status with the broadcasting service as from 17 June 2015. Most European countries can start Mobile Services immediately if they protect broadcasting services in neighbouring countries.

In Europe, France, Sweden, Finland, Germany, Switzerland, and possibly UK have already decided to use the sub-band for Mobile Services. Those countries have already started very intensive coordination meetings to liberate the 790-862 MHz sub-band from broadcasting services. In other countries like Ireland, Netherlands, Belgium, Norway, Slovak Republic spectrum regulators have opened consultations and decisions will be taken very soon.

In its *Communication on the Digital Dividend*², the Commission proposes the creation of three sub-bands within the UHF band 470-862 MHz, one for broadcasting, one for mobile television, and one for fixed and mobile broadband access services. This would mean that part of the complex Geneva 2006 Plan (GE-06) would have to be reworked. This international frequency agreement, defined the use of the whole UHF bands IV/V (470-862 MHz) for digital terrestrial television services in Europe, Africa and the Middle East. Since many countries have already embarked on projects to offer digital television services based on that Plan, implementation of the Commission's proposal would be very difficult, time-consuming and costly.

Reacting to the Commission proposals **Member States** have expressed a much more cautious approach in a Council conclusion of June 2008. They invited the Commission to initiate the studies and consultations necessary to define a coherent basis for the coordinated usage of spectrum.³

² COM(2007)700 of 13.11.2007 – *Reaping the full benefits of the digital dividend in Europe: a common approach to the use of spectrum released by the digital switchover*

³ http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/trans/101093.pdf



The **European Parliament** mentions the Commission's sub-band approach but does not ask for an EU spectrum plan. It also advocates a coordinated approach by Member States and requests the Commission to undertake studies which would support these efforts.

Following the European Parliament's and the Council's request, a consortium comprising Analysys Mason, DotEcon and the law firm Hogan & Hartson LLP, has been awarded a contract to produce a study for the European Commission entitled "*Exploiting the digital dividend – A common European approach*". The study, to be published by September 2009, should help the Commission to identify and assess different options and possible scenarios to achieve the required level of EU coordination and, eventually, to make a final recommendation and to define an EU roadmap to implement it.

WRC-07 clearly recognized the inherent interference problem between broadcasting and mobile telecommunications services. While it gave ITU Member States in European countries an option to open up part of the UHF bands for mobile services under certain conditions, it also confirmed that the GE-06 Plan with all future developments needs to be respected. Countries that wish to implement mobile services in the UHF band 790 MHz - 862 MHz are requested to protect broadcasting services against harmful interference from mobile services. Before putting mobile services into operation, agreements from neighbouring countries must be obtained. In addition, it was decided that the ITU would carry out technical studies on the sharing of broadcasting and mobile services. The results of these studies will be considered at the next **World Radiocommunication Conference**, in 2011.



Interference is an issue

Protection of broadcasting services is essential and when different services are deployed in the same bands interference problems may occur. In particular, deploying two-way mobile communications services and wireless broadband services alongside broadcasting could result in unacceptable interference to broadcasting caused by mobile terminals. This type of interference from portable transmitters is very difficult to predict and prevent.

In particular, where channels 61 to 69 (i.e. 790-862 MHz) are used by mobile services, broadcasting services using adjacent channels (i. e. channel 60 and below) will experience interference unless specific technical limitations are imposed to mobile services (power limitations, restrictive spectrum masks, guard bands).

Creating a sub-band for two-way mobile services may offer new business opportunities for mobile operators but would not entirely solve the problem of interference.

On the other hand, interference problems between mobile television services, using DVB-H for example, and fixed broadcasting are predictable and easier to resolve. They do not justify the creation of a harmonized sub-band for mobile television.



Background

The size of the digital dividend

The digital dividend must take into account any additional and enhanced services based on digital technology which make the digital switch-over attractive for viewers and listeners and which justify broadcasters' investment in digital technology. These services are essential for the viability and competitiveness of the DTT platform.

Digital broadcasting technology is continually evolving, which facilitates increasingly efficient use of spectrum and the introduction of new, innovative services. Acceptable quality can be offered if one 8 MHz channel accommodates five or six standard-definition digital television (SDTV) services (using the MPEG-2 compression system)⁴ or two or three digital high-definition television (HDTV) services (using MPEG-4 AVC)⁵. Most of SDTV transmissions today are based on MPEG-2.

In most countries, at least, the following three switch-over phases are foreseen in practice:

1. conversion from analogue to SDTV (using MPEG-2)
2. conversion from MPEG-2 to MPEG-4 AVC
3. transition from SDTV to HDTV.

Whereas the first and second switch-over phases will probably reduce spectrum consumption, the third one will require additional spectrum. The size of the digital dividend will not be known until after this three-phase development, which will take place at a different pace for different member states. All phases will also include a simulcasting period, i.e. the "old" and the "new" technology will be broadcast in parallel for some time.

⁴ *MPEG is an encoding and compression system for digital multimedia content defined by the Motion Pictures Expert Group (MPEG). MPEG-2 extends the basic MPEG system to provide compression support for television-quality transmission of digital video.*

⁵ *AVC stands for Advanced Video Coding.*

Consumer interest in the digital switch-over

Consumers will have to invest in set-top boxes or new receivers to be able to receive the new digital services. As most households have several television sets they will have to buy several set-top boxes. Digital switch-over has to be attractive for consumers, who will be prepared to make the investment only if the switch-over is accompanied by an appealing offer of additional and enhanced (in particular, free-to-air) services. It is important to note that each switch-over phase can require the purchase of new set-top boxes. Consequently, the pace of the switch-over from MPEG-2 to the more efficient compression system MPEG-4 AVC will vary from one country to another.



HDTV

Consumer expectations are high with regard to HDTV. Virtually all television sets which are sold today are “HD ready”. Consumers will expect high definition programmes to be transmitted over a variety of platforms, including digital terrestrial television.

- HDTV is already a reality:
 - Four million European households are now watching HDTV and the number of HD channels broadcast in Europe doubled in 2008, totalling 173 at the year end⁶
 - HDTV is already available in the terrestrial platform in France. In Hungary, the recently launched DTT services also includes one HD programme
 - In the future, all TV services will be in HD
 - Virtually all DTV receivers on the market are HD enabled.
- The 470 – 862 MHz frequency band is the ONLY band available for terrestrial TV – if a significant amount of spectrum is allocated to other services, how will terrestrial broadcasters meet consumer demands for **HDTV**?

Viewers and listeners who have invested in new digital equipment must be guaranteed stable reception and high-quality sound and video without interference.

⁶ Screen Digest March 2009



Consumers want a competitive terrestrial platform

The terrestrial platform should be competitive with respect to cable and satellite platforms and broadband in the future:

- Terrestrial delivery is the fastest-growing platform for delivery of digital TV in Europe
 - It has already overtaken satellite TV in the UK
 - It will become the dominant platform in France, Italy, Spain and many other countries
- Analogue switch-off is increasing the importance of digital terrestrial TV, even in countries with high cable penetration (e.g. Germany, Netherlands)
- Although some regulators would like broadcasters to migrate to satellite, cable or the Internet, consumers clearly prefer terrestrial TV
 - the market has decided . . .

Universal coverage – digital television on all platforms

DTT cannot easily be replaced by other platforms. Unlike cable and satellite, DTT offers unique prospects for the public in terms of mobile, portable and pocket equipment. Satellite reception is often also difficult for consumers because of restrictions with regard to the installation of satellite dishes. Cable and IPTV are subscription-based platforms, and the Internet cannot be a substitute since it involves one-to-one delivery, as opposed to



the much more efficient one-to-many broadcasting distribution. Only a mix of platforms can deliver universal access to broadcasting services.

In the future, broadcast content (radio and TV) will also be delivered by various alternative delivery systems, including mobile TV, mobile broadband and fixed broadband. Some of these new delivery mechanisms will incur additional costs for consumers, such as monthly subscriptions and/or usage charges

- some consumers will be able to pay for such services, but others will not
- terrestrial TV ensures universal access at very low cost to consumers
- future technologies need to replicate the economic, social and cultural benefits of broadcasting, especially in rural areas

DTT delivering for society

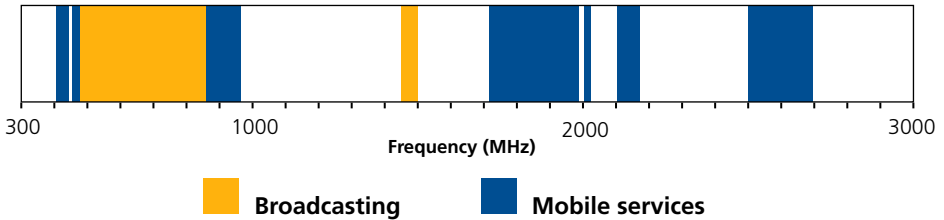
Within the mix of different delivery platforms, DTT has an important role to play in permitting universal coverage so that all citizens have free-to-air access to digital broadcasting services. The digital divide can be avoided in this way.

- Terrestrial TV generates high public value for society:
 - social and cultural benefits
 - Broadcasters invest €19 billion in original European TV programming annually
 - EBU Members invest €10 billion annually in new European TV productions
 - That represents 87% of all investment in original European programming (excluding news programmes)
 - Broadcasters employ 2.2 million people directly or indirectly



Broadband and the digital dividend

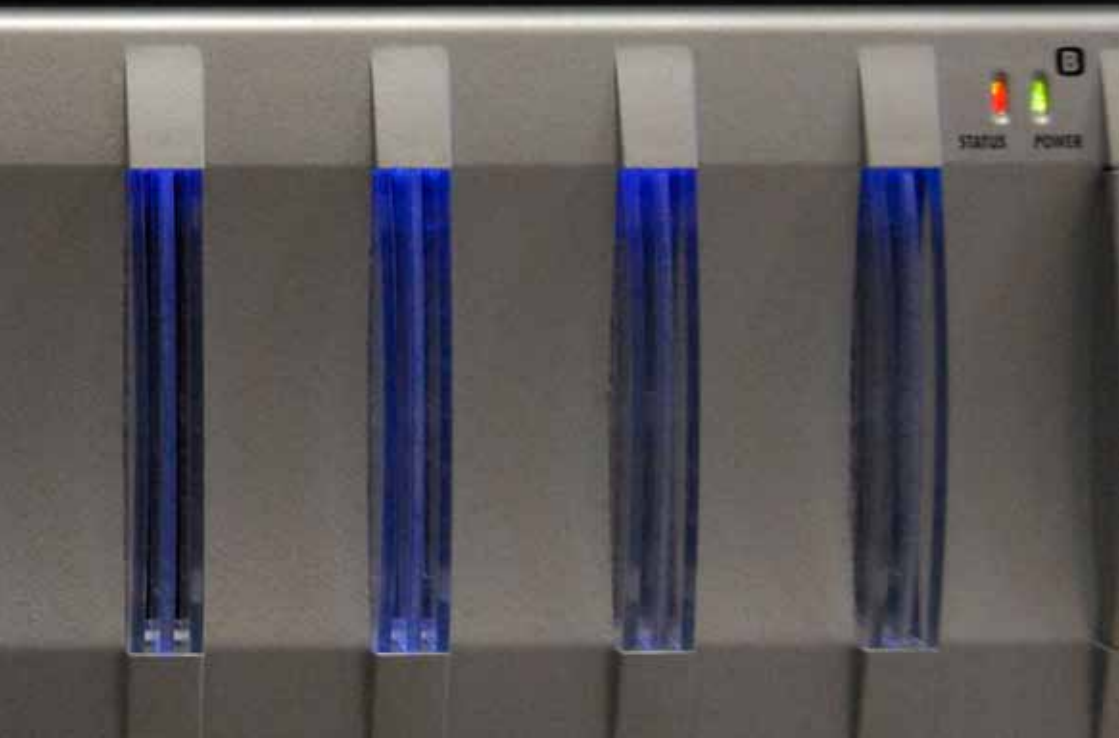
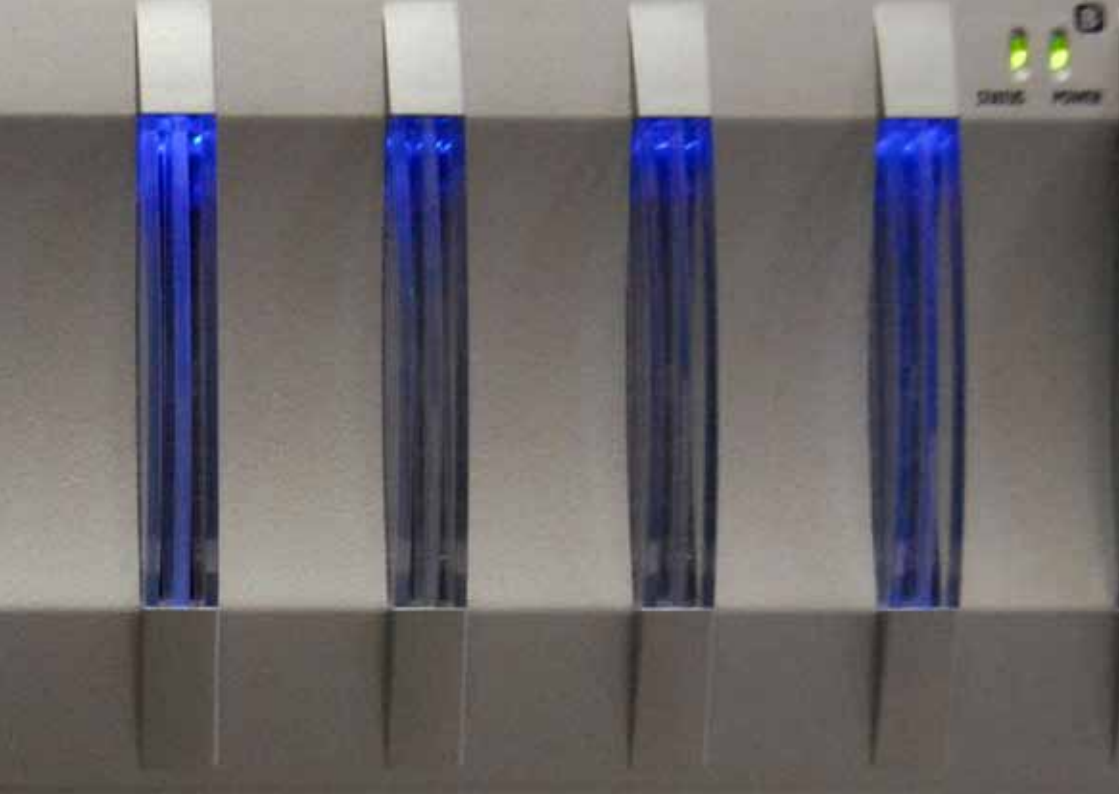
DTT can be efficiently delivered only in the UHF band 470-862 MHz, whereas mobile telecommunications services, including wireless broadband services (e.g. WiMAX), can be deployed in other frequency bands. Mobile communications already have a huge amount of spectrum in the UHF band and some of this spectrum is essentially unused or is used inefficiently.



The broadband discussion should not be limited to the digital dividend. Delivering wireless broadband services in the UHF bands used for DTT is not the most efficient way of using this scarce resource. Requirements for transmission capacity in the broadband networks are continually increasing owing to ever more complex content and services, and a constantly growing usage time. There are no signs that this will change in the foreseeable future. The capacity of the UHF bands (e.g. in the range 790-862 MHz which is co-allocated to mobile services alongside broadcasting) will most probably become insufficient to meet such growing demand. It is very likely that consumers would obtain only second-class broadband services with a limited capacity to receive highly demanding content, such as audiovisual content.

Using the UHF bands for broadband wireless would not provide for a long-term solution for such services, and it could hinder the future evolution of broadcasting services. Wireless broadband networks in the higher frequency bands can deliver much higher capacity in the same coverage area. WiMAX services are already widely deployed in the higher frequency bands, such as 2.3-2.7 GHz, 3.3-3.8, and 5.0-6.0 GHz.⁷

⁷ Research by Maravedis shows that of the 196 WiMAX operators world-wide in November 2007 38% operated in Europe. The region with the highest WiMAX service revenue accumulated from Q1 2006 to Q3 was Europe, with nearly 388 million US\$ (www.maravedis-bwa.com).



The European Broadcasting Union (EBU)

The EBU: The EBU is the largest association of national broadcasters in the world.

The EBU helps Europe's public service broadcasters to deliver unique high quality European programming to their audiences. It offers members technical, operational and legal services, and coordinates quality European content for radio, television and new platforms. It provides members with information and analysis on media trends, and training designed to meet their needs. The EBU works to secure the recognition of the crucial role of public service broadcasters in Europe's digital audiovisual landscape.

- 75% of EU citizens watch EBU members' main channels.
- EBU members' TV channels reach 375 million individuals in the EU.
- EBU members invest 10 billion Euros annually in new European TV productions.

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