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**COMMUNICATION FROM THE COMMISSION TO THE COUNCIL, THE  
EUROPEAN PARLIAMENT, THE EUROPEAN ECONOMIC AND SOCIAL  
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

**on accelerating the transition from analogue to digital broadcasting**

{SEC(2005)661}

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(Text with EEA relevance)

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## 1. EXECUTIVE SUMMARY

This Communication builds on the 2003 Communication on the transition from analogue to digital broadcasting (from digital 'switchover' to analogue 'switch-off')<sup>1</sup> and, in the light of Member States' switchover plans<sup>2</sup> published within the framework of the eEurope action plan, and a recent opinion of the Radio Spectrum Policy Group<sup>3</sup> proposes a deadline for switch off of analogue terrestrial broadcasting throughout the EU.

Switchover will stimulate innovation and growth of the consumer equipment market, and contribute to the renewed Lisbon agenda. For the consumer, the benefits of digital broadcasting<sup>4</sup> include improved picture quality, better sound, better portable and mobile reception, more TV and radio channels and enhanced information services.<sup>5</sup> A significant economic benefit is the additional spectrum capacity released by terminating analogue terrestrial television ('switch-off') since digital TV is significantly more efficient than analogue TV in its use of spectrum. This offers a unique opportunity for the re-use of a premium part of the radio frequency spectrum for the provision of convergent services, combining mobile telephony and terrestrial broadcasting and for other new cross border and pan-European electronic communications services. The earlier the transition from analogue to digital broadcasting (the 'switchover') is started at national level and the shorter the transitional period, the sooner these benefits are realised.

There is currently little or no coordination of the switchover plans of Member States. Of those Member States that have announced a switch-off date, there is a first group of countries that plan to switch off by 2010 the latest, and a second group that plan to switch off by 2012. Economic and social benefits for the EU as a whole will only be fully achieved once all Member States have completed switch off. The Commission therefore proposes that the beginning of 2012 be agreed for switch-off in all Member States. Those Member States who have not yet announced switch-off dates are encouraged to publish, by the end of 2005, plans to show how they would achieve switch-off by the beginning of 2012.

With regard to the spectrum released by switch-off of analogue terrestrial television, Member States' spectrum plans should be flexible enough to allow the introduction of other electronic communications services, in addition to digital broadcasting services. Part of any spectrum dividend should be made available for pan-European services; this should be kept under review in the light of technological, regulatory and market developments. Member States need to maintain sufficient flexibility in this respect in ongoing international negotiations on spectrum.

The Commission services working paper associated to the Communication addresses best practice with regard to consumer information strategies, financing aspects, capacity aspects in networks with 'must-carry obligations and the situation of digital radio.

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<sup>1</sup> COM(2003) 541, see [http://europa.eu.int/information\\_society/topics/ecommm/doc/useful\\_information/library/communic\\_reports/switchover/acte\\_en\\_vf.pdf](http://europa.eu.int/information_society/topics/ecommm/doc/useful_information/library/communic_reports/switchover/acte_en_vf.pdf)

<sup>2</sup> Member states' switchover plans are published on the Europa website at [http://europa.eu.int/information\\_society/topics/ecommm/highlights/current\\_spotlights/switchover/national\\_sw\\_o\\_plans/index\\_en.htm](http://europa.eu.int/information_society/topics/ecommm/highlights/current_spotlights/switchover/national_sw_o_plans/index_en.htm)

<sup>3</sup> See [http://rspg.groups.eu.int/doc/documents/meeting/rspg5/rspg04\\_55\\_opinion\\_digit\\_switchover.pdf](http://rspg.groups.eu.int/doc/documents/meeting/rspg5/rspg04_55_opinion_digit_switchover.pdf)

<sup>4</sup> Throughout the document digital broadcasting means digital broadcasting transmitted over all possible networks (e.g. terrestrial, cable, satellite, DSL).

<sup>5</sup> Most – but not all – of these advantages are common to the digitisation of all networks.

## 2. INTRODUCTION

In September 2003 the Commission published a Communication on the transition from analogue to digital broadcasting (from digital 'switchover' to analogue 'switch-off')<sup>6</sup>, which set out the benefits of switching over to digital television, explored various policy orientations, and initiated the debate on EU policy orientations on the amount and future uses of spectrum potentially released at switch-off of analogue terrestrial television transmission<sup>7</sup>. In November, the Radio Spectrum Policy Group (RSPG) published an Opinion on spectrum implications of the switchover to digital terrestrial broadcasting<sup>8</sup>.

This Communication develops a position in the light of an analysis of the switchover plans of Member States that were published within the framework of the eEurope action plan<sup>9</sup>, and the RSPG Opinion. The Communication also draws upon the results of studies carried out for the Commission Services in the areas of spectrum trading and liberalisation<sup>10</sup>, and on spectrum management in the field of broadcasting<sup>11</sup>.

This Communication is accompanied by a Commission Staff Working Paper SEC(2005)661 which provides more details on switchover plans in Member States and on implications for spectrum planning, financing and digital radio.

Suppliers of broadcasting transmission services either have already moved over to digital transmission or tend to implement such a move in the near future<sup>12</sup>. On the demand side, where users have the choice they increasingly adopt digital transmission and give up analogue transmission. As a result of these supply and demand side trends the UK has already achieved a market share of 57% for digital broadcasting transmission and it can be expected that Europe will by the beginning of 2010 predominantly rely on digital broadcasting transmission and that by that time analogue transmission will play only a minor and steadily decreasing role.

## 3. THE SWITCHOVER PROCESS IN MEMBER STATES

The public consultation undertaken by the RSPG suggested that the main obstacles to a rapid switchover were:

- in the political arena: absence of political decisions such as national switch-off or political decisions not to set up switch-off dates, and a lack of European approach and policy;

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<sup>6</sup> See footnote (fn) 1

<sup>7</sup> Throughout this Communication and if not stated differently the term 'switch-off' means the switch-off of terrestrial transmission of analogue television. However the term 'switchover' refers to the transition from analogue to digital broadcasting in all networks including in particular terrestrial, cable, satellite and DSL.

<sup>8</sup> See fn 3.

<sup>9</sup> See fn 2.

<sup>10</sup> See "Study on conditions and options in introducing secondary trading of radio spectrum in the European Community" at [http://europa.eu.int/information\\_society/topics/radio\\_spectrum/useful\\_info/studies/secondtrad\\_study/index\\_en.htm](http://europa.eu.int/information_society/topics/radio_spectrum/useful_info/studies/secondtrad_study/index_en.htm)

<sup>11</sup> See "Study on Spectrum Management in the field of Broadcasting" at [http://europa.eu.int/information\\_society/topics/ecom/comm/doc/useful\\_information/library/studies\\_ext\\_consult/spectrum\\_mgmt\\_bc\\_dswofinal\\_report\\_v3.pdf](http://europa.eu.int/information_society/topics/ecom/comm/doc/useful_information/library/studies_ext_consult/spectrum_mgmt_bc_dswofinal_report_v3.pdf)

<sup>12</sup> Since the 1980ies there are no market entries of broadcast transmission providers who rely on analogue technology in Europe. New entrants such as satellite or DSL providers exclusively use digital transmission.

- in the economic/market arena: need for a large installed base of receivers; poor consumer demand based on lack of incentives to switch (lack of perceived added value, cost of receivers, etc.); a reluctance, based on financial risks, from operators to invest.

From its analysis of the switchover plans of Member States, the Commission has identified a number of factors that contribute to a successful switchover policy:

- 1) The switchover process should be market driven, but at the same time **broadcaster co-ordination** is needed to achieve a smooth technical and commercial implementation (e.g. compatible timetables). Member States which rely not only on a market-led approach but also on clear public policy action to co-ordinate broadcasters tend to be earlier in the adoption and switchover process. An important feature of co-ordination is agreement on the timing for different stages. This provides greater certainty for market players supplying digital products and services and will therefore encourage them to stimulate demand. National switchover processes therefore benefit from well focused co-ordination of all relevant players. Rapid switchover brings immediate benefits at Member State level.
- 2) Another crucial factor for the success of the national switchover process is having an effective **strategy to inform consumers** about programme availability on digital platforms and the equipment needed to receive such programmes. Switchover also has the potential to contribute to better serve the specific needs of people with disabilities and attention should be given to the inclusion of accessibility requirements in the user interface e.g. EPG (electronic program guides) and receivers.

Best practice with regard to consumer information strategies which the Commission has derived from the national switchover plans is presented in chapter B 1. of the associated Commission staff working paper; implications for spectrum planning are explained in chapter B 2., an analysis of some financing aspects of switchover is provided in chapter B 3., capacity aspects in networks with 'must-carry obligations and the situation of digital radio are described in chapters B 4. and B 5.

Switchover plans currently focus largely on terrestrial platforms. The principle of technological neutrality enshrined in the EU regulatory framework means that regulation should neither impose nor discriminate in favour of the use of a particular type of technology, but it does not preclude a Member State from taking proportionate steps to promote specific technologies for transmission of digital television as a means for increasing spectrum efficiency<sup>13</sup>. The Commission recalls however that digital TV switchover is a process encompassing various networks, business models and services<sup>14</sup>, and any differentiated treatment of market players or platforms must be justified.

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<sup>13</sup> See Recital 18 of the Framework Directive and fn 16

<sup>14</sup> See fn 1.

#### 4. ACHIEVING THE BENEFITS FROM THE SWITCHOVER PROCESS

Consumer benefits from digital TV compared with analogue TV are wider choice, thanks to more TV and radio channels; greater impact and realism for the viewer, thanks to the possibility of improved picture quality and better sound; greater flexibility, thanks to better portable and mobile reception, and enhanced information services leading to greater participation thanks to interactivity. These benefits derive primarily from the possibility of processing and compressing digital data, making much more efficient use of network capacity than is the case with analogue signals.

Switchover has also the potential to contribute to better serve the specific needs of older people and of people with disabilities by providing assistive services such as improved subtitling, audio commentary and signing. Attention should be given to the inclusion of accessibility requirements in the user interface e.g. EPGs (electronic programming guides) and receivers.

In addition, switchover implies reduction of future transmission costs for operators of broadcasting networks. It also creates opportunity for increased sales of digital receiver equipment and makes storage and processing of content easier. The market for digital TV receivers (either set top boxes or integrated into TV sets) in Europe is estimated at up to 20 million units per annum. These effects could contribute considerably to growth and employment in ICT markets.

The other significant benefit that switchover brings is the additional **spectrum capacity released** in particular by switch-off of analogue terrestrial television. Information provided by Member States in their national switchover plans estimate that digital terrestrial TV is 3 to 6 times more efficient than analogue terrestrial TV<sup>15</sup> in its use of spectrum. This offers significant opportunities for reuse of one of a premium part of the radio frequency spectrum.<sup>16</sup> Possibilities include:

- **new or improved broadcasting services** such as additional programming, programme-related enhancements, better picture quality including features such as wide screen and high definition TV, better audio quality, data and interactive services, personal and mobile television; such services can contribute to the fulfilment of objectives of general interest such as cultural diversity and media pluralism; in addition, new services can improve accessibility for people with disabilities;
- **convergent services combining features of mobile telephony and terrestrial broadcasting**, such as mobile ‘datacasting’. A mobile society has a continuously growing demand for mobile information and for ubiquitous availability and access to all kind of media and services. It is questionable if this demand can be fulfilled by mobile communication services alone and a combination of mobile communications and

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<sup>15</sup> See also fn 3 for more details about how to calculate the spectrum dividend. The efficiency gain of digital in comparison to analogue is even higher for cable and satellite transmission.

<sup>16</sup> Due to the propagation characteristics in the spectrum currently allocated to terrestrial broadcasting this spectrum can also be used for a large range of wireless and mobile services such as individual communications (voice, sound, moving pictures) since the signal passes through buildings, can be received when on the move and there is no line of sight required between the sender and the receiver. For signal transmission in the spectrum currently allocated to satellite broadcasting there is however a line of sight required and the signal will not pass through buildings. This limits the range of possible alternative applications in that part of the spectrum considerably.

broadcasting is one possible approach.<sup>17</sup> The development and testing of such services in the spectrum made available by analogue switch off creates considerable potential for innovation.<sup>18</sup> Besides, operators of conventional mobile communications are looking for radio resources in lower bands than those used today in order to ensure full geographic coverage at commensurate investment levels;

- **other new electronic communications services** that differ from today's fixed or mobile offerings, such as wireless local area networks and wireless metropolitan area networks. The success of wireless local area networks operating in unlicensed bands is expected to increase demand for further unlicensed spectrum to be released as a means of spurring innovation and encouraging disruptive technologies to challenge existing services.

The potential arrival of new entrants in all these areas at different levels in the value-chain will contribute to increased market competition and innovation thanks, for instance, to new broadcasters or developers of interactive applications, or increased competition between alternative electronic communication network operators.

However these benefits are largely associated with the final stage of a successful switchover process, i.e. the switch-off of analogue broadcasting. During the transition period, switchover may temporarily aggravate capacity (and in particular spectrum) scarcity insofar as analogue and digital broadcasts are 'simulcast' in parallel. This problem is especially crucial in areas where the spectrum space is already over-crowded. In contrast, there are other areas where the spectrum planned for already today is underused.

Both timing and the duration of the switchover period are critical factors. **The earlier the switchover process is started and the shorter the transitional period, the sooner the benefits described above are realised.** Public acceptance and understanding of the benefits of digital television will be important for accelerating the switchover process, as will popular understanding of the additional benefits that can be obtained following the termination of analogue terrestrial television and full conversion of cable networks.<sup>19</sup> Retail prices of digital receivers set top boxes have fallen since the Commission's first Switchover Communication. The price of integrated television receivers has also fallen. Affordability of digital television equipment is therefore a receding concern for most citizens.

Given the potential of the spectrum bands released by switch-off of analogue terrestrial television for new and innovative services, it will also be important to not constrain unduly the re-use of these bands. Member States' spectrum plans should be flexible enough to allow the future introduction of other electronic communications services, in addition to digital broadcasting services. **A key action for the EU and its Member States in the Regional Radiocommunication Conference in 2006 (RRC06) and the World Radio Conference in 2007 (WRC07) is to maintain the possibility of flexibility of use for the ex analogue TV bands.** While flexibility of *allocation* is needed, it is not necessary to decide at this stage how any spectrum dividend might be *assigned* to individual users. More detail on implications of

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<sup>17</sup> Currently some players emphasise that digital broadcasting can be more efficient than mobile communications to deliver a certain content to a wide audience.

<sup>18</sup> The early stages of development provide an opportunity to design technologies and services in a way which would prevent accessibility barriers for people with disabilities.

<sup>19</sup> The migration of satellite television from analogue to digital is already far advanced and a spectrum dividend has already been achieved.

switchover for spectrum planning is provided in chapter B 2 of the Commission staff working paper associated to this Communication.

Furthermore, the success of digital switchover will be enhanced by effective competition in digital broadcasting transmission services. In order for end users to derive maximum benefits from digital switchover, National Regulatory Authorities must ensure that undertakings with significant market power in markets for digital broadcasting transmission<sup>20</sup> are subject to appropriate obligations in accordance with Art. 16 of the Framework Directive

## 5. THE EUROPEAN DIMENSION

Beyond the advantages at national level, an acceleration of the switchover process could increase learning effects and promote positive examples across Member States. Many of the **new technologies and services depend on achieving a critical mass of users at the European level and become more attractive with an increased installed base of technology in Europe.**

Market players are concerned that the development of new services could be hampered by different implementations from country to country in Europe. In particular, they call for legal certainty regarding terrestrial spectrum that may be made available, and for obstacles caused by national borders to be minimized.

Acceleration of the switchover process at Member State level and a common approach to the transition period and switch-off date would facilitate a rapid switchover in Europe. RSPG suggests creating a limited number of timetables that Member States could consider and to investigate a common end to the transition process.<sup>21</sup>

Spectrum for pan European services and many cross-border services such as traffic information and fleet management, mobile communications and datacasting will only be available on a European scale after the switch-off has taken place in all Member States. Cross-border applications could however already be launched earlier, in those Member States where switch-off has already taken place. There are grounds therefore to promote the acceleration of national switchover processes and for seeking to agree a date by which analogue broadcasting would be switched off in all Member States. Such acceleration and an EU deadline for the switchover process will contribute to overcome the current fragmentation of European digital TV markets. This will enable European players to compete with other world-wide stakeholders in all parts of the digital television value chain. This would have positive economic consequences<sup>22</sup> (exports, royalty revenues, improved position regarding IPRs and DRMs, content competitiveness, etc.).

The pace at which Europe as a whole can move will be affected by the speed of the national switchover processes on the one hand and by the pace of the slowest Member States on the other hand. The high power emitted by analogue TV transmitters and the sensitivity of domestic analogue receivers to interference mean that even the limited continuation of analogue services in

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<sup>20</sup> See market 18 in the Annex to the Commission Recommendation of 11 February 2003 on relevant product and service markets  
[http://europa.eu.int/information\\_society/topics/ecomm/doc/useful\\_information/library/recomm\\_guidelines/rlevant\\_markets/i\\_11420030508en00450049.pdf](http://europa.eu.int/information_society/topics/ecomm/doc/useful_information/library/recomm_guidelines/rlevant_markets/i_11420030508en00450049.pdf)

<sup>21</sup> See fn 3

<sup>22</sup> and thus contribute to the Lisbon goals of competitiveness and growth. See  
[http://ue.eu.int/ueDocs/cms\\_Data/docs/pressData/en/ec/00100-r1.en0.htm](http://ue.eu.int/ueDocs/cms_Data/docs/pressData/en/ec/00100-r1.en0.htm)



a few Member States will constrain the introduction of new services. **Any spectrum dividend at the national level will therefore crucially depend on the number of neighbouring countries which have already achieved switch off and it will only be fully realisable at the European level upon the complete cessation of analogue broadcasts within the EU and neighbouring countries.**<sup>23</sup>

In the US, the FCC currently plans to terminate terrestrial analogue TV broadcasting and re-allocate the cleared spectrum by 1 January 2009. A binding decision on the deadline to complete the DTV transition will be made during 2005, according to a recent announcement.<sup>24</sup> Korea has announced to turn off analogue terrestrial broadcasting by end 2010, Japan by 2011.

Based on the information made available to the Commission Services, the following 'league table' for switch-off of analogue terrestrial TV in Member States has been drawn up.

<i>Group</i>	<i>Member States</i>
<b>A</b> (switch-off date end 2010 or earlier)	<b>AU, DE, ES, FI, IT, MT, SE</b>
<b>B</b> (switch-off date: end 2012 or earlier)	<b>BE<sup>25</sup>, EL, SI, SK, UK, HU</b>

Member States not listed in this table have either yet to indicate their plans or have not yet indicated a switch-off date.

In view of the diversity of Member States' approaches and advancements the Commission recognises that a binding EU-wide switch-off date common to all Member States is not realistic. However in the light of the advantages of a co-ordinated European approach to switchover, the Commission proposes that a common timescale **should be agreed for the transition to digital terrestrial TV and for the switch off of analogue terrestrial TV**. Most of those Member States who have already decided about a switch off date have set a date of 2010 or earlier. Six others have set at least 2012. On this basis, the Commission expects that **by the beginning of 2010 the switchover process should be well advanced in the EU as a whole, and proposes that a deadline of the beginning of 2012 be set for completing analogue switch-off in all EU Member States**.

## 6. CONCLUSION

Switchover can provide consumers with improved broadcasting services and many new services beyond traditional broadcasting; it may also contribute to serve better the specific needs of people with disabilities. Switchover brings immediate benefits at Member State level. There is scope for an acceleration of national switchover processes in order to achieve benefits for the EU as a whole.

In some geographic areas, the terrestrial switchover process has already been completed and analogue terrestrial broadcasting has been discontinued. Some Member States plan to complete the national terrestrial switchover process during the next few years. As a result, the Commission expects that **by the beginning of 2010 the switchover process should be well advanced in the**

<sup>23</sup> For reference see fn 3.

<sup>24</sup> Speech by the FCC Chairman, Michael Powell, at the Las Vegas Consumer Electronics Show, 6.1.2005 .

<sup>25</sup> In Flanders

**EU as a whole** and proposes that **a deadline of the beginning of 2012 be set for completing analogue switch-off in all EU Member States.** Flexibility is needed to ensure that the spectrum currently used for analogue terrestrial broadcasting is reused in a way that provides the most value to society and to the economy. All potential applications for the use of these frequencies should be considered, and any allocation and assignment procedures must ensure fair access for all potential users. The availability of a part of the spectrum dividend at EU level would facilitate the uptake of new pan-European services and applications and the Commission will examine the feasibility of a co-ordinated approach.