European Broadcasting Union Union Européenne de Radio-Télévision

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EBU Response to the EC Consultation document *'Transforming the digital dividend opportunity into social benefits and economic growth in Europe',* 10 July 2009

The EBU welcomes the opportunity to present its response to the Consultation document *"Transforming the digital dividend opportunity into social benefits and economic growth in Europe",* which was published by the European Commission on 10 July 2009.

The EBU recognises the importance of maximising the benefits of digital dividend for European citizens and the industry. The concrete steps as proposed in this Consultation document should facilitate introduction of electronic communication services in the 800 MHz band as well as create conditions for continuous development of terrestrial broadcasting.

The EBU welcomes the fact that the Commission is conducting a study to assess the socio-economic aspects of the potential uses of the Digital Dividend, to be published in September. The EBU believes that it is essential to consider the social and public value which broadcasting services provide to society as a whole.

We also believe that high quality broadband services, including wireless broadband, are essential for the economic growth and they also generate a significant social value. Broadcasters were fast to recognise the potential of broadband as a new delivery platform for media services. Indeed, many EBU members are already present on the Internet as well as on the managed broadband networks.

We agree that wireless broadband networks will play a more important role in the future. So far, there was only a limited possibility to deliver media services over wireless broadband networks. Nevertheless, broadcasters are interested in utilising wireless broadband networks once they become capable of supporting broadcasting services.

With regard to opening up the 800 MHz band for electronic communication services, it is very important that the harmonised technical conditions are adopted as to enable coexistence in the long-term of the new wireless networks in the band 790-862 MHz and terrestrial broadcasting below 790 MHz.

The following text focuses on the Section 4 'Proposed Elements for a Roadmap' and Section 5 "Urgent Actions" of the Consultation document.

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4. PROPOSED ELEMENTS FOR A ROADMAP

4.1. Improving consumers' experience by ensuring high quality standards for terrestrial digital television receivers in Europe

High quality standards for terrestrial digital TV receivers are a prerequisite for improved user experience. We welcome the Commission's view that *'consumers have high expectations regarding future developments of broadcasting services, be it more programmes, increased quality such as HDTV, or mobile reception.'* Consumers choice in favour of the terrestrial broadcasting is evident in the rapid take-up of digital TV services, including HDTV, even in those countries where cable or satellite broadcasting services are dominant.

New and attractive services are essential to convince users to join the transition towards new technologies. To receive digital television, viewers need to buy their own equipment (new set-top boxes or digital television sets) which, in most cases, are not subsidized.

Moreover, the EBU would like to stress that beside better digital TV receivers, it is important that the digital terrestrial platform remains viable and competitive with other platforms, e.g. cable, satellite and future broadband. The introduction of new broadcasting services, such as additional programmes, HDTV, mobile reception, datacast and/or the future 3DTV, will require a sufficient amount of spectrum to be available for DTT. At the same time those services (e.g. HDTV) require larger transmission capacity than SD services, which in turn increases the spectrum demand for DTT. The exact amount of spectrum for DTT will largely depend upon national circumstances in each country. The needs of both public service and commercial broadcasting must be taken into account.

Furthermore, regulatory certainty is important for broadcasters and manufacturers to make investments in the new equipment and services as well as for the viewers to invest in new receivers.

a. Ensuring the availability of a compression standard on all DTT receivers sold after 1 January 2012 that is at least as efficient as the H264/MPEG-4 AVC standard.

In principle, the EBU can support the proposal to foster improved coding systems in the future DTT receivers.

However, we are concerned about the formulation '*at least as efficient as the H264/MPEG-4 AVC standard*', which could be understood as if different standards may be used and implemented for both the network operator and the manufacturers and which could hamper the confidence of consumers and fail to take full advantage of economies of scale. Furthermore, referring only to 'H264/MPEG-4 AVC' would not be sufficiently precise as the standard allows a number of variants. For example, the level 4.0 is required as a minimum to enable HDTV services. Selecting the appropriate variant is not straight-forward because there are other elements that must be carefully chosen in order to ensure interoperability (e.g. appropriate sound coding system).

Furthermore, different national and regional approaches have already been agreed. For example, the D-Book in the UK sets out the detailed technical standards for digital terrestrial television in the UK.

Backwards compatibility of the new receivers and the legacy DTT networks that use MPEG-2 standard must be ensured as it is not expected that all DTT networks will migrate to

H264/MPEG-4 AVC in the short term (e.g. by 2012). Where such migration takes place, it is unlikely that all multiplexes will be converted at the same time.

Another important aspect is the compatibility between the legacy receivers and the new DTT networks. Even though the average renewal time for TV receivers is 5 to 8 years not all receivers are replaced within this timeframe. This needs to be taken into account in assessing the realistic timeframe for upgrading the DTT transmission networks.

It is important to enable a smooth evolution of DTT technology to ensure a return on investment in both transmission networks (by broadcasters and operators) and the receivers (by the viewers).

In addition, increasing number of receivers on the market are compatible with H264/MPEG-4 AVC and therefore regulatory action may not be necessary. Instead, it is necessary to define an appropriate performance benchmark that new TV receivers would have to achieve. H264/MPEG-4 AVC performance can be used as a basis for such a benchmark.

b. Setting standards for the ability of digital TV receivers to resist interference.

It would be useful to improve the standards for the ability of digital TV receivers to resist interference. In setting the new standards account should be taken of the new technology developments such as silicon tuners. Furthermore, the new standards should not be limited to interference rejection criteria; they should include other performance indicators (e.g. selectivity, quality requirements) that would permit an improved user experience.

The benefits of having better receivers can manifest themselves only in the long run, but in the meantime the existing receivers will need to be protected. This is particularly important in view of the opening up of the band 790-862 MHz for electronic communications systems. This frequency band is within the tuning range of all existing TV receivers; thus additional measures will be required to prevent the harmful interference from the new wireless networks to broadcasting reception. They include technical mitigation techniques as well as regulatory measures.

The Commission should encourage national administrations to implement such additional measures, where necessary, in order to ensure protection of broadcasting services.

4.2. Increasing the size of the digital dividend through further spectrum efficiency gains

a. Promoting collaboration between Member States to share future broadcasting network deployment plans (e.g. migration to MPEG-4 or DVB-T2).

Collaboration between Member States has proven successful and crucial during the preparations for the ITU RRC-06 and at the Conference itself where the GE06 Agreement and Plan were established. EBU itself has been fostering collaboration between broadcasters for many decades. That is why we welcome the Commission's initiative to continue such cooperation on, in particular, upgrading DTT networks.

Migration to a more efficient standard is a natural part of the evolution of broadcasting technology (and should be the same for every user of the spectrum). This is most evident in the current digital switchover where large investments are being made by broadcasters and DTT network operators, as well as the viewers. As a result, new opportunities are created for broadcasters and other spectrum users.

We observe that an increasing number of TV receivers on the market are already MPEG-4 compatible and this trend may lead to a full adoption without any regulatory action. However, national administrations may, where appropriate, implement additional measures, such as imposing a particular coding system (i.e. MPEG-4), at national level in order to facilitate migration.

DVB-T2 is a new standard and a number of pilot trials are being carried out or are scheduled in the near future. The EBU believes that it is too early for any assessment as to whether or not DVB-T2 would be suitable for wide deployment on every DTT network across EU and under which conditions and technical parameters for this standard. Nevertheless, progress with DVB-T2 should be monitored and potential benefits considered. A review of the situation would be necessary in the mid-term (3-5 years' time).

It should be noted that if DVB-T2 and MPEG-4 were to be introduced on a wide scale, all existing DVB-T/MPEG-2 receivers would need to be replaced. Such a migration would require additional 'transitional period' and additional frequencies where a simulcast period is needed. Taking into account the usual 15-20% of reluctant viewers, specific incentives would be needed to motivate them to buy new equipment.

Moreover, in countries where DVB-T has already been launched, investments made in the process of switching off analogue television need to be secured before the move is made from DVB-T to DVB-T2 to ensure a successful transition to digital television. Moving from DVB-T to DVB-T2 would require an upgrade of networks, demanding important new investment for broadcasters and network operators. Appropriate funding and/or incentives would be needed to motivate such new investment.

It should also be noted that, while contributing themselves to spectrum efficiency gains, public service broadcasters should be entitled, along with other players, to enjoy the benefits of such gains in order to develop their activities and to respond to consumer demand.

b. Encouraging the deployment of Single Frequency Networks (SFNs) over Multiple Frequency Networks (MFNs).

It would be useful for the Member States to exchange experience of SFN deployment with the assistance of the Radio Spectrum Committee.

However, the SFN approach does not always lead to the most efficient use of spectrum and lower power/higher density broadcasting network topology is not suitable in all cases and could entail important investment that not all broadcasters can afford, and particularly when the former location of transmitters has to be changed or extra transmitters needed to cope with SFN self-interference. In practice, DTT network configuration needs to be optimised with regard to a number of parameters, such as the size of the service area, terrain, population distribution and availability of transmission infrastructure.

The SFN approach may be favourable for large service areas (however taking account of the limitation of the maximum achievable network size) and where the same frequency is available across such a large area. It is often necessary to undertake a large scale frequency re-arrangement to free up such frequencies for national SFNs. This may include the need for international frequency coordination.

The advantage of the MFN approach is that a significant part of the existing analogue network infrastructure may be re-used, which has obvious cost-saving implications for the network

operators and broadcasters but also provides benefits for the viewers (e.g. the possibility to re-use their existing receiving antenna and feeder system).

The decision to implement SFN networks must be for the competent authorities in each country together with broadcasters and network operators, depending on their own national characteristics (such as topology and geography) and their own national objectives.

c. Supporting research into "frequency agile" mobile communications systems.

This issue does not have direct implications for broadcasters.

4.3. Making the 800 MHz band available for low/medium power electronic communications networks, under harmonised technical conditions, following the principle of technology and service neutrality.

When the frequency band 790-862 MHz is made available for low/medium power electronic communications networks other than broadcasting this band is no longer available for broadcasting. The consequences of this change will be significant for broadcasters. It is the view of the EBU that the following issues must be given due consideration:

I. Migration of the existing DTT services to the band below 790 MHz

A clear and feasible migration strategy is necessary to ensure continuation of all existing DTT services (on the new frequency) with no reduction of coverage compared to former coverage and with minimum disruption for viewers. National broadcasters should be involved in the development of such a strategy.

In those countries which have not yet completed the analogue switch-off this migration could delay the overall switchover process. Nevertheless, it may be beneficial to adjust the original plan for the switch-over in order to minimise subsequent changes to the DTT networks and frequencies.

In some countries the analogue switch off has already been completed, resulting in some DTT services being implemented in the band 790-862 MHz. These countries may need an additional migration period to clear the band from the recently deployed digital broadcasting services.

In all cases there will be costs associated with the migration, in particular due to:

- changes to the transmission networks (e.g. denser networks to compensate for the increase of interference levels, new transmission equipment and antenna systems)
- changes to the user equipment (e.g. new aerials)
- information campaign and support the viewers in the affected areas.

The Commission should encourage national administrations to ensure sufficient and timely funds to cover these costs.

II. Protection of broadcasting services from mobile interference in the long term

EC and CEPT are in the process of establishing the necessary technical conditions that should permit co-existence of mobile communication networks in the frequency band 790-

862 MHz and broadcasting below 790 MHz. However, this does not imply that protection of broadcasting services is guaranteed in all cases.

It has been recognised by the CEPT and reflected in the draft CEPT Report 30 that *'block edge masks do not always provide full protection of victim services and in order to resolve the remaining cases of interference additional mitigation techniques would need to be applied.'* Therefore, it cannot be assumed that broadcasting services would be automatically protected by applying the minimum restrictive conditions alone, e.g. without additional mitigation techniques, where necessary.

If improvements to broadcasting equipment (either transmission or reception) are required and agreed by broadcasters additional measures may be necessary, in the short term, to avoid possible disruption of reception for viewers.

National administrations should be required to apply additional measures, where necessary, on a national/local basis to ensure protection of broadcasting services from this additional interference and to avoid disruption of reception for viewers. Where necessary, compensation measures may be needed.

III. Alternative frequencies for broadcasting services should be identified below 790 MHz to compensate the 'lost' channels for the existing and planned DTT services above 790 MHz. It is recognised that this issue is relevant only in some countries as not all countries will be equally affected by the re-allocation of the band 790-862 MHz.

In some cases it may not be possible to find such replacement frequencies in the current GE06 Plan; thus additional frequencies will need to be found. This will require bi- or multilateral co-ordination in accordance with the provisions of GE06 Agreement.

Additional frequencies should not have an adverse impact on the existing and planned DTT services, e.g. by increasing the interference levels to a harmful level or reducing the coverage.

National broadcasters should be involved in the co-ordination activities and frequency planning, wherever possible.

IV. According to the GE06 Agreement analogue TV services are protected until 2015. This is particularly relevant for those countries that will have completed the digital switchover by an earlier date but will have to accept constraints on their DTT networks in order to protect analogue TV services in the neighbouring countries. This may make it more difficult to free the band 790-862 MHz from the existing DTT services.

4.4. Adopting a common position on the potential use of the "white spaces" as part of a possible extension of the digital dividend.

The EBU believes that when the possibility of using the interleaved spectrum for cognitive radio systems is considered, the following issues need to be addressed:

- Cognitive radio systems could be introduced in the broadcasting frequency bands only on a non-protected non-interfering basis with respect to terrestrial broadcasting and SAP/SAB services that are already operating in these same frequency bands. Appropriate technical criteria and conditions need to be established.

- Deployment of cognitive radio systems must not hinder the technology and service evolution of the incumbent services, such as DTT and SAP/SAB. This is particularly relevant in the case of the licence exempt operation of cognitive radio systems.
- The overall benefits that are expected from the introduction of cognitive radio systems in the white spaces need to be assessed. In that respect, it may be useful to establish some general criteria and guidance. This would help the industry when developing equipment and services and would assist administrations in making the necessary regulatory provisions. In addition, well defined assessment criteria would add transparency in evaluating different deployment scenarios and sharing models on a case by case basis.
- Appropriate performance indicators of cognitive radio systems need to be identified.
- The amount of 'white spaces' in the UHF band is considerably reduced by the digital switch-over and the allocation of the band 790-862 MHz to electronic communications services. It is therefore necessary to reassess the amount of the 'white spaces' that may be available for the cognitive radio devices in the future.

4.5. Ensuring the continuity and further development of wireless microphone applications and other secondary uses of the UHF spectrum

Wireless microphones applications are very important for broadcasting production and therefore the EBU supports the Commission's proposal to ensure their continuity in the UHF band.

The amount of the interleaved spectrum in the UHF band is considerably reduced by the digital switch-over and the allocation of the band 790-862 MHz to electronic communications services. At the same time the spectrum demand for wireless microphones is expected to grow.

It should be recognised that some wireless microphone applications require a high degree of protection from interference (e.g. those used in live broadcasts and special events) whereas others can tolerate higher levels of interference (e.g. some community use). In order to ensure an adequate level of protection for critical applications it is preferred not to mix professional and mass market applications in the same channels.

The EBU does not support any mandatory harmonisation measures as this could significantly reduce flexibility for national administrations and the users to find a sufficient amount of spectrum for wireless microphones.

However, it would be very useful if the tuning ranges of the equipment were enlarged.

4. 6. More effective cross-border coordination with non-EU countries

The EBU supports this proposal, pending further clarification on the practical approaches.

In addition, we propose the inclusion of national broadcasters in the cross-border coordination because in many countries broadcasters have the necessary expertise and experience in spectrum coordination.

4.7. Addressing future challenges

Monitoring of the developments in technology, services, market demand and societal requirements shall equally include all relevant communications services and spectrum users, and not only DTT.

Concerning the consumer take-up of HDTV, we would like to note that virtually all TV receivers for sale on the market are HDTV enabled. A growing portion of TV production is in HDTV format and in the future all TV production will be in HD, compliant with DTT standards.

European consumers have freely embraced DTT as the fastest growing delivery platform - even in the countries with a high penetration of cable and satellite TV. DTT cannot easily be replaced by other platforms. It is the only platform that offers universal free-to-air services of equal quality to every segment of society irrespective of ability to pay for services, thereby fulfilling certain general interest objectives. It is therefore necessary for all delivery platforms, in particular DTT, and future broadband networks, to be able to support HDTV services.

With regard to the implementation of the new electronic communications services in the band 790-862 MHz it is very important to ensure interoperability of the systems that will be deployed. This would reduce the risk of market fragmentation, facilitate international roaming and encourage competition among operators for the maximum benefit of users. The Commission should be firm about this.

Broadcasters are (rightly) being asked to use the most spectrum-efficient technology available for broadcasting. Other users, including those providing electronic communications systems, should be required to do the same.

With regard to possible spectrum bottleneck caused by the increased demand for wireless broadband it is necessary to seek spectrum efficiency gains in all frequency bands that are used to deliver wireless broadband, i.e. beyond the digital dividend spectrum in the UHF band.

Broadcasters recognise the potential of the broadband infrastructure, including wireless broadband, as a new platform for a range of media services. We believe that the future of the Internet lies with high bitrate services, because of the demand for high quality audiovisual material. It is likely that in the future there will be a demand for Internet connections with the bitrate capacity of 100Mbit/s and more. The new wireless broadband networks should employ state-of-the-art technologies with as high a capacity as possible.

5. URGENT ACTIONS

The EBU trusts that the urgent actions which are envisaged by the Commission and are to be adopted under the so-called comitology procedure foreseen in the Radio Spectrum Decision and the Framework Directive will be limited to purely technical implementing measures, i.e. measures which do not have broader policy implications regarding, in particular, audiovisual policy and all its related issues, such as media pluralism, cultural diversity and support for European production. Any measures which would go beyond the technical implementing measures should be subject to a full democratic process, through the co-decision procedure (adoption by the European Parliament and the Council), as specified by the telecom reform package currently awaiting adoption.

5.1. Accelerating analogue switch-off by 2012

EBU members are very interested in successful completion of the analogue switch-off (ASO). The Members States that have not yet completed the digital switchover should be encouraged to do so as soon as possible. However, for some Member States the ASO target date 1 January 2012 may be challenging.

In addition to regulatory action such as confirming the ASO date in national law it is very important to ensure the active co-operation of all involved parties, e.g. regulators, network operators, broadcasters and industry. National circumstances play an important role in the digital switchover process and therefore imposing a single switchover date would not be appropriate. The European Commission should provide assistance to those Member States where the digital switchover is delayed, e.g. in terms funding, guidance, and resolving cross-border issues.

It is understood from the Consultation document that a correlation is assumed between the ASO and the release of the 790-862 MHz band for other services. Although this may be true in some countries, there are other countries, e.g. in Eastern Europe, where these frequencies have not been used for analogue TV services but for other purposes such as military and/or aeronautical services.

5.2. Taking steps towards the opening of the 800 MHz band for electronic communications services by adopting harmonised technical conditions of use in Europe

Opening the frequency band 790-862 MHz for electronic communications services will have significant consequences for broadcasters.

The existing DTT services will have to be relocated to the band below 790 MHz with no reduction of coverage compared to former coverage and with minimum disruption for viewers. This migration will require time and funds to cover the associated costs, in particular the costs of changing the transmission networks and user equipment.

Broadcasting services need to be protected from interference caused by the electronic communications networks including mobile terminals. Beyond encouraging technical measures, the Commission should encourage national administrations to apply necessary measures with a view to ensuring such protection and to succeeding in the transitions.

In some countries alternative frequencies for broadcasting services will need to be identified below 790 MHz to compensate the 'lost' channels above 790 MHz. Where this is not possible, additional frequencies will have to be co-ordinated. These additional frequencies must not adversely affect the existing and planned DTT services, e.g. by significantly increasing the interference levels or reducing their coverage.

National broadcasters should be involved in the co-ordination activities and frequency planning, wherever possible.

According to the GE06 Agreement analogue TV services are protected until 2015. This is relevant for those countries that have to accept constrains on their DTT networks in order to protect analogue TV services in the neighbouring countries. This may also make it more difficult to free the band 790-862 MHz.

Further information is provided in the EBU response to 4.3 above.
