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Introduction

The NPO, Netherlands Public Broadcasting, would like to take advantage of the opportunity to present its views on the EC Consultation document "Transforming the digital dividend opportunity into social benefits and economic growth in Europe".

The document strongly emphasizes the need for sufficient radio spectrum to be used for wireless communications aimed at creating further efficiency gains in the broader economy. In the vision of the EC, wireless services could be a vital driving force for economic recovery in Europe.

In the opinion of the NPO the strong emphasis on economic added value is too limited.

Spectrum is a scarce public good and its use should indeed be managed effectively. Not only the economic benefits to society should be taken into account, but also the social value of radio spectrum. Broadcasting generates significant public value for society. It is one of the few truly universal services which are consumed by every segment of society, regardless of the way the services are being paid for. Besides generating a large amount of private value for viewers, television and radio generate positive externalities, also called 'public value' for society as a whole, by promoting cultural diversity, social cohesion, educational content, etc.

The European Commission should in our view put much more emphasis on the importance of social benefits of the different services proposed to be used in the 790-862 MHz band, as opposed to just closely following the

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recommendations made by Analysys Mason in their report on the subject. This report only highlights the expected higher added value and economic importance for economic recovery in the coming years.

Henceforth we present our detailed comments on the statements and views expressed in the EC consultation document.

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

In the opinion of the NPO the EC views will hamper the migration from DVB-T SDTV to DVB-T2 HDTV DVB-T by taking away the necessary spectrum resources. The reduction of spectrum capacity will also hinder the introduction of DVB-H.

DVB-T will have to innovate in the near future

For the DVB-T platform to remain competitive with cable and satellite services, the introduction of HDTV, and in conjunction DVB-T2, is required. This innovation will lead to a significantly more efficient use of radio spectrum and cater better to the needs of the public.

The European Broadcasting Union, the umbrella organization of European public broadcasters, takes the position that in order to remain competitive with other distribution platforms such as cable and satellite, the DVB-T platform will have to offer around 25 HDTV channels in the future. This leaves little room for allowing the digital dividend to be used by other services than television. A realignment below 790 MHz, in order to make available the sub-band 790-862 MHz for other services than DVB-T, will take away much of the flexibility needed for the future development of television services.

Consequently the:

- desired competition between distribution platforms will be lost;
- television viewers will be disadvantaged;
- AV industry in Europe will suffer.

Against this background it is good to stipulate that public service broadcasting in Europe has a legal mandate and public broadcasters should at all times be confident that their tasks can be performed in a modern way and technically undisturbed.

The extra capacity needed for DVB-H might disappear

One of the driving forces behind the emergence of mobile broadband applications is the desire of the public to watch television and listen to radio on mobile terminals. If these services are to be provided by mobile broadband networks only, this may lead to serious congestion in the networks used. Therefore many mobile operators look upon DVB-H as an additional infrastructure to alleviate congestion. Live video, in their view, should be distributed through DVB-H.

On July 18, 2007 the European Commission adopted a strategy favouring the take-up of mobile TV across the 27 EU Member States. The Commission urges Member States and industry to facilitate and accelerate the deployment of mobile TV across Europe and to encourage the use of DVB-H as the single European standard for mobile TV.

However, in order to let DVB-H be viable in the market, much more spectrum than the limited number of multiplexes now available for this purpose is needed.

Should it come to the release of the 790-862 MHz band for electronic telecommunications networks, then the NPO calls for the possibility to also introduce DVB-H services in this band.

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.

To enable the introduction of HDTV-services via DVB-T, the use of the H264/MPEG-4 AVC standard (or better) is required. Under the condition that this will not lead to excessive price increases of DTT receivers and set top boxes, the NPO supports DVB-T receivers and set top boxes being sold with both MPEG-2 and H264/MPEG-4 AVC standard (or better) encoders on board.

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To expand the life cycle of the equipment and allow further innovation DVB-T, receivers and set top boxes should be equipped with upgradable firmware. January 1, 2012 is a suitable deadline for making this mandatory. The NPO also supports any earlier date.

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b. Setting standards for the ability of digital TV receivers to resist interference.***The NPO is expecting increased interference to DVB-T and DVB-C services***

The CEPT (mainly the SE42 group) is in its final phase of work on the subject of setting minimal restrictive technical conditions for mobile services in the 790-862 MHz band.

The NPO is of the opinion that these preliminary, proposed conditions do not sufficiently take into account the protection of broadcasting services against interference caused by mobile networks. With a view to resolving the remaining cases of interference, additional mitigation techniques will be needed on a national / local basis, for example by means of introducing a protection clause in mobile network licenses (including additional restrictions on mobile networks, specific mitigation techniques, etc.).

The NPO believes that national authorities should incorporate such protection clauses in the licenses for mobile networks as well.

The results of measurements should be the basis for technical and operational conditions to be set for mobile services. This in addition to the conditions set by the CEPT for the effective protection of broadcasting services. The current CEPT documents on this subject are based on interference measurements between UMTS and DVB-T services. UMTS however will in time disappear in favour of LTE and likewise DVB-T broadcasting will disappear in favour of DVB-T2.

In the view of the NPO further studies are needed to assess the impact of future LTE and LTE+ services in the band 790-862 MHz. Only on this state-of-the-art basis appropriate standards can be set for digital TV receivers to resist interference.

Moreover the NPO finds the results of the work of CEPT ECC TG 4 on the effects of high field strength levels by mobile terminals into television set top boxes rather summary. In our view more study is needed on the effects of harmful levels by mobile terminals on:

- a) television receivers, whether or not through a set-top box, coupled to the cable;
- b) DVB-T receivers, whether or not through a set-top box.

In both cases, overloading of the hf front ends of the receivers caused by high external field strength levels is commonly seen.

First tests of cable operators in Germany and Austria show potential interference from the mobile networks in the band 790-862 MHz in cable networks and in cable set-top boxes. Given the large importance of cable in Europe (more than 200 million viewers) a complete analysis of the possible impact of the SE42 and TG 4 proposals on the cable set top boxes is of paramount importance.

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).

The NPO sees opportunities for increasing spectrum efficiency in the future deployment of broadcast transmitter networks through further cooperation between Member States. The synchronization of migration plans is of special interest. Cooperation in this area within the EC and CEPT has already proven itself in the past.

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

According to the NPO, further research in this area is needed before the use of SFN's on a wider scale can be stimulated. Special attention is needed for

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the alleged higher spectrum efficiency in smaller regional areas and the cost of SFN's. In addition, the considerable investments in the roll-out of current DVB-T networks will have to be taken into consideration.

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

The NPO follow with interest the technology developments and are interested in exploiting the benefits potentially offered by Cognitive Radio Systems (CRS). We support the standpoint of the European Broadcasting Union (EBU) that the Electronic Communications Committee (ECC) of the CEPT is best placed to study the proposals made by the CRS-industry and to deal with some broader issues, such as overall spectrum efficiency.

In that respect, it may be useful to establish some general criteria for such assessment. This would on the one hand provide guidance to the industry when developing equipment and services and on the other hand would assist administrations in making necessary regulatory provisions. In addition, well defined and agreed assessment criteria would add transparency in evaluating different deployment scenarios and sharing models on a case by case basis.

Furthermore, appropriate performance indicators of CRS should be identified. As a starting point, experience gained from using the existing (pre-cognitive) techniques could be examined.

It is of a particular importance for broadcasters that access to spectrum for CRS in broadcasting bands is regulated, taking into account the following:

- CRS can be introduced only on a non protected non interfering basis with respect to terrestrial broadcasting and SAP/SAB services already operating in these same frequency bands
- CRS deployment must not hinder the technology and service evolution of the incumbent services. For instance, CRS operation in the UHF 'white spaces' shall not obstruct future development of terrestrial broadcasting technology. This is particularly important in the case of license exempt CRS operation.

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.

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The allegedly more efficient use of the radio spectrum when using the WAPECS (Wireless Access Policy for Electronic Communications Services) principle is questionable

WAPECS is an initiative within the European Union to strive for a more flexible use of frequency spectrum following the principle of technology and service neutrality.

The WAPECS principle is applied within a number of frequency bands designated by the Member States of the European Union and plays a major role in frequency management. These bands can be used by any electronic communications network and service in a technology and service neutral way. Their usage is subject however to a number of technical conditions which are set with the aim to prevent interference. The main advantage of the WAPECS principle is its flexibility; its main limitation is the inherent limited understanding of interference.

This limitation will particularly be felt with wireless broadband networks in a broadcasting environment. System parameters are greatly different between the two systems. Where mobile and broadcasting services are delivered in one and the same band this calls for major interference problems.

As a consequence stringent technical conditions for the use of the band 790-862 MHz are needed for the protection of incumbent broadcasting services. It is likely for these conditions for mobile networks to be based upon the WAPECS principle. In order to resolve the unavoidable remaining cases of interference, additional mitigation techniques will be needed in national or local basis taking away much of the spectrum efficiency. Therefore, the flexibility of using the WAPECS principle might lead to a suboptimal use of the spectrum part 790-862 MHz.

In contrast to the WAPECS principle is the current planning of the UHF television band, consisting of traditional frequency planning and incorporating

sharply defined services and technologies. It maximises the efficient use of this part of the radio spectrum.

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

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Further studies in this area are needed before the opening up of the UHF spectrum for cognitive radio systems in the so-called "white spaces" can be considered.

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

Broadcasters increasingly suffer from a shortage of frequencies within the tuning range of SAB/SAP-equipment . This leads to interference and a situation where all requirements of a broadcaster can no longer be met with.

The 470-862 MHz band is one of the bands with the greatest issues. This range is fully occupied with DVB-T and other services and it is already difficult in some areas (particularly large cities) to provide enough frequencies for wireless microphones to be used for large scale AV productions.

In The Netherlands, channel 63 in the 790-862 MHz band has been reserved for audio applications (radio microphones, in-ear monitoring, portable audio links and talkback equipment). In the case of this sub-band being granted to non-broadcast services, all equipment will have to be modified in order to operate on other frequencies.

In view of the high migration costs involved it is therefore necessary to define spectrum requirements beforehand for SAB / SAP to ensure that sufficient spectrum will be available to these applications in the future. It is expected that the current planning of future spectrum will not offer sufficient capacity to cater for the needs of medium to large broadcast productions. Estimates of the future demand for wireless microphones suggest that extensive growth of the required number of frequency channels for this purpose can be expected .

Therefore the NPO calls for a coordinated plan that offers sufficient capacity for intermodulation-free frequencies for wireless microphones.

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

The NPO opposes the EC policy to make available the 800 MHz band for services other than television in the year 2012. It is in our view not possible at this stage to migrate the frequency usage in the 790-862 MHz range to the 470-790 MHz range while maintaining the same coverage and quality of service, which served as a basis for determining the GE06 Plan at RRC06 . The resulting very dense broadcast networks will suffer from excessive interference and hamper the further development of digital terrestrial television in Europe.

A decision on migration should not be made hastily but should be based on the results of a thorough investigation of:

- The alternatives for the 800 MHz band for broadband use in rural areas.
- The usage of currently available capacity for GSM, UMTS and HSPA.

On this subject one of the major mobile telecom operators in The Netherlands announced on July 31, 2009 that it will return part of its UMTS and DCS frequency blocks to the Dutch administration. The operator recently paid a penalty of € 5 million due to the inadequate roll-out of one of its networks. The Telecom Agency reacted by stating that businesses and consumers are not served well if valuable, unused frequencies remain on the shelf.

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Moreover in the years after 2012:

- Much more information will be available on the need for UHF spectrum by DVB-T and DVB-H (before 2017 the migration from DVB-T to DVB-T2/HDTV is likely to take place)
- The eventual usage of the 2.6 GHz band for broadband mobile networks will have become clear.
- The current economic recession is likely to fade out.

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With the above questions answered, predictions of the future growth of mobile broadband and demand for radio spectrum will become more accurate.

This finalizes the NPO comments on the EC Consultation document "Transforming the digital dividend opportunity into social benefits and economic growth in Europe". With our comments we hope to contribute to the discussion on the subject.

With kind regards,



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