



ARD and ZDF Comments on the RSPG Opinion on the Digital Dividend

ARD and ZDF welcome the opportunity to present their comments on the Radio Spectrum Policy Group (RSPG) Opinion on the Digital Dividend.

I. Preliminary Remarks

ARD and ZDF are public service broadcasters which have a mission that includes encouraging national culture and social cohesion, providing reliable, unbiased information on the bases of varied and balanced programming for all segments of the population. Moreover ARD and ZDF are called upon to provide nearly universal coverage, which means that public service programmes should be available to virtually every citizen throughout the national territory. This obligation for nearly universal coverage requires significant allocations of spectrum¹, despite the fact that the central geographic situation of Germany leads to more limited resources than other countries.

Moreover public service broadcasters are, as major producers and providers of European content and as driving-forces for digital switchover, a key asset for fostering and promoting the information and knowledge-based society and for bridging the digital divide. They have contributed to the development of European Standards for DVB, DAB, including their mobile derivatives and HDTV, as well as to the development of the GE06 Agreement and to the deployment of digital broadcasting services which allow for more efficient use of the spectrum.

II. ARD supports RSPG proposals in general...

ARD and ZDF share the view of RSPG that more coordination between Member States on an appropriate level is necessary to secure the availability of the 800 MHz band for electronic

¹ See also ARD/ZDF Comments on the RSPG Draft Opinion on Streamlining the regulatory environment for the use of spectrum (29.09.2008) and ARD/ZDF Comments on the RSPG Opinion on Aspects of a European Approach to collective use of spectrum (03.09.2008)

communication networks (ECN) and electronic communication services (ECS) if it is no longer used for broadcast transmission networks and services. ARD and ZDF also agree that Member States making available the 800 MHz band for new and/or enhanced ECN and ECS should apply WAPECS principles, particularly the principles of service and technology neutrality. This is a goal which goes in line with the ongoing revision of the EU Regulatory Framework for Electronic Communications. But in promoting this goal compatibility between applications and equipment (from the spectrum management point of view) should not be negatively influenced and the development of existing applications should not be hindered, in full consistency with the policy regarding the bands used for broadcasting services.

Furthermore, due attention should be paid to the fact that Member States may maintain broadcasting use in all or a portion of the band, although this is not the case in Germany. The preservation of this option is essential and also covered by the ongoing review of the regulatory framework for electronic communications. Generally, any coordinated approach should fully take into account the specificity of each Member State.

III. ...but following aspects should be taken into consideration

1. Implications of the GE06 Agreement

The GE06 Agreement offers significant flexibility for the future development of the digital plan by virtue of allotment planning and the spectrum mask concept. Such flexibility allows the use of the digital dividend by broadcasting services without any need for additional regulatory actions to be undertaken by Member States.

The GE06 Agreement has been optimised for digital terrestrial broadcasting by creating a de facto harmonisation of planning criteria and parameters. The use of the digital dividend by broadcasting-like applications would maximise the efficient use of the spectrum.

The flexibility of the GE06 Agreement under the envelope concept together with Article 5 of the Agreement allows the use of digital entries in the plan by other non-broadcasting services. Recently the RSPG named the specific case of fixed/mobile applications (including uplinks)

as non-broadcasting “candidates” for the digital dividend in the UHF band.² Now this consultation identifies – more generalising - ECN and ECS.

From a technical point of view, the propagation characteristics of the UHF band compared to higher frequencies can be best exploited when a large area is covered with high power signals which are typically for broadcasting and broadcasting applications, (one-to-many). Only this allows universal coverage in an efficient way. If the same is done by cellular networks (typically one-to-one) to cover a reduced number of users this could result in a less efficient use of the spectrum, noting that the interference of base stations beyond the horizon is significantly higher than in higher frequencies.

Nevertheless many of the Member States – Germany as well – are going to open the 800 MHz band for some ECN and ECS. ARD and ZDF consider it important that all related technical issues are carefully examined before regulatory or harmonisation actions are undertaken.

In the GE06 Agreement the frequencies associated with a given digital multiplex (coverage or layer) are usually scattered across the whole band. A sub-band for exclusive use by the fixed/mobile service could affect all digital broadcasting multiplexes. The loss of certain frequencies would create “holes” in the multiplexes (i.e. produce areas with no coverage).

The remaining part of the band would have to be replanned to obtain the original envisaged DVB coverage requirements which may not be possible at affordable costs given the existing overload of the entire planned spectrum. The replanning process would be especially complex for those countries that have introduced DVB-T. It should be noted that, as of now, at least 14 European countries have already launched DVB-T and by the time a replanning process may have been completed, many more countries would have done so. In addition, the costs for modification of reception and transmission equipment implied by a frequency rearrangement should not be ignored. First - quite conservative - estimations for Germany show that there will be at least costs up to 130 Mio. € for all DVB-T recipients (implementation of filters, change of receivers to secure the compatibility of broadcasting and mobile services) and at least 140 Mio. € for the broadcast network operators Media Broadcast and ARD.(necessity of

² See RSPG Opinion on EU Spectrum policy Implications of the Digital Dividend, Document RSPG07-161 final, 14.02.2007

³ ANGA/Institut für Rundfunktechnik, Abschlussbericht: Beeinflussung der Dienste auf TV-Kabelinfrastrukturen durch bidirektionale terrestrische Anwendungen LTE/Long Term Evolution) im UHF-Bereich, April 2009;

higher network density and higher transmission power). Moreover public broadcasters will have to face 6 Mio. € additional costs, due to necessary communication measures and the change of wireless production equipment.

2. Interference problems have to be solved

As mentioned in the draft of the RSPG Opinion, international coordination would also be required to protect the digital entries in the GE06 Agreement for countries not party to the replanning process.

Digital broadcasting is characterised by a rapid transition from near perfect reception to no reception at all - and thus it is more critical to limit interference than it was for analogue broadcasting.

The introduction of other services than broadcasting in the band of 800 MHz should be done in a way that no additional constraints are induced to broadcasting services according to the current GE06 plan and its evolution. Here no additional interference and no restrictions of the channel usage of channel 60 should be included.

In many situations, it may be difficult to protect broadcasting services from interference caused by mobile services. Such types of interference may also be difficult to identify and to remedy rapidly.

Especially the results of recent compatibility studies (adjacent band compatibility between broadcast services below 790 MHz and mobile services above 790 MHz) between the broadcasting service and the fixed/mobile services (including uplinks) should be taken into consideration. Results from preliminary compatibility studies between broadcasting and mobile services show the difficulties. The studies conclude that interference will occur with the currently discussed channelling arrangement and BEM (Block Edge Mask) and that additional measures will be needed to protect the broadcast services (guard bands and filters among others). Even cable network infrastructures will face severe interferences through LTE-applications in the UHF-Spectrum.³ ARD and ZDF notice that the RSPG Digital Dividend Opinion does not address at all the interference issues apart from the cross-border case although the costs and difficulties associated with the interference management are expected to represent the highest challenge for the introduction of mobile services.

We particularly regret that these interference issues were only partly taken into account when defining the BEM and the channelling arrangement in CEPT. As a consequence, the protection of broadcast services and the implied costs are left to national initiatives.

This creates a remarkable amount of uncertainty: for the national administrations for which the best approach has yet to be defined (regulatory and or technical), for the mobile industry which does not know the cost implications of possible protection clauses for the users and their DVB-T equipment, for the consumer electronics industry which does not know which level of immunity is required and last not least for broadcasters like ARD und ZDF as well.

Up to now, there is no “proof of concept” of an interference free coexistence between mobile services (downlink and uplink) operating above 790 MHz and broadcast services just below 790 MHz.

In this respect we would like to recall that the RSPG stated in its opinion on the Digital Dividend that a mobile allocation would be sought after “*under conditions that broadcasting services are not adversely impacted*”.

Furthermore, new equipment, modifications to the DVB-T standard or additional specifications will have to be addressed in order to cope with the new interferers above 790 MHz. However, due attention should be paid to the impact on equipment costs for the consumer electronics industry. Not to mention that any DVB-T standard modification or additional specifications can only emerge if a certain stability regarding the interferer types exists. Due to several ongoing debates regarding the “Digital Dividend” (white spaces, enhancement of the sub band, discussions on the BEM) no clear perspective is given and this hinders the development of standards modifications or additional specifications. As a consequence, a closer collaboration between the consumer electronics industry on the one hand and the European Commission and CEPT on the other hand - as this is already the case for the mobile industry - would be beneficial.

3. Additional requirements for SAB/SAP services

There are some other services which have access to these bands on a secondary basis, which means that they should not interfere with the broadcasting service and not claim protection from it.

Although these services are not considered in international negotiations, on a national basis they are of high importance for broadcasters, theatres, opera houses, concerts, universities and microphone manufactures etc.

So the band in question is quite extensively used for Services Ancillary to Broadcasting or Ancillary to Programme making (SAB/SAP) which are essential for program production activities. The operational conditions of these services make it possible to find frequencies, on a temporary basis, under non-interference compatibility conditions with the existing broadcasting service infrastructure. The digitization of the terrestrial broadcasting services in Europe has already increased the constraints on these services due to the growing number of frequency channels used in any given area, compared to the analogue situation. As a consequence new bands have to be found for these services in an appropriate transition period.

4. Additional applications in band 470 – 790 MHz will hinder the other process related to band 790 – 862 MHz

ARD and ZDF note the current activities on white spaces and cognitive radio in CEPT and the request for spectrum in order to bridge the digital divide. Additional white space devices use resources which are available to SAP/SAB services and therefore increase the difficulties outlined in para. 3. Furthermore, if the additional devices are decided to be introduced with insufficient protection conditions for broadcast services, the difficulties as explained in para. 2. will be amplified.

If such devices would not be excluded from the band 470 – 790 MHz, ARD and ZDF appeal to decision makers to take into account the implications expressed above. As a consequence activities in band 470 – 790 MHz may also delay the process related to the digital dividend above 790 MHz.