

Joint response to the consultation on the RSPG Opinion on the Digital Dividend*

1. Fixed/Mobile Broadband in the Digital Dividend

The digital dividend from the switch from analogue to digital broadcasting is beginning to be realised across Europe. The Netherlands, Finland, Luxembourg and Sweden have already made the switch; Denmark will do so in September; while parts of Germany, the UK and Belgium have also done so. The majority of Member States intend to do so by 2012. The spectrum required for digital broadcasting after analogue switchover added to that which may be freed up as the digital dividend totals almost 400 MHz from 470-862MHz. Of this, a sub-band was identified by the WRC07 for Region 1 from 790 – 862MHz, which is currently under regulatory update and detailed study by CEPT/ECC. There is a growing recognition among Member States that part of the dividend should be made available to fixed/mobile broadband. The UK, Ireland, Sweden, Finland, Denmark, France, Germany, Poland and Spain have all acknowledged this need.

Making part of the digital dividend available to fixed/mobile broadband technologies is one more step towards making ‘broadband for all’ within Europe a reality. Spectrum below 1GHz has better characteristics and improved in-building penetration.

Widespread access to broadband connections is an essential component of Europe’s economic and social future. A recent study indicated that an adoption rate of broadband at the speed of the most advanced countries in Europe would be worth an extra 2.1 million jobs from 2006 – 2015, whereas adopting it at the rate of the slowest countries, while still beneficial, would create just 345,000 jobs.¹ Companies adopting broadband-based processes improve their employees’ labour productivity on average by 5% in the manufacturing sector and by 10% in the services sector. Moreover, the development of broadband allows the acceleration and automation of information flows between companies, which enables an increased specialisation in knowledge-intensive activities. Finally, service innovation and process innovation in knowledge-intensive activities strongly rely on broadband technologies. This kind of innovation is crucial for the development of new markets and economic growth in developed economies.

The impact is not just on the economy. Broadband is becoming increasingly important for active participation in society. Using digital dividend frequencies, as well as other frequency bands such as 2.6 GHz, for broadband can help close the digital divide. The technologies involved are ideally suited to providing mobile broadband coverage in rural and remote regions. The best choice of wired/wireless and satellite technologies will however depend on the target services and the specific geographic and demographic

* The following companies contributed to this response: Cisco, Intel, Motorola, BT and Samsung

¹ ‘The Impact of Broadband on Growth and Productivity’, MICUS, 2008

scenarios. As we move into the Internet of things, home sensors will be used for everything from helping our ageing population to maintain independence to reducing our energy consumption, for example through Intelligent Transportation Systems (ITS), and thereby exercising support for the climate change agenda. HealthPresence will assist doctors in giving remote consultations, bringing healthcare into the home. This is not to mention the benefits in terms of e-commerce, e-government, education and entertainment.

Further to the societal benefits and the public services agenda of the EU is the growing need for mobile broadband services in the hands of public safety agencies in a coordinated manner across Member States. The digital dividend offers not only broadband access with excellent in-building penetration but does that across much wider areas than hitherto possible; a key characteristic for the growing needs of the public safety authorities.

Without freeing spectrum resources to enable the development of broadband networks, we are in danger of being under prepared for tomorrow's applications and services. As we move to a world of visual networking, HD video-streaming and consumer tele-presence in the next three to five years, we will require download speeds of no less than 11.25 Mbps, upload at 5 Mbps and 60ms latency. At the moment, not one country in Europe is prepared for this change.² Traffic continues to grow at a tremendous pace. Overall, the Internet will be nearly four times larger in 2013 than in 2009, while mobile data and Internet traffic will more than double every year in Europe – making it 61 times greater in 2013 compared with 2008 in West Europe and 89 times larger in Central Eastern Europe.³

Having given an overview of the pressing need for spectrum from the digital dividend to assist fixed/mobile broadband deployment in Europe in this introductory section, we will now make some general remarks in response to the consultation and respond to some of the recommendations of the RSPG.

2. General Remarks

2.1 Scope of the Opinion

The Opinion clearly states that solely the 790 – 862MHz sub-band is being considered. While we welcome the recognition that some Member States might choose to make more available, the RSPG should consider whether making more spectrum available to fixed/mobile broadband is desirable, particularly in the spectrum directly below 790MHz. While 790 – 862MHz is a positive first phase of opening the digital dividend in Europe, it would be advantageous to consider future dividends in this spectrum that might be made available for fixed/mobile broadband. A further downwards expansion of the 790 – 862 MHz band would increase the economies of scale with regards to user equipment which has already been developed and would be of benefit to all. In considering such a

² 'Broadband Quality Score', Oxford and Oviedo Universities, 2008

³ 'Cisco Visual Networking Index', Cisco, 2009

downwards expansion, we would ask the Commission to review channel plans in order to maximise and harmonise the opportunity.

It should be noted that in both Region 2 (the Americas) and Region 3 (Asia-Pacific) the Digital Dividend comprises the entire 690 – 806 MHz, band; a full 36 MHz more spectrum than currently foreseen in Europe. From the outset this seems to put Europe in a disadvantaged situation.

The limited amount of spectrum available is compounded by the need for substantial blocks of spectrum to deliver advanced speeds and services. Cutting edge mobile broadband technologies will require a minimum of 5 MHz channelisation, and service providers may choose equipment that requires 10 MHz or even 20 MHz channelisation. These broadband channel arrangements are essential for accommodating the mix of video, data and voice applications that will be required. Taking into account channel re-use patterns common to all cellular systems, it is no surprise that the WiMAX Forum recommends a minimum of 30 MHz for a robust urban network. In fact, many fixed/mobile broadband networks globally operate on far larger spectrum blocks.⁴ Enabling such an approach will provide an incentive for the market to adopt an open applications and devices approach, which is more difficult with smaller blocks. With 72MHz, it is hard to envisage more than two networks being created. This has knock on effects in terms of speeds and services available, and competition in the market.

In preparing for large blocks of spectrum to be made available to operators, we would also like to highlight the need for the spectrum to be allocated in multiples of 5MHz as opposed to 8MHz as envisaged in some circles. The profiles which have been created for the technologies likely to be used in the available spectrum have been developed based on 5MHz or 10MHz sub-blocks. Basing allocation on 8MHz could slow the time to market of such technologies without adding any benefits.

- We recommend that the Commission mandates CEPT to look at possibilities to make other spectrum under 790 MHz available, particularly in the channels directly below, and review channel plan proposals to maximise and harmonise this opportunity.
- Member States should recognise the need for substantial blocks of spectrum and should base allocation on multiples of 5MHz in their band plans.

2.2 Mandatory approach

The RSPG Opinion recommends that making the 800MHz band available to fixed/mobile broadband should be on a non-mandatory basis.

⁴ Danske Telecom – Denmark is licensed for 112 MHz at 3.5 GHz; Clearwire – US has access to up to 55 MHz of spectrum in US cities; Iberbanda – Spain has 40 MHz of spectrum at 3.5 GHz; Yota – (Moscow, St. Petersburg) Russia has 120 MHz at 2.5 GHz.

While it may be that enough momentum builds for fixed/mobile broadband in the 800MHz band to be applied across Europe, we believe that the Commission should consider a mandatory approach, similar to that of the 2.6GHz Decision. This would not be to say that the 800MHz band is designated for fixed/mobile broadband as such but that Member States should make the band available for fixed/mobile broadband, with the market then determining the actual use.

Such a mandatory approach has several advantages. Firstly, it provides clarity to pan-European operators so that they can plan their networks. Secondly, it encourages Member States that might otherwise miss out on the benefits of an aligned approach. These include attracting operators to provide advanced services to their citizens, given the economies of scale they can achieve from a significant geographical area and avoidance of roaming problems that would be to the detriment of the consumer. Thirdly, it could potentially hasten the decision making of Member States that are lagging in the decision-making process. Thirteen Member States have yet to start serious discussions about how the digital dividend will be used. The final advantage is in terms of negotiations with third countries which border Europe, as it allows Europe to present a united front.

- We recommend that the Commission should consider a mandatory approach for making the 800MHz sub-band available on a non-exclusive basis to fixed/mobile broadband along the lines of the 2008/411/EC and the 2008/477/EC Decisions which address terrestrial systems capable of providing electronic communications services.

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2.3 Cost recovery

Clearly there are some costs related to migration of the current users of spectrum in the 800MHz band or channels below it. In the case of broadcasting, there are of course commercial interests in the switch from analogue to digital and to a certain extent these costs are a natural consequence of such a move. That being said, we remain agnostic to how these costs are borne except to say they should not be directly paid for by the fixed/mobile broadband industry.

If deemed necessary, Member States could consider sources of funding such as public funding or the use of revenues gained from the digital dividend auctions. With the latter source of income, Member States should also take into account its other potential uses, however, such as ‘broadband for all’ via targeted funds for broadband in uneconomic areas and consumer subsidies for digital receiver equipment.

⁵ 2008/411/EC: on the harmonisation of the 3 400-3 800 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Community
2008/477/EC: on the harmonisation of the 2 500-2 690 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Community

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| <ul style="list-style-type: none">• The wireless broadband industry should not directly fund the cost of migrating spectrum users in the 800MHz band. |
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3. RSPG Recommendations

Below we discuss the recommendations found in section 7 of the current Opinion. Before doing so, however, we would like to touch upon the RSPG analysis of the conclusions from RSPG07-161 found in Annex A.

Conclusion 7 of the 2007 Opinion observes that in some countries under GE06, it is difficult to obtain a coherent spectrum block that will support broadband and in particular mobile broadband services. We would agree with that and seek Community initiated renegotiation of GE06 not only as necessary to resolve border issues with third countries (see 3.6 below) but also to adjust the GE06 in light of new advanced broadband technologies that have evolved since the GE06 was developed.

Conclusion 13 emphasises the extreme difficulties and associated burdens of moving broadcasters from their current spectrum allocations. It is important not to exaggerate this point. We would like the Member States and regulators to keep in mind the US example, where the digital transition was completed on 11 June. This process has been successfully achieved despite hundreds of TV stations changing technology and many of them also changing channels.

3.1 The Commission should assess the advantages/ disadvantages of an EU co-ordinated approach

We agree that action should only be taken on the basis of an effective evaluation. We hope that the study currently being undertaken by Analysys Mason will fulfil that role.

3.2 The Commission should recommend actions no later than 31 October 2009

Timing is crucial in terms of the allocation of the digital dividend. It is beneficial for both industry and consumers for the dividend to be allocated as soon as feasible. While some individual Member States are advanced in their preparations for allocation of the dividend, others are in danger of falling behind. Given that the US has already conducted its equivalent 700MHz auction (with the inclusion of public safety) we would hope that Europe can see the need for urgency. With this in mind, we believe that action by the European Commission is timely and we hope for an effective and efficient institutional discussion to allow the recommendations to be implemented swiftly.

3.3 If Member States make the 800MHz band available it should respect the WAPECS principles, especially technology and service neutrality

We agree that the 800MHz should be made available on a technology and service neutral basis. The key principle is for the market to decide. Technology neutrality is not

‘anything goes’, it is a principle that governments will not select a technology winner, and will impose only the minimum rules required to avoid interference. Regulators should establish spectrum allocations with a minimal technical prescription which ensures a technical coexistence with other users (e.g. radio emission masks that ensure signals do not spill over into others’ frequencies, adjusting power levels to the minimum needed to support the service). Within those broad technical parameters, licensees should be able to pick the technology that they want to use or that they will allow sub-licensees to use. As technology evolves, new systems can be introduced in an allocation provided their operation is consistent with the overall technical rules. Likewise, service neutrality is a dimension of a flexible approach which is a source of innovation, notably where it enables the development of convergent services. Choosing particular technologies and services brings with it the risk of locking spectrum into obsolete uses.

The principles of service and technology neutrality will be best served via auctions rather than beauty contests. The key to allocating the 800MHz band, and indeed other frequencies within the digital dividend, will be to make the sub-band available to fixed/mobile broadband rather than allotting it per se to fixed/mobile broadband, or narrowly defined services and technologies.

- Regulators should hold technology and service neutral auctions for spectrum released by the digital dividend.

3.4 Harmonisation of the technical conditions (e.g. channelling and minimum technical conditions) should be based on the outcome of CEPT work in response to the relevant Commission mandates

We agree that the current approach to harmonisation of technical conditions is a suitable mechanism but question its flexibility if additional spectrum below that being considered is released. We believe this needs further study.

3.5 The Commission should facilitate cross-border agreements

The Commission does indeed have a role to play in facilitating cross-border agreements between Member States, although this situation would naturally be unnecessary should all Member States make the 800MHz band available to fixed/mobile broadband. The Commission should be able to act as a neutral broker in negotiations which are likely to be multilateral in many cases. They can also rely on the expertise of CEPT where necessary.

3.6 The Commission should support renegotiation of the GE06 Plan if necessary with countries outside of the EU

Having some sort of mechanism for the Commission to negotiate with third countries on behalf of individual MSs seems like a positive idea. While Finland and other individual Member States have played a positive role in finding agreement with third countries, the

process so far has been somewhat deadlocked. The EU could potentially have more weight with accession and partner countries, alongside Russia and others.

Under the WRC, the timeline for co-primary allocation of broadcasting and mobile services in the 800MHz sub-band is from 2015. Via footnotes in the ITU Radio Regulations or via bilateral negotiations, some countries can open up the use of this sub-band before that date; subject to technical co-ordination with other countries (e.g. under Geneva Agreement 06). The problem is that several countries are bound by footnote 5.312 which allows the Russia Federation and Belarus to allocate 645-862MHz band to aeronautical radio-navigation services (ARNS) on a primary basis, and neighbouring countries wishing to use this band for mobile must first reach agreement with the two countries. The Ukraine also uses this sub-band for ARNS services. This problem affects Estonia, Finland, Latvia, Lithuania and Poland. Malta has an unrelated issue with using the 800MHz sub-band for applications other than broadcasting thanks to GE06 agreement on using DTT in channel 66. Other Member States are simply not in the footnotes including Czech Republic, Hungary, Ireland, Iceland, Italy, Luxembourg, Latvia, Slovenia and Slovakia. We would strongly recommend Member States to open up the 800MHz band to fixed/mobile broadband prior to 2015, with a preference for enabling use by 2012, in order to avoid falling behind the developments in other regions and to provide the market with a transparent and co-ordinated approach for obtaining spectrum and developing their networks.

Elsewhere in the Opinion, the RSPG also recommends that MSs could go ahead with opening up the 800MHz sub-band for fixed/mobile broadband in territories that are not in the interference zone with third countries. While we understand the logic in avoiding delays for territories that do not fall in the interference zone, we caution against moving away from national licences, which are preferred by the market.

- We recommend that the Commission plays a facilitating role in the Member State negotiations with Russia and other countries with the aim to enable fixed/mobile broadband to be used on a co-primary basis in all Member States prior to 2015. The Commission could also undertake research to explore interference issues and mitigating technologies in the affected countries.
- Member States which are not currently in the ITU RR footnote enabling them to bring forward the date for co-primary allocation should aim to do so during WRC-11.

3.7 The Commission should have a review process to determine the merits of facilitating EU-wide long term availability of 800MHz for mobile/fixed broadband applications

The suggestion to have a review process mirrors the current practice of CEPT for ECC Decisions and Commission mandates; after the initial decision, a review is held every three years to see whether the technological conclusions are still valid. We see this as a positive process and agree that it should also be incorporated here.

- The Commission should conduct a review on the use of the 800MHz band by giving a mandate to CEPT on the technical aspects
- As part of the review, the Commission should also consider include geographical considerations, especially in relation to those Member States who have not yet made the band available to wireless broadband.

3.8 Member States should identify geographic clusters for the timing of the digital dividend release

We consider co-ordinated timing of the release of the digital dividend as very positive. In an ideal world, it would have been best for auctions to be held jointly across Europe in order for potential owners to plan their bids in a transparent and fully-informed manner. This would help facilitate the development of truly pan-European networks and services. This would also hold true for the timing of switch-off, which allows the actual use of the spectrum by the new owners.

Bearing in mind the European reality whereby certain Member States are prepared to make allocations several years before other ones, the geographic clustering idea is a useful compromise. It allows larger geographic areas to co-ordinate the release of spectrum while progressive Member States will not be overly delayed in their release.

When considering such clusters, Member States and regulators should take into account that the timing of auctions or other allocation methods can be decoupled from the timing of switch-off to a certain extent. The UK for example, currently intends to hold their spectrum award in 2010, whereas the actual use by the new owners will in effect only be possible at the beginning of 2014 (with full switch-off by the end of 2012). In contrast, the Netherlands completed the analogue to digital switchover in 2006 but has yet to determine whether the 800MHz sub-band will be made available to uses other than broadcasting. This flexibility should increase the ability of Member States to co-ordinate the timing of their spectrum awards in significant geographical clusters.

Timing is also very important in terms of when the new owners will be able to use their spectrum. Significant delays in allowing new uses in the 800MHz band will lead to a fractured network across Europe, with certain Member States lagging behind the leaders.

- The Commission should facilitate the identification of large geographical clusters of Member States, who will co-ordinate the timing of digital dividend auctions and use.
- Member States should in any case abide by the EU goal of achieving analogue switch-off by 2012.
- Member States should complete their award process before this date in order for the new owners to use the spectrum as soon as it is completed.

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