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RADIO SPECTRUM POLICY GROUP OPINION ON THE DIGITAL DIVIDEND

(13 MAY 2009)

DRAFT

RSPG Opinion on the Digital Dividend

1. Introduction

Among the spectrum issues which are currently being examined by the European Commission (EC) is the digital dividend, specifically the potential release of spectrum in UHF Bands IV and V (470-862 MHz) as a result of the switchover from analogue to digital terrestrial television (DTT). In addressing the issue it is useful to have a common understanding of what is meant by the digital dividend. An earlier RSPG Opinion¹ defined the digital dividend, "*... as the spectrum made available over and above that required to accommodate the existing analogue television services in a digital form, in VHF (band III: 174-230 MHz) and UHF bands (bands IV and V: 470-862 MHz).*"

This RSPG Opinion focuses on that part of the digital dividend which may also be used for electronic communication networks (ECN) and electronic communication services (ECS), other than broadcast transmission networks and services, i.e., the sub-band 790-862 MHz (the 800 MHz band), noting that CEPT is tasked by the EC to carry out the technical investigations to define the least restrictive technical conditions applicable for this sub-band. It is presently foreseen that in bands below the 800 MHz band, i.e., 174-230 MHz and 470-790 MHz, the digital dividend will be used mainly for the development of new enhanced broadcasting services which will also bring significant benefits to society in terms of the value to the industry and consumers. At a national level some Member States may also use the digital dividend below the 800 MHz band for ECN and ECS, other than broadcast transmission networks and services. However, this is not studied in this RSPG Opinion.

The key objective of the RSPG in undertaking this latest tranche of work on the digital dividend is to provide strategic policy advice to the EC on how best to support Member States' realisation of a digital dividend on a technology and service neutral basis, taking into account the potential benefits of an EU coordinated approach as well as individual national situations and with the aim of promoting competition and innovation in the provision of wireless services to citizens and consumers. It is the intention of the RSPG that this Opinion should promote a common understanding of

¹ RSPG Opinion on the EU Spectrum Policy Implications of the Digital Dividend. RSPG07-161. 14 February 2007.

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the significant issues to be addressed in order to reap the full benefits of the digital dividend across Europe. This is expected to support the i2010 initiative², which the RSPG recognises as a key strategic objective to drive innovation and foster growth in the ICT sector in Europe.

An in-depth analysis of the state of play of broadcasting in each country across Europe has been addressed in more detail in a separate study³. However, it is appropriate to frame the recommendations in this Opinion in the context of the significant developments in DTT in Europe and elsewhere.

2. Background

In November 2007 the EC transmitted to the European Parliament and the Council of the European Union its communication⁴ on "*Reaping the full benefits of the digital dividend in Europe: A common approach to the use of the spectrum released by the digital switchover*". Subsequently, on 6 June 2008 the Council responded with its Conclusions⁵ which, *inter alia*, recognised the potential benefits of a coordinated EU approach in allocating part of the digital dividend to electronic communication services other than the broadcasting services, while taking into account the principle of subsidiarity and general interest objectives of the EU and of the Member States, such as cultural diversity and media pluralism, as well as individual national situations and time plans for the switchover.

The Council concluded by inviting Member States to help define the shared objectives and elements for close cooperation between Member States in coordinating spectrum usage in the UHF band, and to work together to identify the relevant parts of the UHF bands which could be made available for services using uni- and bi-directional networks, on a non-exclusive, non-mandatory basis.

It also invited the EC to initiate studies and consultations necessary to define a coherent basis for the coordinated usage of spectrum on a non-exclusive, non-mandatory basis and to recognise previous advice by both the RSPG and CEPT that

² COM(2005) 229 on "A European Information Society for growth and employment".

³ Exploiting the digital dividend, a European approach

⁴ COM(2007)0700

⁵ 10333/08 Council Conclusions on the Digital Dividend. Brussels, 6 June 2008

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harmonisation of a sub-band of the UHF band for mobile communications is feasible provided that it is on a non-mandatory basis. The EC has proceeded to do this through mandates to CEPT and by commissioning studies on specific issues.

On 24 September 2008 the European Parliament adopted a resolution⁵ on the EC's communication, calling on the EC, *inter alia*, to submit a proposal for better coordination measures at Community level on the use of the digital dividend, in accordance with internationally agreed frequency plans.

Between 2004 and 2007 the RSPG produced a number of Opinions offering guidance to the EC on a range of spectrum issues. In particular the following Opinions are of relevance:

- (i) RSPG Opinion on the EU Spectrum Implications of Switchover to Digital Broadcasting. **RSPG04-55**. 19 November 2004;
- (ii) RSPG Opinion on Wireless Access Policy for Electronic Communications Services (WAPECS). **RSPG05-102**. 23 November 2005;
- (iii) RSPG Opinion on the Introduction of Multimedia Services in particular in the Frequency Bands Allocated to the Broadcasting Service. **RSPG06-143**. 25 October 2006; and
- (iv) RSPG Opinion on the EU Spectrum Policy Implications of the Digital Dividend. **RSPG07-161**. 14 February 2007.

It is instructive to review in particular the latter RSPG Opinion on the EU Spectrum Policy Implications of Digital Dividend, RSPG07-161, in the light of technological and market developments and the progress made by national administrations. The table in Annex A summarises the key conclusions from that Opinion and comments on progress and relevance of those findings to the current Opinion.

In general, it can be seen that the majority of the findings of the 2007 Opinion are still valid in formulating this new Opinion. The few exceptions relate to completion of technical studies by CEPT.

⁵ European Parliament resolution of 24 September 2008 on reaping the full benefits of the digital dividend in Europe: a common approach to the use of the spectrum released by the digital switchover (2008/2099(INI))

3 Optimising the digital dividend in Europe for citizens and consumers

All of the European stakeholders with an interest in this issue, including the Council of the European Union, the European Parliament, the EC and the RSPG have recognised that there are significant societal and economic benefits to be gained from the unique opportunity of making available a digital dividend in the UHF band. The issue for Europe is what and how best to harness those additional benefits to be realised at the national and European levels if Member States make available their digital dividends in a coordinated EU manner. It is expected that the outcome of the study on the digital dividend commissioned by the EC will address this question. If there are additional national and European benefits to a coordinated approach, then the challenge for Europe is to maximise those benefits from a combined social, cultural and economic perspective.

[Text to be inserted here when the outcome of the EC commissioned study is available].

A common framework for the 800 MHz band, which may also be used for ECN and ECS, other than broadcast transmission networks and services, may consist of three elements:

- developing the technical elements which may be used by European countries making the 800 MHz band available for ECN and ECS, other than broadcast transmission networks and services;
- encouraging Member States to make the 800 MHz band available, where appropriate, in accordance with those technical elements; and
- encouraging Member States to enter into frequency co-ordination agreements.

These elements are now considered in turn.

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3.1 Development of the technical elements

In response to the second EC mandate on the digital dividend, CEPT is currently balancing the interests of harmonisation and flexibility and will define two technical elements:

- channelling arrangements that are sufficiently precise for the development of EU-wide equipment but at the same time will allow Member States to adapt these to national circumstances and market demand;
- common and minimal (least restrictive) technical conditions sufficient to avoid interference and facilitate cross-border coordination.

These technical elements are essential in facilitating industry in developing equipment and standards in a timely manner and also for those administrations making available the 800 MHz band for ECN and ECS, other than broadcast transmission networks and services, to reap the benefits of that part of the digital dividend, through economies of scale, wide availability of equipment and enhanced possibilities for roaming.

3.2 Benefits of a coordinated availability of the 800 MHz frequency band throughout Europe

There are economies of scale to be realised for industry and benefits for society if Member States cooperate on issues such as making available similar frequency ranges, channelling arrangements and technical conditions. Coordinated use of the 800 MHz band would also facilitate roaming. On the other hand if Member States take a unilateral approach there is a significant risk of fragmentation of channelling arrangements and technical conditions which could have consequent costs resulting from smaller markets.

There may be the possibility of commonalities in the activities undertaken by Member States in making the 800 MHz band available for new uses on a technology and service neutral basis. This could include non-mandatory geographic clusters of Member States where such commonalities facilitate a coordinated approach to timing in releasing their digital dividends and provide more economic and social benefits as a whole. Where there is a geographic cluster of Member States acting in a coordinated manner, the RSPG notes that it will be necessary to take into account the requirements of countries adjacent to such a cluster.

3.3 Encouraging Member States to enter into frequency coordination agreements

Cross-border frequency coordination where one country continues to use the frequency band for broadcasting while its neighbour is making the band available for other ECN and ECS, other than broadcast transmission networks and services has been proven to be difficult as interference distances may exceed hundreds of kilometres. In this respect, there is a need for a cooperative spectrum management approach to be taken by Member States to maximise the benefits to society and minimise delays in making the 800 MHz band available.

4. Understanding the significant issues

During February 2009 the RSPG consulted Member States and other European countries via a questionnaire seeking information on current and intended timescales for the availability of the 800 MHz band. The results of this questionnaire, see Annex B, indicate that a number of countries have yet to decide if this sub-band will be available for ECN and ECS, other than broadcast transmission networks and services. However the results of the questionnaire also indicate that there is a wide range of issues which are relevant to a coordinated EU approach. Together with information already available, [add information from EC commissioned study when available] the issues which Member States face in making available the 800 MHz band can be classified as falling into one or more of the following five groups.

4.1 Range of services

Issue: the range of services able to use the digital dividend in the 800 MHz band

Significant benefits to society can be realised through the introduction and availability of new and enhanced ECN and ECS in the 800 MHz band. These span a considerable range, including digital broadcasting, wireless broadband and mobile multimedia services. Therefore, the RSPG recommends that the WAPECS principles of technology and service neutrality should be applied to the 800 MHz band while recognising that Member States may maintain broadcasting use in all or a portion of the band.

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The RSPG notes that the current use of the 800MHz band for existing programme making and special events (PMSE) services is not the subject of this Opinion but the need to find a sustainable solution for PMSE will need to be addressed by Member States accordingly. It also notes that the frequencies used by PMSE may differ between Member States.

4.2 Availability of dividend spectrum in the 800 MHz band on a coordinated basis

Issue: making available the digital dividend spectrum in the 800 MHz band on a coordinated basis (the greater the number of countries and size of market, and all making available similar frequencies, the better).

Undoubtedly, Member States will face challenges in making the 800 MHz band available, where appropriate through a coordinated EU approach,. Industry will also face challenges, including developing appropriate equipment standards and dealing with issues of convergence in services.

As noted in Section 3, there are economies of scale to be realised for industry and benefits for society if Member States cooperate on issues such as making available similar frequency ranges along with similar channelling arrangements and technical conditions. On the other hand if Member States take a unilateral approach there is a significant risk of fragmentation of channelling arrangements and technical conditions which could have consequent costs resulting from smaller markets.

4.3 Timeframes for making available the Digital Dividend in the 800 MHz band

Issue: the timeframes (which differ from country to country) for switchover to DTT and the making available of the digital dividend in the 800 MHz band.

Member States have different timescales for making available the digital dividend spectrum in the 800 MHz band. This varies from cases of countries where the 800 MHz band is already available, to countries which have decided on a date, to cases of countries that have yet to decide on a date, and to other countries which have not yet decided if the 800 MHz band will be available for ECN and ECS, other than broadcast

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transmission networks and services. The need to clear out existing and currently planned users of the band, to make it available for ECN and ECS, other than broadcast transmission networks and services, may extend these timescales beyond those currently envisaged. While respecting the principle of subsidiarity, there may be scope for neighbouring Member States, where appropriate, to coordinate the timing for availability of the 800 MHz band for ECN and ECS, other than broadcast transmission networks and services.

The general downturn in the global economy has serious implications for Member States and operators in terms of investing in the initial roll-out of DTT networks and the upgrading of existing networks. Any delay in the roll-out of DTT networks would impact on the date for analogue switch-off and the availability of the 800 MHz band.

4.4 International frequency coordination

Issue: the resultant international frequency coordination requirements which may impose certain constraints on the territorial plans of an administration

In order to make available the 800 MHz band and in light of the subsequent reduction of spectrum for broadcasting use under the GE06 Plan it may be necessary for individual Member States to reach new frequency coordination arrangements with their neighbours. Such coordination activities can give rise to consequential coordination in other countries as a result of the interlocked nature of the GE06 Plan.

It is noted in Section 6 of CEPT Report 22⁶ that “... *the level of interference likely to arise from the implementation of GE06 Plan entries makes it virtually impossible for any country to start using a harmonised sub-band for mobile communications applications without the agreement of neighbouring countries, noting that these may not be members of the CEPT or EU/EEC in all cases. Implementation of this harmonised sub-band will therefore require bilateral or multilateral negotiations, under the procedures of the GE06 Agreement, which have been designed to ensure equitable access to spectrum by all administrations. This process, although time consuming, will be required to maintain equitable access for all administrations, irrespective of the impact of any change of use of the harmonised sub-band on their*

⁶ Ibid

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existing broadcasting layers in the GE06 Plan, by enabling them to either reconstitute those layers, or balance any loss of spectrum for broadcasting with the gain of spectrum for other services.”

The RSPG agrees with this conclusion in the case of countries making available the 800 MHz band on a nationwide basis. However, it notes that some administrations could make the 800 MHz band available in part of a territory without having to seek further international frequency coordination, for example where:

- the operation of the ECN and ECS, other than broadcast transmission networks and services would not cause interference to a neighbouring country's ECN and ECS or require the neighbouring country to re-plan its ECN and ECS; and
- protection of the ECN and ECS, other than broadcast transmission networks and services would not be sought.

In this context attention is drawn to the RSPG Opinion on Spectrum Issues Concerning Outer EU Borders⁶ which recommends, where practicable, tackling the spectrum coordination issues in geographical clusters. The Opinion also advises the Commission on an EU-level assistance mechanism to support and assist individual Member States, or a sub-group of Member States, who need to coordinate spectrum issues with non-EU countries, including acceding countries.

4.5 Cost of clearing out the 800 MHz band

Issue: the cost of making available the dividend spectrum in the 800 MHz band.

The need to clear existing and currently planned users from the 800 MHz band to make it available for ECN and ECS, other than broadcast transmission networks and services may incur costs. The RSPG is of the opinion that exchanging information on practices in cost recovery mechanisms and re-farming could assist Member States in dealing with these issues. Any measures taken by Member States on cost recovery mechanisms and re-farming must be in conformity with Community law.

⁶ Document RSPG08-232

5. Assessing the merits of a coordinated EU approach, including harmonisation as appropriate, to making available the 800 MHz band for ECN and ECS, other than broadcast transmission networks and services

To understand how best to address the challenging issues at a policy and political level in accordance with the principle of subsidiarity, the RSPG considers that the EC should assess the advantages and disadvantages of options for a coordinated EU approach, including harmonisation as appropriate, to making available the 800 MHz band for ECN and ECS, other than broadcast transmission networks and services.

This should entail examining:

- the nature and scale of the benefits which a coordinated EU approach could bring;
- the options and scenarios for coordination that might deliver those benefits; and
- the likely effects of those options and scenarios.

It considers that such an assessment is essential to determining the appropriate level of coordination and extracting any benefits from possible commonalities between Member States.

6. Responses to the public consultation

[text to be added following public consultation]

7. The Opinion of the RSPG

The transition of broadcasting to digital technology represents an opportunity to improve the effective and efficient use of radio spectrum with excellent characteristics in terms of coverage, in-building penetration and bandwidth and suitability for a range of ECN and ECS.

Accordingly, the RSPG is of the following Opinion concerning the digital dividend in the 800 MHz band:

1. The RSPG recommends that the EC should assess the advantages and disadvantages of options for a coordinated non-mandatory EU approach to the

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availability of the 800 MHz band for ECN and ECS, other than broadcast transmission networks and services, as this is essential in order to determine the appropriate level of coordination between Member States;

2. The RSPG recommends that the EC act on the recommendations contained in this Opinion as quickly as possible and no later than 31 October 2009 in order to minimise EU level uncertainty in the ability of Member States to make available the 800 MHz band in order to promote growth, competition and innovation in the provision of ECN and ECS;
3. The RSPG recommends that the EC encourages Member States who are making available the 800 MHz band for new and/or enhanced ECN and ECS to apply WAPECS principles, particularly of service and technology neutrality, recognising that Member States may maintain broadcasting use in all or a portion of the band;
4. The RSPG recommends that any EU harmonisation of technical elements such as channelling arrangements and common and minimal (least restrictive) technical conditions be based on the outcome of the CEPT work in response to relevant EC mandates;
5. The RSPG recommends that the EC encourages Member States to facilitate cross-border coordination agreements with the aim of enabling those administrations wishing to make available the 800 MHz band for ECN and ECS, other than broadcast transmission networks and services to do so, taking into account technical feasibility and the need for equitable access;
6. The RSPG recommends that the EC supports Member States in renegotiating aspects of the GE06 Plan if necessary with countries outside the EU to allow them to realise and make available the 800 MHz band part of their digital dividend;
7. The RSPG recommends that the EC gives further consideration through a review process to the merits of facilitating EU-wide long term availability of the 800 MHz band for mobile and fixed broadband applications;
8. The RSPG recommends that Member States, acting on a bi/multilateral basis should identify whether there are geographic clusters arising from commonalities between transitional activities and possible access to the 800 MHz band for electronic communications networks and services, noting the need to consider the requirements of countries adjacent to the cluster which

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may be affected. Such commonalities could facilitate a coordinated approach to timing in releasing their digital dividends and provide more economic and social benefits as a whole.

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Review of RSPG Opinion RSPG07-161

RSPG07-161 Conclusions	Comments
<p>1. The RSPG notes that, before switchover, which is generally expected to occur in the period 2008-2012, many Member States intend to give priority to broadcasting services, taking into account the constraints arising from the transition from analogue terrestrial television. After switchover, some Member States indicate a preference for using the digital dividend for enhancing the broadcasting service, while other express a preference for keeping the choice open or have not formulated an approach as to the foreseen use of the digital dividend.</p>	<p>Diverging Member States' preferences might be reconciled by satisfying both enhanced broadcasting requirements and releasing a digital dividend for possible use by fixed/mobile electronic communications networks and services through cross-border coordination activities leading to GE06 Plan adjustments.</p>
<p>2. The RSPG considers that there should be no mandatory decision to require implementation of any aspect of the digital dividend.</p>	<p>This conclusion is still valid</p>
<p>3. The RSPG considers that any approach for the implementation of the digital dividend should take into account the Opinion adopted by the RSPG on WAPECS.</p>	<p>This conclusion is still valid</p>
<p>4. The RSPG considers that many promising new services fostering growth and innovation are seeking urgent and easy access to the UHF and VHF spectrum, among other bands. In this context, European action to enable the development of such services in these bands must be taken in a way that optimizes the use of spectrum as a whole, promotes and does not distort competition, encourages innovation, maximises benefits across the European Union, and does not conflict with national and European content legislation aiming at promoting cultural diversity and media pluralism.</p>	<p>This conclusion is still valid</p>
<p>5. The RSPG considers that the economic and societal merits of the various alternatives proposed for the use of the digital dividend should be taken into account. Moreover, technical and legislative options involved in the switchover should not be determined by economic factors alone but ought also to take account of social, cultural and political factors.</p>	<p>This conclusion is still valid</p>
<p>6. The RSPG considers that this opinion complements the opinions it has previously adopted on "the spectrum implications of switchover to digital broadcasting" and on "the development of multimedia services".</p>	<p>The current Opinion is an update of the 2007 opinion and therefore also complements the two previous opinions on the switchover and multimedia services</p>

RSPG07-161 Conclusions	Comments
<p>7. The RSPG considers that existing licences to provide analogue and digital broadcasting services along with legal decisions taken at national level concerning the licensing regime in digital terrestrial television or sound broadcasting may affect the ability to find spectrum to deploy other new services. In particular, it may be difficult in some countries to gather substantial and coherent amount of spectrum for the digital dividend for use by services other than broadcasting before 2012.</p>	<p>This conclusion is still valid</p>
<p>8. The RSPG notes that the use of the frequency bands 174-230 MHz and 470-862 MHz by digital broadcasting has been planned by the GE06 Agreement, which has de facto harmonised the technical parameters for digital broadcasting and created a global market for digital broadcasting equipment.</p>	<p>This conclusion is still valid</p>
<p>9. The RSPG considers that technical constraints to frequency planning could arise between broadcast networks (RPC-1, 2 and 3), multimedia networks and fixed/mobile networks in the same band and considers that studies should urgently be undertaken to identify and address these constraints so as to facilitate the effective use of spectrum. Noting the immediacy of switchover in some countries and the consequential narrow window of opportunity for decisions on the use of the digital dividend in Europe, studies are urgently required within CEPT to assess the technical feasibility of the various options to be considered.</p>	<p>CEPT Reports 21 and 23 under the first EC mandate on Digital Dividend address the issues of technical constraints in frequency planning between different types of networks.</p>
<p>10. In the band 174 – 230 MHz, the RSPG notes that various alternative services may already be deployed under the GE06 Agreement, using various technologies. Hence no action appears to be necessary at EU level at this stage. More studies may be required to assess the possibility of further sharing arrangements in the future.</p>	<p>This conclusion is still valid.</p>
<p>11. In the band 470 – 862 MHz, the RSPG notes that there may be EU-wide benefits to the use of the digital dividend by broadcasting services. The current international regulatory framework, as settled by the Radio Regulations and the GE06 Agreement, provides an appropriate framework for this development. Within this framework:</p>	<p>This conclusion is globally still valid. However, there does not appear to be a need for harmonisation of a sub-band for high field strength downlink services in the light of the conclusions of CEPT Report 21.</p>

RSPG07-161 Conclusions	Comments
<p>5.11.1 It would in general be feasible to make available one or more layers per country suited for high field strength downlink services without significant re-planning activities.</p> <p>5.11.2 A common (but not dedicated) sub-band of the UHF band for high field strength downlink services could permit improved terminal performance/reduced network costs and improved compatibility with fixed reception broadcasting, and facilitate interactive services using the 900 MHz band for the return channel.</p> <p>5.11.3 Studies should therefore be urgently undertaken by CEPT in order to consider these two approaches and identify an optimum way forward for high field strength downlink services, enabling the availability of one or more layers per country while avoiding the need for significant re-planning.</p>	
<p>12. The RSPG considers that there may be EU-wide benefits to the use of the digital dividend by fixed/mobile applications (including uplinks) in a harmonised sub-band of the UHF band and that this would be facilitated by:</p> <p>5.12.1 Seeking an additional allocation to the fixed/mobile service in the entire UHF band at WRC-07 or WRC-11, under conditions which ensure that the broadcasting service is not adversely impacted.</p> <p>5.12.2 In parallel, without further delay and irrespective of any WRC-07 decisions, pursue within CEPT the studies required to consider and possibly identify sub-band(s) with the objective of developing a non-mandatory decision at European level to facilitate the use of fixed/mobile applications (including uplinks), under certain harmonized conditions to be defined and adopted in the 2007-2010 timeframe.</p> <p>5.12.3 Seeking endorsement of this non-mandatory harmonisation at ITU level at WRC-11, through identification of part of UHF band for specific applications/systems.</p>	<p>At WRC-07, the 800 MHz band was allocated on a co-primary basis to the mobile service in addition to broadcasting and fixed services as from 2015. Based on footnotes in the radio regulations or bilateral/multilateral agreements some European countries may use this allocation before 2015, subject to technical coordination with other countries (e.g. under the GE06 Agreement). Studies have been undertaken by CEPT within the framework of two EC mandates.</p>

RSPG07-161 Conclusions	Comments
<p>13. The RSPG notes that identifying one or more sub-bands available for fixed or mobile services (including or not uplinks) would create holes in most of the layers obtained at RRC-06. Member States wishing to implement such services accordingly may need to change the use of frequencies compared to what is already envisaged and this in turn may require cross-border coordination. It would not be desirable to undertake a global re-planning by a conference like RRC-06. Given this, it is necessary to assess the extent to which this cross-border coordination could be carried out successfully without such global re-planning. Modifying the frequencies of existing or planned broadcasting networks could cause significant cost or disruption to the provision of broadcasting services, which may make such modifications extremely difficult if not impossible. Any coordination/re-planning activities should therefore aim at minimizing such effects. Member States wishing to implement fixed/mobile services may therefore consider setting up mechanisms which would ensure that the costs of the measures necessary to overcome such effects are borne by those who will benefit from those modifications (eg, fixed/mobile operators).</p>	<p>The work aiming at assessing the extent to which cross-border coordination and reconstitution of layers, i.e., networks could be carried out successfully without global re-planning is ongoing.</p> <p>The 2007 conclusion on cost recovery mechanisms is still valid.</p>
<p>14. The RSPG notes that Member States in implementing digital dividend may wish to consider the impact on existing other services, including secondary services such as SAB/SAP.</p>	<p>This issue has been addressed within the framework of the EC mandate to CEPT.</p>
<p>15. The RSPG considers that there may be EU-wide benefits to the use of more advanced television coding and transmission systems (such as MPEG-4 and DVB-T2) but recognises that this may cause compatibility problems with existing equipment. In particular, there is already a high installed base of MPEG-2 consumer equipment in some Member States, which would make the transition to MPEG-4 or other systems complex.</p>	<p>This conclusion is still valid.</p>

**Status of EU & EEA Member States
on Availability of 800 MHz Band
and ITU-RR Footnotes on Mobile Service use of band
April 2009**

Country	Issue 1.) Timescales for availability of the 800 MHz band (790 to 862MHz)			Issue 2.) ITU-RR Footnotes
	<p><i>i) In the case of reconfiguration use of the UHF bands IV/V for DTT to facilitate access to the 800 MHz band for new applications, what timeframe do you envisage for this process?</i></p>	<p><i>ii) What issues do you foresee in terms of access to 800 MHz band if it is intended to upgrade existing/planned DTT networks from MPEG2 and/or DVBT to MPEG4 and/or DVBT2 and what timeframe do you envisage for this process?</i></p>	<p><i>As a consequence of either case i) or ii) or other actions, when will the 800 MHz band be available as a digital dividend for new applications?</i></p>	<p><i>If your country is not in the footnotes and you envisage the possibility of mobile services in the 800 MHz band prior to 2015 do you foresee any regulatory obstacles? If so, please state what those obstacles are and proposed solutions (e.g., adding your country name to the footnotes at WRC-11), if any.</i></p>
AT	<p>There will be no possibility for a noteworthy reconfiguration in Austria, because in all important areas there is no frequency space left in the GE06 Plan. Only in isolated mountain valleys we have enough channels available for a reconfiguration.</p>	<p>The DTT Multiplex operators have no concrete plans to upgrade their networks. When such plans might arise in some years, there would be a need to use the channels above 60 for a simulcast phase.</p>	<p>Till now no decision has been taken in Austria to use the 800 MHz band for new applications. Detailed discussions about the future use of the band in question started within the Digital Platform Austria just recently. There are still many questions open (nationally and internationally). When all open studies regarding the use of the digital dividend are available and the discussions upon the results are finished within the responsible bodies, the time might be right to make reasonable decisions on when and how the 800 MHz band can be used.</p>	<p>Austria is mentioned in footnote 5.314, which allocates the band 790 – 862 MHz to the mobile service on a secondary basis. Up to now, this is the basis for the operation of ENG/OB services, but could also provide the basis for other mobile usage prior to 2015. Therefore Austria sees actually no need to be mentioned in footnote 5.316 or 5.316A. Further considerations could take place in the light of the further national and international decisions as well as in the preparation for WRC-11.</p>

	Issue 1.) Timescales for availability of the 800 MHz band (790 to 862MHz)		Issue 2.) ITU-RR Footnotes	
CZ	<p>For the time being:</p> <p>The term of final switch-off i.e. June 2012 is expected to be reached in accordance with the national measure i.e. the Technical Plan of Switch Over.</p> <p>Conclusions on the future access of mobile networks to the band 790-862 MHz have resulted from public consultations on switch over and digital dividend.</p> <p>Assumed terms related to the band rearrangement is being subject of the second round of public consultations. Their evaluation is planned for March 2009.</p>	<p>There is foreseen that freeing the 800 MHz band will happen after the switch-off date as well as the broadcasting technological upgrade. Both processes will be driven by market forces, therefore they will run independently.</p> <p>The 2nd round of consultations on digital dividend has been initiated to identify opinions of broadcasting and mobile community on the expected methods and terms.</p> <p>The facts, in our opinion, do not limit the access to the 800 MHz band. The question of the change video coding MPEG 2 to MPEG 4 or the new standard DVB-T2 use does not have the significant influence on frequency spectrum. All these facts have the important influence on the efficiency of digital multiplex's data rate or its growth for possible broadcasting HDTV content.</p>	<p>It cannot be answered more precisely – see the information above.</p> <p>It is necessary pointed out, that there will be significant influence of the development in the neighbouring countries on the described processes. These processes cannot be fully managed as the society needs and therefore market conditions and market forces in the countries are different. Nevertheless, cooperation is envisaged in the field of frequency coordination.</p>	<p>The Czech Republic administration means, that the entering the footnote is hardly possible, but not necessary, when some level of cooperation with the neighbouring countries is reached.</p> <p>Other regulatory obstacles (related mostly to the freeing the band) are expected to be solvable.</p> <p>It is envisaged that obstacles may be based mostly on general economy conditions in the given geographic region, appropriate market demand and state of technology.</p>
DK	<p>The matter is at present under discussion and no decision has been taken yet.</p>	<p>The decision to move from MPEG2 to MPEG4 has already been taken; consequently we do not foresee any impact from that decision on the access to the 800 MHz band.</p> <p>The following timescales for the transition from MPEG2 to MPEG4 has already been decided:</p> <p>1 MUX in operation is using MPEG2, MPEG4 from 2012</p> <p>4 additional MUX will use MPEG4 from 1.11.2009</p> <p>1 MUX to be used for test, including DVB-T2 until 1.11.2010, then DVB-H and MPEG4</p> <p>2 MUX (one in UHF and one in VHF) set aside for innovation</p>	<p>No decision has yet been taken.</p>	<p>DNK is included in footnote RR 5.316</p>

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DE	<p>Up to now no detailed decisions have been made in view of the spectrum usages of 790 to 862 MHz band.</p> <p>The switch over from analogue TV to DVB-T was characterised by an enormous amount of efforts in terms of intense frequency planning, investments for establishing and adjusting networks as well as for logistic and advertising. In Germany the step by step regional implementation proved itself to be a recipe for success.</p> <p>While in the first regions to switch over a period of up to nine months was planned for simulcast, the time period was reduced for further DVB-T implementations, and finally hard switch over were made without any simulcasts.</p> <p>In comparison to the analogue digital conversion of terrestrial TV the change over between DVB-T and DVB-T2 is expected to be far less complicated, because there is no direct need for coordination and frequency or antenna adjustments.</p> <p>Furthermore synergy effects are expected because of the downwards compatibility of the new DVB-T2 receiver generation, so that during the introduction of the new standard, DVB-T2-capable receivers will already be in the market place at an early stage.</p> <p>It is important to say, that the conversion of the DVB-T networks to DVB-T2 is of a great flexibility for the broadcasters, since there is no need to request new frequency assignments according to the German Telecommunications Act (TKG).</p> <p>In Germany individual MPEG-4 trials are already conducted. In one case a "new" additional regional DVB-T multiplex using MPEG-4 (with added value, no simulcast) is intended to</p>	<p>Up to now no concrete political decisions have been made in regard to the 790 to 862 MHz band.</p> <p>Germany had already been included in the corresponding footnote before the WRC-07.</p>

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		be rolled out in the Stuttgart area in the third quarter of 2009. Up to now no concrete scenarios have been planned.		
ES	There are not any decision at the moment about if there will be any digital dividend for other uses different than broadcasting services.	There are not any decision at the moment about if there will be any digital dividend for other uses different than broadcasting services.	There are not any decision at the moment about if there will be any digital dividend for other uses different than broadcasting services.	Spain is included in these footnotes
EE	Estonian Digital Dividend strategy is being worked on.	Estonia DTT is using MPEG4 standard.	Estonian Digital Dividend strategy is being worked on.	Estonia regulatory obstacles are based on ITU footnote 5.312. Footnote 5.312 Additional allocation: in the Russian Federation the band 645-862 MHz is also allocated to the aeronautical radio-navigation service on a primary basis (WRC-03) (Mod.)
FI	A: Analogue switch-off 1.9.2007, 800 MHz available for broadband mobile systems from 1.7.2008	A: Analogue switch-off 1.9.2007, 800 MHz available for broadband mobile systems from 1.7.2008	A: Analogue switch-off 1.9.2007, 800 MHz available for broadband mobile systems from 1.7.2008	A: Finland is part of FN 5.316. The obstacle for introduction of broadband mobile system is No 5.312 the Radio Regulations (Aeronautical Radionavigation Service).
FR	The switch over date in France is 30 th November 2011. The final plan for Digital TV, currently under definition, will be progressively put in place during the switch over process. This Plan is expected not to include any entry in the frequency band 790-862 MHz	For transition reasons, TV programmes will need to be transmitted both on SD MPEG 2 and HD MPEG 4 in order to ease the transition to HDTV/MPEG4. After the date of 22 nd December 2008, this will have to take place in the frequency band 470-790 MHz and will have no impact on the 800 MHz band. The possibility of a simulcast of all TV programmes will depend on the additional spectral resources that could be planned in the 470-790 MHz band. No transition to DVBT2 is yet planned	The 800 MHz band will be available for mobile communication as from 30 th November 2011	France is included in these footnotes
HU	The first national networks are using channels from band 790-862 MHz, as only these channels are available for digital transmissions at present (because channels 61-69 have not been used for analogue TV). According to the regulation in	HNG launched the DTT services using MPEG4 system. No plans for the introduction of DVBT2 yet.	No information yet, this also depends on the switchover process and demands for digital TV in Hungary.	Hungary has no final decision on the termination of broadcasting application in the 790-862 MHz band (2015 or before) and we have no decision yet about adding our country name to the

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	force reconfiguration of DVBT channels may be possible, but this issue will be considered in details at a later stage. Decision on the use of band 790-862 MHz by other new applications is expected only after the simulcast period (proposed date for analogue switch off: 31.12.2011)			referred footnote(s).
IE	Ireland envisages that it can commence the reconfiguration of the use of the UHF bands IV/V to facilitate access to the 800MHz band for applications other than broadcasting once analogue switch off in the UHF band has been achieved, which is expected to be 2012. The duration of any reconfiguration will be dependent on international co-ordination which is ongoing for all broadcasting multiplexes in the post analogue switch off period. While the extent of the timeframe for any reconfiguration is not decided it is not expected to extend beyond 2015.	Ireland does not foresee any issues in terms of access to the 800 MHz band once analogue switch off in the UHF band has been achieved and any initial reconfiguration has been completed.	Access to the 800 MHz band for new applications should be possible once analogue switch off in the UHF band has been achieved and any initial reconfiguration has been completed.	At the next WRC in 2011 Ireland will seek to enter the relevant footnote in the ITU Radio Regulations so as to afford greater certainty to any mobile implementation ahead of the ITU date of 2015.
EL				
IS	PTA: There are no DTT transmitters on the 800 MHz band, but few (ten) TV analogue transmitters are there.	PTA: See answer (i).	PTA: The timeframe will likely be around 2012.	PTA: Iceland is not included in the footnote, but we do not foresee any regulatory obstacle, for earlier co- primary allocation to the mobile services.
IT	In Italy all the 470-862 MHz is heavily used for broadcasting service all over the country. At the moment there is no plan to make the band 790-862 MHz available for mobile applications.	Due to the heavy usage, so far no action for access to 470-862 MHz band by new interactive applications other than Broadcasting, has been envisaged in Italy.	Due to the heavy usage, so far no action for access to 470-862 MHz band by new interactive applications other than Broadcasting, has been envisaged in Italy.	At the moment Italy is not in the RR footnote 5.316 A and according to the current utilizations it is difficult to envisage the possibility of mobile services in the 800 MHz band prior to 2015.
LI	In the past Liechtenstein had no analogue TV-allocations. So far none of the 7 new GE06 allocations have been implemented. Therefore no reconfiguration will take place. The 800 MHz band is already available for new mobile communication services.	If the new Broadcasting networks will be based on MPEG-4 and/or DVB-T2 has not been decided so far.	The digital dividend is already available for new applications.	Liechtenstein is included in footnote RR 5.316
LT	Talking about new high power mobile applications, it should be noted that the band 790-862 MHz in the neighbouring Russian Federation and Ukraine and the sub-band 830-862 MHz in Belarus are allocated to the Aeronautical Radio Navigation Service and are used with the priority for governmental proposes, national defence, and security. The	All DTT networks in Lithuania have been already put in to operation with MPEG4 compression.	Due to the reasons indicated above, Lithuania does not consider a possibility to make the 800 MHz band (790-862 MHz) available as a digital dividend for new high power mobile applications.	The name of Lithuania was added to the footnote RR 5.316A during WRC-07 allowing us to use sub-band 830-862 MHz for mobile service on a primary basis. However, the provision of the same footnote RR 5.316A states that "frequency assignment to the mobile service under this allocation in Lithuania shall not be used without the agreement of the

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	allocations for that type of usage have very high level of protection from potential interference with regard to other services and particularly are protected by the Geneva Plan 2006 (GE06). For the time being we have evaluated the possibility of the introduction of the mobile service (uplink) in the band 830-862 MHz and the results show that in some locations of Lithuania only a 3 MHz band for mobile uplink is available. Taking into account that advanced mobile electronic communications technologies need a channel with at least 5 MHz bandwidth, the usage of the mobile service in the band 790–862 MHz is questionable. Consequently there is no reason to reconfigure the usage of the UHF band for DTT while the implementation of new applications of mobile services is not possible.		However, the 800 MHz band could be made available as a digital dividend for low power networks (wireless broadband access, high speed mobile data access, program making special events (PMSE)) and/or the sub-band 790-830 MHz could be made available as a digital dividend for new terrestrial broadcasting services (HDTV, DVB-H etc.) within the period of one year after the relevant decision is approved. It should be noted that in these cases neither reconfiguration of UHF band nor upgrading of DTT networks are needed.	Russian Federation and Belarus" and therefore causes serious constrains on a possibility to use the sub-band for mobile service. Consequently the 800 MHz band will not be used for mobile services till the year 2015 because of DTT networks operating in the sub-band 790-830 MHz and the probable constrains following coordination procedures with non-EU countries in the sub-band 830-862 MHz.
LU	For the time being, only one of the allocated channels by GE – 06 for Luxembourg is situated in the upper part of the (790 – 862 MHz) band and for which we are looking to find a solution in the lower part of the band. We started bi-lateral negotiations with the French administration last year, but multilateral discussions have to take place with all our neighbouring countries soon. Negotiations could probably take 1 – 2 years, so that around 2011 seems to be realistic.	It has to be mentioned that in Luxembourg the digital switch over has been completed in August 2006. If and when an upgrade of the standard (DVB-T2) and the compression format (MPEG4) will take place is depending on the operator and from the market demand.	As soon as possible but it is expected to be not later than 2011.	There will be no regulatory obstacles to envisage mobile services in the 800 MHz band prior 2015, but possible technical problems concerning cross-border coordination with our neighbouring countries are expected. Most probably Luxembourg will add its name at the footnote at WRC-11.
LV	Answer: The decision concerning such reconfiguration could be taken not earlier than 2010-2011.	Answer: Intensive implementation of digital television (2009) will be based on use of the compression standard MPEG-4. In test transmissions MPEG-2 is used.	Answer: No decision taken yet neither regarding future users of the band nor time-limits for implementation of any changes in the use.	Answer: Latvia is not included in the footnotes referenced above and does not intend to apply the co-primary allocation for broadcasting and mobile service prior the date 17 June .2015. Any intension to use the band in other way prior June 2015 will not meet regulatory obstacles (spectrum mask principle applies) but could meet difficulties in relations with bordering non-EC countries - Russian Federation and Republic Belarus - for two reasons: these countries have not accepted the EK term 2012 for analogue switch-off and will follow

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				the term given in the GE06 – 17 June 2015; the band 790-862 MHz is used in these countries both for television and aeronautical radio navigation service. The latest service requires high protection and wide coordination area. Therefore this service can limit the use of this band in neighbouring countries.
MT	<p>Access to the 800 MHz band is currently obstructed due to 'Channel 66' which is assigned to Malta for Digital Terrestrial Television (DTT) under the Regional Radio-communication Conference - Geneva 2006 (GE06) plan.</p> <p>Malta would need to co-ordinate an ultra high frequency (UHF) outside of the 800 MHz band, with EU and non-EU neighbouring countries, so as to be in a position to reallocate 'Channel 66' thus facilitating access to the 800 MHz band for new applications. This process was launched in 2008 but was not successful. Indicatively, not all neighbouring countries are in a position to approve new frequencies for Malta prior to analogue turn-off (ATO) in their respective country. It is thus unlikely that the coordination process will be concluded before end 2012.</p>	<p>There are presently no plans to upgrade the DTT network to MPEG4 / DVB-T2. No studies have been carried out at this stage and therefore no issues have yet been identified. Malta is currently revisiting its policy in order to have a clearer position on possible standard upgrades that may be available by end 2009.</p>	<p>The 800 MHz band will be available as a 'digital dividend' for new applications when the coordination process of frequencies outside the 800 MHz band referred to in question i above is successfully completed. Malta plans to make the 800 MHz band available in 2012 but the outcome will be totally dependent on third parties.</p>	<p>Malta is included in the said footnotes.</p>
NL	<p>Already in 2002 the Netherlands started to make parts of the spectrum in the UHF band available for the use of digital broadcasting. By the switchover in December 2006 the licenses issued in 2002 has been amended to the new situation. For the spectrum dividend that will become available in 2012 no decision has been taken yet. Further studies and policy decisions are required in 2009 to answer the question if new applications can be allowed in the 800 MHz band.</p>	<p>Decision regarding the technical upgrading of networks is normally left to the license holder(s). There where requests for additional use of spectrum are made, the Netherlands is taking into account the view that spectrum for public use needs to be used efficiently. If licence holders will apply for more spectrum, we do not exclude a debate on the use of MPEG of DVB2.</p>	<p>No decision on the use of the 800 MHz band for other applications than the use for digital broadcasting has yet been taken.</p>	<p>The Netherlands are in footnote 5.316.</p>
NO	<p>A licence for the band 470-790 MHz was granted in 2006 (obligation to roll out three nationwide MUX with population coverage of minimum 95 %, actual coverage turns out to be approx. 98 %). Two further nationwide MUX are now being built by the licensee. The switch over follows a sliding window pattern on a regional basis. The first region was switched off 4 March 2008. The final analogue switch off (last</p>	<p>All 5 MUX in the network are using MPEG-4. In general the decision on technical upgrading of the DTT network is a matter for the licensee. The Norwegian DTT licensee is busy with the rollout and switch off and has at present no plans for an upgrade to DVB-T2.</p>	<p>The band 790-862 MHz was initially vacant from 1.1.2009. A temporary one year licence for this band has been granted to the DTT licensee in order to simplify the switch over procedure. In practice the 800</p>	<p>Norway is included in footnote RR 5.316.</p>

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	region) is scheduled for 1 December 2009.		MHz band will be vacant from 1.1.2010. A national working group has proposed a technology and service neutral assignment of the band 790-862 MHz. No final decision on the future use and assignment procedures has been taken.	
PL	<p>The start date of switch on the DVB-T transmission is planned for September 2009. The coverage of whole territory of Poland by DVB-T will be reached by July 2011. It is planned to switch off the analogue transmission by July 2013.</p> <p>In the first and second multiplex channels from the 790-862 MHz band will be temporary used until analogue channels are switched off. After switch off date channels from the 790-862 MHz band will be released.</p> <p>The intention is, following the public debate, to make the 790-862 MHz band available for new applications (mobile). Due to the use of this band by the Polish, Russian, Belarusian and Ukrainian military forces many problems may appear. Polish armed forces make efforts to switch off the ARNS systems by 2015. So, at the first stage the 800 MHz band will be available only locally.</p>	<p>It was decided to use MPEG-4.</p> <p>The decision to move from MPEG-4 to DVB-T2 has not been taken so far.</p>	<p>The 800 MHz band will be available for new applications after switching off the analogue transmission, but the possibility of coordination with neighbours must be taken into account.</p>	<p>Although the footnote RR 5.316A includes Poland the provision states that a frequency assignment to mobile services can be used after the agreement with Russia and Belarus only. So, it seems that practically the 800 MHz band may be used for mobile services from 17 June 2015 (according to the RR 316B). Many problems are expected in the coordination process with east neighbours of Poland.</p>
PT	<p>DTT will be introduced in Portugal in April 2009 in this particular sub-band; therefore we do not foresee the availability of this band for new applications in the short term. The plan to be implemented in the long term will take into account developments on the European level</p>	<p>The introduction of DVB-T in Portugal will occur in April this year and MPEG4 will be used for video compression format. The upgrade for DVBT2 is not foreseen in the short term.</p>	<p>? Please see the answer of question i).</p>	<p>Portugal is included in footnote RR 5.316.</p>
SE	<p>There is some need for reconfiguration of Swedish plans and networks for digital terrestrial television in order to make the 800 MHz-band available for new uses.</p> <p>International co-ordination was initiated in 2008 and further progress is expected during 2009. Nevertheless, it is not possible to tell of a final date for co-ordination.</p>	<p>Licenses for services that will be broadcast over the DTT network 6 contain terms stipulating that MPEG4 compression should be used. For networks 2-5, license holders should aim to switch over to MPEG4.</p> <p>The migration from MPEG2 to MPEG4 video compression, or an introduction of DVBT2 if any, is not expected to</p>	<p>It is foreseen that the current TV-transmissions in the 800 MHz-band can be relocated to the 470-790 MHz band during 2009.</p> <p>Existing licenses in 790-862 MHz for applications of PMSE (program making and special events) are granted until the end of</p>	<p>In Sweden the band 790-862 MHz is already allocated to the mobile service, except aeronautical mobile, on a primary basis through footnote RR 5.316.</p>

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		<p>have a direct impact on the access to the 800 MHz-band.</p> <p>The migration will be made within the available frequency resources for digital terrestrial television.</p>	<p>2009.</p> <p>The 800 MHz-band is therefore expected to be available for new uses in the time frame 2009-2010.</p>	
SI	Not before 2012.	<p>Slovenia already uses MPEG-4 coding algorithm for SDTV programmes. For the future, HDTV multiplexes are planned. Implementation of DVB-T2 is considered to be problem while MPEG-4/DVB-T is HDTV capable. Introducing new transmission system could cause unwanted market segmentation.</p>	After 2015	<p>If ASO will follow the planed timing not only in Slovenia but also in the neighbouring countries, we don't see any obstacles in moving the DTT networks to lower channels. In Digital switchover strategy, 4 multiplexes are planned for TV services. At the end of the next year licence was issued for the second MUX on channels above ch60 and the operator is aware of moving to lower channels when appropriate. Adding our country to the footnote 5.316A is considered as an viable option at WRC-11.</p>
SK	<p>The envisaged timeframe for this process in the Slovak republic is</p> <p>2009- 2015.</p>	<p>Upgrade of existing/planned DTT networks from MPEG2 and/or DVBT to MPEG4 and/or DVBT2 depends on decisions of network operator and content provider. This process will be continuous.</p>	<p>The 800 MHz band will be available for new applications after the year 2015.</p>	<p>The Slovak republic does not envisage the possibility of mobile services in the 800 MHz band prior to 2015. We are planning issue license for network operator with validation until May 31st 2015 in frequency band 790 – 862 MHz (Channels above 60) as our first (transitional) multiplex. Therefore we are not in a position to add our country name to the footnotes at WRC – 11.</p>
CH	<p>A "reconfiguration" of GE06-allocations is extremely difficult for a small country like Switzerland.</p> <p>Switzerland decided to release its GE06-allocations in the band 790-862 MHz in favor of mobile services. In most parts of Switzerland this process has already been finalized.</p> <p>As far as possible new allocations for Broadcasting in the band 470-790 MHz are identified and coordinated with neighboring administrations.</p>	<p>Regarding the migration of existing networks from MPEG-2 to MPEG-4 / DVB-T to DVB-T2 no decision has been taken yet.</p> <p>The same is the case for future networks.</p>	<p>In November 2008 a political decision has been taken to allocate the sub-band 790-862 MHz to mobile communication services before 2015.</p> <p>In most parts of Switzerland the 800 MHz is already available for mobile communication services.</p>	<p>Switzerland is included in footnote RR 5.316</p>
UK	<p>We are currently consulting on proposals to reconfigure DTT in UHF bands IV/V to clear the 800 MHz band (see www.ofcom.org.uk/consult/condocs/800mhz/800mhz.pdf). We have</p>	<p>We plan to upgrade one of the six existing DTT multiplexes – Multiplex B – from MPEG-2 and DVB-T to MPEG-4 and DVB-T2. The upgrade process will coincide with our DSO</p>	<p>As stated in our response to i), the availability of the 800 MHz band will depend on our decisions on migrating DTT from</p>	<p>The UK is included in footnote RR 5.316.</p>

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	<p>invited responses by April 20, 2009.</p> <p>At the moment, channels 61 and 62 (790-806 MHz) are planned for use for DTT after digital switchover (DSO). We are proposing to migrate DTT to channels 39 and 40 (614-630 MHz) instead, and our consultation document outlines three possible options for staging the move. Under our favoured option, migration would be completed in late 2013.</p> <p>Programme-making and special events (PMSE) currently uses channel 69 (854-862 MHz). We are consulting on proposals to migrate it to alternative spectrum, our preferred option being channel 38 (606-614 MHz). This process would be completed no earlier than late 2012, in line with the completion of DSO, and possibly as late as the timescales mentioned above for DTT.</p>	<p>plans from late 2009/early 2010.</p> <p>We do not see upgrading Multiplex B having any particular impact on access to the 800 MHz band. Clearly it will be necessary to manage resources and schedule works carefully – as will be the case with the much more significant works underway for DSO.</p>	<p>channels 61 and 62 and PMSE from channel 69 following our current consultation. Under our proposals, the spectrum would be available for new uses from the beginning of 2014. We intend to award the spectrum in 2010.</p>	

DRAFT