



CEPT Report 25

Report from CEPT to the European Commission
in response to the Mandate on:

“Technical considerations regarding
harmonisation options for the Digital Dividend”

“Technical Roadmap proposing relevant technical options and scenarios
to optimise the Digital Dividend, including steps required during the
transition period before analogue switch-off”

Final Report on 27 June 2008 by the



Electronic Communications Committee (ECC)
within the European Conference of Postal and Telecommunications Administrations (CEPT)



0 EXECUTIVE SUMMARY

CEPT was mandated by the EC to carry out technical activities in order to provide the EU with relevant technical information in preparation for an EU-level policy proposal on how to achieve a suitable coordination, and consistency of approaches, regarding the digital dividend, in view of maximising its overall value. This also aims at developing harmonised conditions for the availability of radio spectrum to be able to satisfy a future demand for pan-European service.

This Report provides a technical roadmap considering relevant technical options and scenarios to optimise the digital dividend, including steps required during the transition period before analogue switch-off based on the findings of the reports developed in response to the EC mandate. Finally, it identified additional issues to be further considered.



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Glossary of terms

Band IV	UHF Channels 21 – 34 (470 - 582 MHz)
Band V	UHF Channels 35 – 69 (582 - 862 MHz)
CDMA	Code Division Multiple Access
CR	Cognitive Radio
CEPT	Conférence Européenne des Postes et Télécommunications/European Conference of Postal and Telecommunications Administrations
CPG	Conference Preparatory Group
EC	European Commission
ECC	Electronic Communications Committee
DVB-H	Digital Video Broadcasting – Handheld
DVB-T	Digital Video Broadcasting – Terrestrial
FLO	Forward Link Only
GE06	The Geneva 2006 Agreement and Plan
HSPDA	High-Speed Downlink Packet Access
IMT	International Mobile Telecommunications
ITU	International Telecommunications Union
ITU-R	ITU Radiocommunication sector
MBMS	Multimedia Broadcast Multicast Service
PMSE	Programme Making and Special Events
PPDR	Public Protection and Disaster Relief
RPC	Reference Planning Configuration
RRC-06	Regional Radiocommunication Conference, Geneva 2006
SRD	Short range device
T-DMB	Terrestrial Digital Multimedia Broadcasting
UHF	Ultra High Frequency (refers to 470 - 862 MHz as covered by the GE06 agreement)
WCDMA	Wideband Code Division Multiple Access
WiMAX	Worldwide Interoperability for Microwave Access
WRC	World Radio Conference



1 INTRODUCTION

This CEPT Report 25, (Technical Roadmap in response to the 1st Mandate on Digital Dividend), provides a technical roadmap proposing relevant technical options and scenarios to optimise the digital dividend, including steps required during the transition period before analogue switch-off. It was developed within CEPT in the context of the response to the EC mandate on digital dividend (see Annex A).

2 BACKGROUND

This section provides background information on the development of the technical roadmap.

In the context of this Report, the digital dividend is understood as the spectrum made available over and above that required to accommodate the existing analogue television services in a digital form, in the UHF bands (bands IV and V: 470 - 862 MHz). It is expected to be fully available throughout Europe only after the complete switch off of analogue television (2012 EU objective, 2015 ITU deadline for protection of analogue), although some European countries have announced availability of this digital dividend prior to that date.

Potential uses of the digital dividend include the following non exhaustive list¹:

- Broadcasting
 - Higher number of programs
 - increased coverage
 - Local television
 - High definition television
 - Mobile or portable reception
 - Data broadcasting
 - Enhanced TV (DVB-T2, ...)

- Electronic Wireless communications
 - Mobile telephony/broadband
 - Broadband access to scarcely populated areas
 - Services Ancillary to broadcasting, which already coexist with broadcasting
 - Low power devices (licence exempt or not).
 - Private mobile radio
 - Military communications
 - Public Protection and Disaster Relief (PPDR)

Report A / CEPT Report 21 [1] considered compatibility issues that may appear between DVB-T and multimedia broadcasting type networks (downlink multimedia services can be provided by various systems, such as DVB-T, DVB-H, T-DMB, FLO, WiMAX, WCDMA/HSDPA, MBMS or other cellular services) due to differences in received field strength when using non-co-sited transmitters in adjacent channels and beyond, and proposes solutions to overcome these conflicts.

Report A considers two approaches to implement multimedia broadcasting. The first approach proposed an implementation without a harmonised sub-band, based on GE06 Plan entries and the second approach, an implementation based on a harmonised sub-band. Report A recommends that only non mandatory approaches were to be considered. These two approaches are not mutually exclusive and could be implemented on a non mandatory basis by administrations simultaneously or in different timeframes. The extent of implementation of any harmonised spectrum will be reflected in the amount of re-planning and coordination between the affected countries. This implementation would be introduced into the Plan through the modification procedure.

¹ As per RSPG Opinion #7 on the EU spectrum policy implications of the digital dividend.



Report B / CEPT Report 22 [2] considers compatibility issues that may appear between DVB-T and fixed/mobile services, such as, for example, 3G mobile phones IMT, WiMAX.

Supplementary Report (to Report B) / CEPT Report 23 [3] containing the results of technical studies to define harmonised technical parameters for the usage of the harmonised sub-band by fixed/mobile applications and identify additional compatibility studies to be undertaken within CEPT.

Finally, Report C / CEPT Report 24 [4] assesses the feasibility of fitting new/future applications/services into non-harmonised spectrum of the digital dividend (namely the so-called "white spots" between allotments).

This Report considers the possible scenarios from Reports A and Report B, the Supplementary Report, for the implementation of multimedia broadcasting and fixed/mobile applications (including uplink) in the Band IV/V digital dividend and finally the results from Report C.

The technical roadmap describes relevant options and scenarios to optimise the digital dividend, including steps required during the transition period before analogue switch-off also considering the protection of broadcasting systems by:

- Ensuring that the spectrum requirements of the broadcasting service continue to be satisfied, and in particular enabling administrations that have decided to use the corresponding sub-band for broadcasting applications in conformity with the GE06 [5] plan to continue to do so without undue constraints.
- minimizing the potential disruptions to broadcasting services currently in operation or under deployment, through minimum changes to the digital plan adopted by RRC-06,
- minimizing the risks on the switch-over process that changes to the digital plan might involve.
- enabling future developments of broadcasting systems

3 TECHNICAL ROADMAP FOR THE USAGE OF DIGITAL DIVIDEND

This section provides an overview of the proposed technical roadmap. It was developed taking into account:

- guidance and time frame for, the implementation of digital dividend options in the band 470 - 862 MHz in Europe;
- how to take into account the switch off dates of analogue television services in CEPT, but not to mandate this process;
- oriented to Administrations and Industry (including broadcasting and other services using GE06)
- the roles that various stakeholders and agencies would play in working together to achieve efficient usage of the band 470 - 862 MHz by broadcasting and other services/systems ;
- specific, time-sensitive actions that enable progress towards the goals, and further steps which are necessary, refinements which can be applied to these actions.

Annex A provides additional detailed considerations on the implementation of the options based on the conclusions from Report A, Report B, the Complementary Report to Report B and initial considerations relating to Report C.



		Possible Actions / Timing			
Broadcasting Additional broadcast applications (portable reception, high definition TV, additional programs, DVB-T2...)		National Level	EU	CEPT	ITU-R
Implementation within GE06	It could be implemented prior to analogue switch off (2012 in EU countries/2015 in Region 1).	None	None	None	None
Mobile Multimedia broadcasting		National Level	EU	CEPT	ITU-R
Implementation within GE06 digital plan entries	<p>It could be implemented prior to analogue switch off.</p> <p>There may be a need for rearrangement or limited local re-planning allowing for the restrictions imposed by DVB-T, analogue TV and other services.</p> <p>There may also be a need for some local cross border coordination to create layers below 750 MHz.</p>	<p>Limited re-planning and cross-border coordination taking into account analogue switch off (2012 in EU countries /2015 in Region 1).</p> <p>Modifications of GE06 Plan through its Articles 4 and 5 may be required.</p>	None	None	None
A harmonised sub-band implemented within GE06 Agreement	<p>It could be implemented at national level prior to analogue switch off but will require significant re-planning and cross border coordination.</p> <p>The European wide harmonisation and implementation of a sub-band for mobile multimedia broadcasting services is not realistic before at least 2020 and in the near and medium term, it may only be considered on a non-mandatory basis.</p> <p>There will be restrictions imposed by DVB-T, analogue TV and other services.</p>	<p>National re-planning and cross-border coordination taking into account analogue switch off (2012 in EU countries /2015 in Region 1).</p> <p>Modification of GE06 Plan through its Articles 4 and 5.</p>	None		None
Fixed/Mobile Services		National Level	EU	CEPT	ITU-R
Implementation within GE06 digital plan entries	<p>Under this approach, an administration would implement fixed/mobile service only in areas and in channels where it has GE06 plan entries (i.e. using the envelop concept see Article 5.1.3 in GE06 Agreement), taking into account the possibility to apply the procedures for the modifications of the Plan.</p> <p>Co-allocation in Region 1 to mobile service for the band 790 - 862 MHz was made at WRC-07. This band or part of this band could be used to implement mobile uplink.</p> <p>It is recommended not to pursue this approach for harmonisation further.</p>	None or there may be a need to apply the procedures of GE06 to modify some of the GE06 Plan entries.	None	None	None
Implementation in a dedicated sub-band in 470 –	This approach consists in introducing a sub-band only the downlinks of the fixed/mobile services, and introducing their uplinks in a band, outside the 470 - 862 MHz range in order to avoid co-channel	There may be a need to modify GE06 Plan through Articles 4 and 5 in	None	None	None



<p>862 MHz for downlink + uplink outside 470 – 862 MHz</p>	<p>interference from Broadcasting stations in neighbouring countries.</p> <p>The main difficulty with such an approach remains that there is currently no available spectrum for uplink and that the consideration of bands already used would require thorough regulatory and technical investigation. Therefore, this approach can not be pursued without such information.</p> <p>This approach does not formally fulfil the question asked by the EC since the uplink path is not within the 470 - 862 MHz band. It is recommended not to pursue this approach for harmonisation further.</p>	<p>the sub-band dedicated to downlink.</p>			
<p>Implementation within a dedicated sub-band¹</p>	<p>WRC-07 co-allocated the band 790 - 862 MHz to the mobile service (except aeronautical mobile), on a primary basis on a primary basis from 17 June 2015 with an identification of the band for IMT².</p> <p>The band 790 - 862 MHz was already co-allocated to the mobile service in a number of countries in Region 1 (RR 5.316) before WRC-07.</p> <p>The implementation of an assignment to the fixed/mobile services using a frequency in this sub-band requires the use of the GE06 provisions applicable to other primary services (see Res. 224).</p> <p>Administrations will have to apply the coordination procedure in the GE06 Agreement using the trigger field strength in Annex 4 of the Agreement corresponding to digital land mobile systems (e.g. CDMA).</p> <p>This approach would require specific band plan within the sub band to ensure operation of fixed/mobile services in the band 470 - 862 MHz.</p> <p>There will be restrictions imposed by DVB-T, analogue TV and other services.</p>	<p>There may be a need to modify GE06 Plan through Articles 4 and 5 in the harmonised sub-band.</p>	<p>None</p>	<p>Design a band plan (PT1)</p>	<p>None</p>
<p>Use of the White Spaces</p>		<p>National Level</p>	<p>EU</p>	<p>CEPT</p>	<p>ITU-R</p>
<p>PMSE</p>	<p>The controlled access of PMSE services on a secondary and temporary basis to white space spectrum is expected to continue in the foreseeable future, taking into account the development of digital broadcasting in the frequency band 470 - 862 MHz.</p> <p>Noting that the majority of PMSE are located in the band 790 - 862 MHz, administrations may need to identify alternative band for PMSE usage.</p>	<p>National consideration of migration of frequency use</p>	<p>None</p>	<p>None</p>	<p>None</p>

¹ A dedicated sub-band is to be understood as a set of contiguous channels with a total bandwidth narrower than or equal to the band 470 - 862 MHz, with the intent to enable administrations to use it for fixed/mobile services including uplinks if they so wish, or to continue to use it for broadcasting services, if they so wish.

² This allocation will be activated 17th June 2015. For those countries listed in footnotes 5.316 and 5.316A, mobile service may be deployed earlier.



Cognitive techniques for new white space applications	The current CEPT view is that any new white space applications should be used on a non protected non interfering basis. The feasibility of cognitive sharing schemes has not yet been conclusively demonstrated. It is too early in the development cycle to judge the final capabilities of cognitive radio technology for white space devices.	None	None	Further studies (see section 4)	None
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4 FURTHER ACTION POINTS FOR CEPT

The following points have been identified within CEPT as requesting further work.

ECC requested ECC PT 1 to develop detailed channelling arrangements for IMT for the harmonised sub-band 790-862 MHz.

In addition, CPG will consider the further compatibility studies needed in view of WRC-11 Agenda Item 1.17 (see CA/171 [6]).

CEPT recommends looking further into the requirements within the European environment for the use of cognitive techniques in new white space applications.

The CEPT may also need to investigate the possible use of duplex and guard bands in the harmonized sub-band by other systems/services. Decisions will depend on the results of such investigations and on the final band plan proposed for implementation by an administration.

Finally, it has to be noted that the EU has published in November 2007 proposals relating to Digital Dividend aiming at optimising the use of the Digital Dividend in a Commission Communication to European Parliament and Council titled "Reaping the full benefits of the digital dividend in Europe: A common approach to the use of the spectrum released by the digital switchover". This may result in a new EC mandate.



ANNEX A: EC MANDATE TO CEPT ON DIGITAL DIVIDEND



EUROPEAN COMMISSION
Information Society and Media Directorate-General

Electronic Communications Policy
Radio Spectrum Policy

MANDATE TO CEPT ON TECHNICAL CONSIDERATIONS REGARDING HARMONISATION OPTIONS FOR THE DIGITAL DIVIDEND

Purpose

This mandate intends to launch **an initial step** to explore the **technical feasibility** of relevant potential uses of the future digital dividend, to identify any major **coexistence limitations** of these potential uses due to interference issues, and to assess possible **spectrum management strategies** to address those issues.

The results of this mandate should constitute a **technical input to the EU policy process** aiming at maximising the value of the digital dividend from an overall societal and economic viewpoint, hopefully leading to a coordination of approaches on EU level. This mandate should also complement, on technical level, the ongoing policy discussions in the Radio Spectrum Policy Group in the context of the preparation of the RSPG Opinion on the EU spectrum policy implications of the digital dividend¹ (currently undergoing public consultation) as well as the recently adopted RSPG Opinion on multimedia services in particular in the broadcasting frequency bands².

Justification

Pursuant to Article 4 of the Radio Spectrum Decision³, the Commission may issue mandates to the CEPT for the development of technical implementing measures with a view to ensuring harmonised conditions for the availability and efficient use of radio spectrum. Such mandates shall set the task to be performed and the timetable therefore.

In 2005, the Commission has adopted two Communications to the European Parliament and the Council which are both referring to the importance of the future digital dividend from an EU perspective. The first one on "*accelerating the transition from analogue to digital broadcasting*"⁴ sets out the Community policy objectives for the transition. It identifies **spectrum gains** as one of the **major advantage** of the switchover, in particular the "*additional spectrum capacity released by the switch-off of analogue terrestrial television*" and the fact that "*it will be important to not constrain unduly the re-use of these bands for new and innovative services*". The other Communication⁵, on "*EU spectrum policy priorities for the digital switchover in the context of the ITU Regional Radiocommunication Conference 2006 (RRC-06)*", proposes a set of actions and activities to be performed at EU level in order to optimise the opportunity, and the value, of the dividend.

After the finalisation of the RRC-06 planning exercise, this mandate addresses primarily the action list included in the second Communication.

¹ Details available at:
http://rspg.groups.eu.int/doc/documents/opinions/public_consult_rspg06_150_draft_opinion_digital_dividend.pdf

² RSPG Opinion adopted on 25th October 2006 and available at:
http://rspg.groups.eu.int/doc/documents/opinions/rspg06_143_final_rspg_opinion_multimedia_services.pdf

³ Decision 676/2002/EC of the European Parliament and of the Council of 7 March 2002 on a regulatory framework for radio spectrum policy in the European Community, OJ L 108 of 24.4.2002, p.1.

⁴ COM(2005) 204

⁵ COM(2005) 461



Main EU policy objectives

The optimisation of the use of the digital dividend at EU level will contribute to several important EU policy objectives, namely:

- Increase spectrum availability to promote new services fostering growth and innovation, thereby supporting the objectives of the i2010 initiative⁶, launched in relation to the Lisbon agenda;
- Ensure more flexibility in managing the scarce spectrum resource, so as to achieve a more efficient use of it;
- Strengthen the Internal Market dimension for potential mass market services and equipment which will operate in the released frequencies.

Specific objectives

With this Mandate, the European Commission wishes to obtain relevant technical information in preparation for an EU-level policy proposal on how to achieve a suitable **coordination**, and **consistency of approaches**, regarding the digital dividend, in view of maximising its overall value, and in particular to be able to satisfy a future demand for **pan-European services**⁷.

To fulfil the above objective, the CEPT is requested to address more specifically:

- the technical advantages and the feasibility of a coordinated usage⁸ of (parts of) the digital dividend, and recommend the most suitable degree and format of harmonisation;
- the key characteristics of such coordinated frequency bands in order to offer the best basis to maximise their potential economic and societal value;
- the most appropriate strategy to support the objective of a European coordinated dividend, taking into account constraints existing at national level, constraints stemming from existing agreements with non EU countries, and the implications for the planning process at national level.

Order and Schedule

CEPT is mandated to carry out the technical activities intended to support the objectives and policies presented above and to study more specifically⁹:

- the practical coexistence between high and low power density networks in adjacent channels (i.e. co-existence of RPC-1 and RPC-2/3 configurations);
- the possibility of harmonising at EU level a sub-band for multimedia applications, minimising the impact on the GE06 plan;
- the possibility of harmonising, or co-allocating, a sub-band for mobile communication applications (i.e. including uplinks), assuming zero or minimum impact on GE06 and with a view of deployment of such services throughout the EU. The possible impact, if any, on the way to approach the WRC-07 and/or WRC-10 negotiations should be taken into account;
- to the extent that a "harmonisation" of a sub-band, as suggested above, can not be feasible:
 - whether a limited spectrum range could be identified within the UHF band, taking into account the technical practicality of equipment tuning over such a range;
 - the need for specifying mechanisms to be implemented on systems which aim at actively selecting different frequencies within this range in different geographic areas (frequency agile systems);

⁶ COM(2005) 229.

⁷ Since future demand can not be fully predicted at the initial stage, it is proposed considering to reserve some spectrum for allocation at a later stage when the relevant demand at EU level becomes clearer.

⁸ "Coordinated usage" should not be limited to the classical EU spectrum harmonisation (use of a designated frequency band under identical conditions across Europe). Other (more flexible) forms of harmonisation may be considered, for example for use by frequency agile systems.

⁹ None of these items should be considered as an indication of a future policy direction at EU level. These items are solely to explore technical feasibility.



- tentative scenarios for organising consistently the digital dividend in bands IV and V according to the findings resulting from the above, and in particular the potential for ensuring an appropriate consistency on EU level. In doing so, and without pre-empting the future EU and national policy decisions, it would be useful to establish a recommended roadmap for implementation, taking into account the transition period preceding switch-off of analogue broadcasting;
- the possibility for fitting new/future applications/services into non-harmonised spectrum of the digital dividend (such as the "white spots" between allotments).

The deliverable for this Mandate will be a set of three reports (A,B,C) and a technical roadmap showing the possible options for the digital dividend subject to the following delivery dates:

Delivery date	Deliverable
1 April 2007	<u>Report A</u> , on compatibility issues between "cellular / low-power transmitter" networks and "larger coverage / high power tower" type of networks. Key focus should be on the co-existence of RPC1 and RCP2/3 networks in bands IV and V and on the possibility of harmonising a sub-band of bands IV and V for multimedia applications, minimizing the impact on GE06 plan.
15 July 2007	a) <u>Report B</u> , on the technical feasibility of harmonising a sub-band of bands IV and V for mobile applications (including uplinks), minimizing the impact on GE06. b) <u>Technical roadmap</u> proposing relevant technical options and scenarios to optimise the digital dividend, including steps required during the transition period before analogue switch-off.
December 2007	<u>Supplementary Report</u> (to Report B) containing the results of technical studies to define harmonised technical parameters for the usage of the harmonised sub-band by fixed/mobile applications.
spring 2008	<u>Report C</u> , a preliminary assessment of the feasibility of fitting new/future applications/services into non-harmonised spectrum of the digital dividend (namely the so-called "white spots" between allotments)

In implementing this mandate, the CEPT shall, where relevant, take the utmost account of Community law applicable and support the principles of technological neutrality, non-discrimination and proportionality insofar as technically possible. In addition, the final result of the RSPG Opinion on the digital dividend (adoption planned on 24 February 2007) should be duly taken into account, in particular if it would affect some of the specific technical objectives of this mandate.

The Commission, with the assistance of the Radio Spectrum Committee pursuant to the Radio Spectrum decision, may consider to apply the results of this Mandate in the European Community, and to issue further mandates to CEPT on this matter.

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ANNEX B: ADDITIONAL CONSIDERATIONS WITH REGARD TO THE TECHNICAL OPTIONS AND SCENARIOS TO OPTIMISE THE DIGITAL DIVIDEND

B.1 Broadcasting Implementation within GE06 (Additional broadcast applications (portable reception, high definition TV, additional programs, DVB-T2...))

The implementation of broadcasting using the GE06 may need to take into account the possible impact of the implementation of multimedia broadcasting and/or Fixed/Mobile services and their impacts on the GE06 Plan as described in section 3.2.2.3 of Report A [1] and section 5 of Report B [2].

B.2 Mobile Multimedia broadcasting

Report A considered two options for the deployment of mobile multimedia broadcasting applications, it was concluded that option 1 (see 3.2.1) minimizes the impact on the current status of GE06 Plan. Since this plan may evolve continuously through the application of its modification procedure, it is possible for it to evolve towards a harmonised sub-band for mobile multimedia applications (see section 3.2.2).

As in section B.1, the implementation of mobile multimedia broadcasting using the GE06 may need to take into account the possible impact of the implementation of Fixed/Mobile services in the sub-band 790-862 MHz and their impacts on the GE06 Plan as described in section 5 of Report B.

When deploying DVB-H, administrations may need to take into account the possible risk of interference between DVB-H networks operating on adjacent channels (co-sitting may be required to mitigate interference).

B.2.1 Implementation within GE06 digital plan entries

Administrations wishing to implement mobile multimedia broadcasting within GE06, need to take into account the co-existence issue considered in Report A, between RPC-1 and RPC-2/3 configurations in adjacent channels. In order to address this issue, there may be a need for rearrangement or limited re-planning. Other mitigations techniques may also be considered by administrations when implementing multimedia transmitters (see section 3.1.2.5 of Report A). This issue should be considered as a domestic issue and it may imply some limited local re-planning and local cross-border coordination taking into account analogue switch off (2012 in EU countries/2015 in Region 1) possibly resulting in modifications of GE06 through its Articles 4 and 5.

B.2.2 A harmonised sub-band implemented within GE06 Agreement

As in section B.2.1, Administrations wishing to implement mobile multimedia broadcasting using a harmonised sub-band implemented within GE06 Agreement, need to take into account the co-existence issue considered in Report A, between RPC-1 and RPC-2/3 configurations in adjacent channels. In order to address this issue, there may be a need for rearrangement or local re-planning. Other mitigations techniques may also be considered by administrations when implementing multimedia transmitters (see section 3.1.2.5 of Report A).

In addition, compared to section B.2.1, this option could be implemented at national level, only after the more significant national re-planning and cross border coordination (taking into account analogue switch off (2012 in EU countries/2015 in Region 1) that will be needed in order to create a sub-band for mobile multimedia applications. This will result in modifications of GE06 through its Articles 4 and 5.

According to the conclusions given in Report A:

- it would be unadvisable to mandate the harmonisation of a sub-band on a European Level on a short term basis (i.e. not before 2020),
- if a narrow sub-band below 750 MHz is implemented, wide band mobile broadcast receivers which operate over the band 470 - 750 MHz could receive the services of the narrow sub-band,
- if the size of the sub-band is up to 10 % of the center frequency, this would allow an improvement of the technical characteristics of the receivers.



B.3 Fixed/Mobile Services

B.3.1 Implementation within GE06 digital plan entries

This approach is described in section 4.1 of Report B where it is indicated that the implementation of such method would in any case require an allocation for mobile service in order to notify uplink mobile station.

This approach is not recommended as route to harmonisation.

B.3.2 Implementation in a dedicated sub-band in 470 - 862 MHz for downlink and uplink outside 470 - 862 MHz

This approach is further described in section 4.2 of Report B. This approach would remove the problem of adjacent band interference between broadcasting entries and Plan entries used for mobile uplink and it also permits to avoid co-channel interference from broadcasting stations in neighbouring countries into base stations uplink receivers.

However, the main difficulty with such approach remains that there is currently no available spectrum for uplink and that the consideration of bands already used would require thorough regulatory and technical investigation. This approach can not be pursued without such information. Administrations wishing to implement this option need to identify a frequency range for uplink.

This approach does not formally fulfil the question asked by the EC since the uplink path is not within the 470 - 862 MHz band.

B.3.3 Implementation within a non mandatory dedicated sub-band

A dedicated sub-band is to be understood as a set of contiguous channels with a total bandwidth narrower than the band 470-862 MHz, with the intent to enable administrations to use it for fixed/mobile services including uplinks if they so wish, or to continue to use it for broadcasting services, if they so wish.

WRC-07 co-allocated the band 790-862 MHz (channels 61-69) to the mobile service (except aeronautical mobile), on a primary basis from 17 June 2015 in Region 1 with an identification of the band for IMT¹.

The implementation of an assignment to the fixed/mobile services using a frequency in this sub-band requires the use of the GE06 provisions applicable to other primary services (see Res. 224).

Administrations will have to apply the coordination procedure in the GE06 Agreement using the trigger field strength in Annex 4 of the Agreement corresponding to digital land mobile systems (e.g. CDMA).

This approach would require a specific band plan within the sub band to ensure operation of fixed/mobile services in the band 470 – 862 MHz.

B.4 Use of White Spaces

Report C [4] provides an initial definition of “white spaces” and provide initial considerations on the possible use of these white spaces.

With regard to the PMSE usage, it has to be noted that the majority of PMSE are located in the band 790 – 862 MHz. In particular, several CEPT countries have a special assigned PMSE band in the frequency range 790 – 862 MHz. ERC Rec. 70-03 identifies the band 470 – 862 MHz for Radio Microphone (see Annex 10) [7].

Therefore, administrations may need to identify alternative band for PMSE usage. A migration of the frequencies use by these devices needs to be planned in association with the users. This may take into account the ongoing work within CEPT on proposed new PMSE tuning range at 1.5 GHz band and the fact that the band 1785 to 1800 MHz has been identified on a CEPT basis for Radio Microphone in ERC Rec. 70-03 Annex 10 [7].

¹ This allocation will be activated 17th June 2015. For those countries listed in footnotes 5.316 and 5.316A, mobile service may be deployed earlier on a non interference and non protected basis.



ANNEX C: LIST OF RELEVANT DOCUMENTS

[1] CEPT Report 21 / Report A: Final Report from CEPT to the European Commission on compatibility issues between “cellular / low power transmitter” networks and “larger coverage / high power / tower” type of networks.

[2] CEPT Report 22 / Report B: Final Report from CEPT to the EC on Technical feasibility of harmonising a sub-band of bands IV and V for Fixed/Mobile applications (including uplinks), minimising the impact on GE06

[3] CEPT Report 23 / Supplementary Report to Report B: Final Report from CEPT to the EC on Technical options for the use of a harmonised sub-band in the band 470 - 862 MHz for Fixed/Mobile applications (including uplinks)

[4] CEPT Report 24 / Report C: A preliminary assessment of the feasibility of fitting new/future applications/services into non-harmonised spectrum of the digital dividend (namely the so-called "white spots" between allotments)

[5] GE06: Final Acts of the Regional Radiocommunication Conference for planning of the digital terrestrial broadcasting service in parts of Regions 1 and 3, in the frequency bands 174-230 MHz and 470-862 MHz (RRC-06)

[6] CA/171: Results of the first session of the Conference Preparatory Meeting for WRC-11 (CPM11-1)

[7] ERC/REC 70-03: Short Range Devices.