

B I P T

**BELGIAN INSTITUTE FOR POSTAL SERVICES AND
TELECOMMUNICATIONS**

**CONSULTATION ORGANISED BY THE BIPT COUNCIL
OF 21 MARCH 2012
ON
THE 800 MHz BAND**

To respond to this document

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Answers can only be sent by e-mail.

The document must clearly indicate what should be considered as confidential.

This consultation is based on Article 14, § 2, 1°, of the Act of 17 January 2003 on the status of the regulator of the Belgian postal and telecommunications sectors.

CONTENTS

1.	Introduction.....	4
2.	History of the 800 MHz band	4
2.1.	Television in the UHF band.....	4
2.2.	Advantages of digital	5
2.3.	The digital dividend	5
2.4.	Future of terrestrial digital television	5
3.	Existing rights of use.....	6
3.1.	History	6
3.2.	900 MHz band	6
3.2.1.	Until 27 November 2015.....	6
3.2.2.	From 27 November 2015	7
3.3.	1800 MHz band.....	7
3.3.1.	Until 27 November 2015.....	7
3.3.2.	From 27 November 2015	7
3.4.	2 GHz band.....	7
3.5.	2.6 GHz band	8
4.	800 MHz band	8
4.1.	Frequency plan for the 800 MHz band.....	8
4.2.	Use of the guard bands	9
4.3.	Use of the broadcasting band.....	9
4.3.1.	Flemish Community.....	9
4.3.2.	French Community.....	9
4.3.3.	German-speaking Community	9
4.3.4.	Use of channels 60 to 58.....	10
4.4.	Necessary reorganisations.....	10
4.4.1.	RTBF transmitters.....	10
4.4.2.	Wireless microphones	10
5.	Regulatory framework.....	10
6.	Granting procedure.....	12
7.	Spectrum cap	12
8.	Technical conditions.....	14
8.1.	Base stations	14
8.1.1.	In-block emission limits.....	14
8.1.2.	Emission limits within the 790-862 MHz band.....	14
8.1.3.	Emission limits below 790 MHz.....	15
8.2.	Terminal stations	15
9.	Coverage obligations.....	16
9.1.	Existing licences	16
9.2.	800 MHz band	17
10.	Quality and availability of the service	18
11.	Shared use of infrastructure and frequencies.....	18
12.	National roaming	19
13.	2.6 GHz band.....	19

14.	Miscellaneous.....	20
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1. Introduction

Decision No [243/2012/EU](#) of the European Parliament and of the Council of 14 March 2012 establishing a multiannual radio spectrum policy programme (RSPP) aims to make the 800 MHz¹ band available for electronic communications services in the European Union. This decision obliges Member States to carry out by 1 January 2013 at the latest the authorisation process in order to allow the use of the 800 MHz band for electronic communications services.

The 800 MHz band is optimal for the coverage of large areas by wireless broadband services. Indeed, because the propagation conditions are much more favourable for bands below 1 GHz, rolling out a network to cover large areas requires much less base stations.

Taking account of Commission Recommendation [2009/848/EC](#) of 28 October 2009 facilitating the release of the digital dividend in the European Union, which favours the switch-off of analogue broadcasting by 1 January 2012 at the latest, this band should in principle be available for electronic communications services throughout the European Union by the year 2013.

This consultation relates to the use of the 800 MHz band for wireless broadband services. Wireless broadband services in the 800 MHz band are an evolution of the 2G and 3G services now provided by mobile operators. Even if there will be no technological restrictions the 800 MHz band is very likely to be used for the LTE technology.

2. History of the 800 MHz band

2.1. Television in the UHF band

For many decades the UHF² broadcasting band has been used for analogue terrestrial television.

In Belgium only the programmes of the public broadcasting companies³ were transmitted. Those transmissions enabled viewers, mostly by way of a reception aerial installed on the roof, to receive the public broadcasting companies' programmes. In border regions it would often also be possible to receive programmes from abroad.

The arrival of cable networks has strongly diminished the number of viewers receiving the programmes via the air.

Because of the technological developments analogue terrestrial television was replaced by digital terrestrial television (DTT). In 2006, the ITU⁴ established a plan⁵ for digital terrestrial television in the UHF-band for Europe and Africa. In that ITU plan seven DVB-T⁶ coverages⁷ were planned for Belgium.

Essentially, a DVB-T pipe is a pipe for transmitting digital terrestrial television. A coverage has a certain capacity, which in practice is situated between 5 Mbps and 32 Mbps depending on the type of modulation used. In principle a coverage can deliver any picture quality: the higher the

¹ 790-862 MHz frequency band.

² 470-862 MHz frequency band, composed of 49 channels of 8 MHz numbered from 21 to 69.

³ RTBF and VRT.

⁴ International Telecommunication Union.

⁵ Geneva Plan, 2006 (GE06).

⁶ DVB-T is the digital terrestrial television standard used in Europe. The ITU plan is based on the technical characteristics of the DVB-T standard.

⁷ Coverage is understood to be a full coverage of the French Community, a full coverage of the Flemish Community and a coverage of the German-speaking Community. Therefore, the Brussels Region has double coverage. One Community's coverage is ensured by one or more allotments. An allotment implies the possibility to use a given channel in a given geographical area.

quality, the more bit rate is needed. Standard video programmes (SDTV) can be transmitted by using a 3.2 Mbps bit rate and MPEG-2 compression. In the future the use of MPEG-4 compression and the DVB-T2 standard will enable the number of transmitted programmes to enhance significantly.

In Belgium all analogue transmissions have stopped since March 2010.

2.2. Advantages of digital

The advantages of digital resulting from efficiency gains in spectrum use will make it possible to transport more programmes with less frequencies. By using the DVB-T technology and MPEG-2 compression six standard video programmes can easily be transmitted in an 8 MHz channel, which would be able to transmit but a single analogue programme. As mentioned already, the use of MPEG-4 compression and the DVB-T2 standard will enable the number of transmitted programmes to further enhance significantly.

Digital broadcasting also makes new applications possible, such as broadcasting television programmes on mobile receivers (DVB-H) or high-definition television (HDTV). Thanks to the DVB-H⁸ technology about 16 video programmes can be received on a mobile receiver per coverage. The number of programmes in DVB-H is much higher than in DVB-T, because the small size of the screen needs a lower definition. HDTV requires approximately three times more capacity than SDTV.

2.3. The digital dividend

As digital broadcasting makes more programmes possible with less frequencies, a digital dividend is to be expected. Indeed, less spectrum will be needed to broadcast the equivalent of the existing analogue programmes.

The digital dividend can take different shapes:

- more broadcasts;
- broadcasts with a higher definition (HDTV);
- mobile television (DVB-H) or multimedia services;
- other services besides broadcasting.

Several reasons, both at European and at ITU level have led to the identification of the 790-862 MHz frequency band, corresponding with TV channels 61 up to 69, for wireless broadband services. Therefore, the use of the 800 MHz band for wireless broadband services is part of what is called the digital dividend.

2.4. Future of terrestrial digital television

As the 790-862 MHz frequency band has been selected for wireless broadband services, it can no longer be used for digital terrestrial television. The identification of that band has therefore created 7 gaps in the Belgian DVB-T coverages.

The channels ensuring these coverages are not spread uniformly over the 470-862 MHz band. The number of lost coverages therefore varies from one place to another. Belgium is one of the countries most impacted by the loss of the 790-862 MHz band for broadcasting: depending on the place one to three DVB-T coverages are lost.

Numerous bi- or multilateral coordination meetings have been organised with our neighbouring countries in order to reconstruct the coverages lost following the identification of

⁸ DVB-H is a terrestrial digital television standard meant for reception on mobile terminal equipment. DVB-H also has competing technologies such as T-DMB or MediaFLO.

the 800 MHz band for wireless broadband services. The initial purpose was to reconstitute at least 6 coverages everywhere. Up to now those meetings have not yet produced a satisfactory solution for Belgium.

In Belgium broadcasting is a competence of the Communities. Therefore this consultation does not concern the future of digital terrestrial television.

3. Existing rights of use

3.1. History

In 1995, two GSM licences were granted to Belgacom and Mobistar in the 900 MHz band⁹.

In 1997, a DCS licence was granted to KPN Group Belgium in the 1800 MHz band¹⁰. However, it was stipulated that KPN Group Belgium could have access to the 900 MHz band and that Belgacom and Mobistar could have access to the 1800 MHz band.

The GSM and DCS licences are also called 2G licences. The 2G operators were forced to use the GSM technology and its evolutions. GPRS and EDGE are evolutions of the GSM technology.

In 2001, three 3G licences were granted to Belgacom, Mobistar and KPN Group Belgium in the 2 GHz band¹¹. The 3G operators were forced to use one of the IMT-2000 technologies. All three operators have chosen the UMTS technology. HSDPA and HSPA+ are evolutions of the UMTS technology.

In 2008, the 3G operators were allowed to roll out the UMTS technology in the 900 MHz band. That authorisation was extended to the 1800 MHz band in 2011.

In 2011, a fourth 3G licence was granted to Telenet Tecteo Bidco, which also opted for the UMTS technology.

In 2011, an auction was held to grant rights of use for the 2.6 GHz band¹². Following that auction rights of use will be granted to Belgacom, Mobistar, KPN Group Belgium and BUCD in July 2012. Even though there are no restrictions regarding the technology the 2.6 GHz band is very likely to be used for the LTE technology.

BIPT has also decided that the regulatory framework allowed the 3G operators to roll out the LTE technology in the 900 MHz, 1800 MHz and 2 GHz frequency bands.

3.2. 900 MHz band

Rights of use are granted to four operators until 15 March 2021. There is no automatic extension of those rights of use.

3.2.1. Until 27 November 2015

Belgacom and Mobistar each have 60 GSM channels, and KPN Group Belgium has 54 channels in the 900 MHz band, until 27 November 2015.

The channels are distributed as follows¹³:

⁹ Paired frequency bands 880-915 MHz and 925-960 MHz.

¹⁰ Paired frequency bands 1710-1785 MHz and 1805-1880 MHz.

¹¹ Paired frequency bands 1920-1980 MHz and 2110-2170 MHz and unpaired frequency band 1900-1920 MHz.

¹² Paired frequency bands 2500-2570 MHz and 2620-2690 MHz and unpaired frequency band 2575-2620 MHz.

¹³ See Decision of the BIPT Council of 16 November 2011 on the division of spectrum in the 900 MHz, 1800 MHz and 2 GHz frequency bands, which lays down the division of spectrum between the various mobile operators in the 900 MHz, 1800 MHz and 2 GHz frequency bands.

- Belgacom, 1-30 and 61-90;
- Mobistar, 31-60 and 91-120;
- KPN Group Belgium, 975-1024 and 121-124.

3.2.2. From 27 November 2015

As from 27 November 2015 and until 15 March 2021, Belgacom, Mobistar and KPN Group Belgium will each have 50 GSM channels, whereas Telenet-Tecteo Bidco will have 24 channels.

BIPT has no plans to change the division of spectrum between the various mobile operators in the 900 MHz band before 27 November 2015. Such a change will be treated in a later decision, to be taken in the course of 2012.

3.3. 1800 MHz band

Rights of use are granted to four operators until 15 March 2021. There is no automatic extension of those rights of use.

3.3.1. Until 27 November 2015

Belgacom and Mobistar may each have 104 GSM channels, and KPN Group Belgium may have 110 channels in the 1800 MHz band, until 27 November 2015.

From 30 June 2012 at the latest, the channels will be divided as follows ¹³:

- Belgacom, 512-615;
- Mobistar, 630-733;
- KPN Group Belgium, 776-885.

3.3.2. From 27 November 2015

As from 27 November 2015 and until 15 March 2021, Belgacom, Mobistar and KPN Group Belgium will each have 100 GSM channels, whereas Telenet-Tecteo Bidco will have 50 channels.

The division of spectrum between the various mobile operators in the 1800 MHz frequency band will have to be modified for the period from 27 November 2015 until 15 March 2021. This change will be treated in a later decision, to be taken in the course of 2012.

3.4. 2 GHz band

Rights of use are granted to four operators until 15 March 2021. There is no automatic extension of those rights of use.

Until 15 March 2021, Belgacom has 15 MHz duplex in the paired bands and 5.4 MHz duplex in the unpaired band, while Mobistar and KPN Group Belgium each have 14.8 MHz duplex in the paired bands and 5 MHz duplex in the unpaired band, and Telenet Tecteo Bidco has 14.8 MHz duplex in the paired bands.

Table 3.1 shows the division of the frequencies assigned for the 2 GHz band.

The block of unpaired frequencies 1904.9-1909.9 MHz has not been assigned.

Operator	Base station reception (MHz)	Base station transmission (MHz)	Unpaired frequencies (MHz)
Belgacom	1920.3-1935.3	2110.3-2125.3	1914.9-1920.3

Operator	Base station reception (MHz)	Base station transmission (MHz)	Unpaired frequencies (MHz)
KPN Group Belgium	1935.3-1950.1	2125.3-2140.1	1899.9-1904.9
Telenet-Tecteo Bidco	1950.1-1964.9	2140.1-2154.9	-
Mobistar	1964.9-1979.7	2154.9-2169.7	1909.9-1914.9

Table 3.1 - Division for the 2 GHz band

3.5. 2.6 GHz band

Rights of use will be granted to four operators until 1 July 2027. Extensions of these rights of use for successive five-year periods are possible.

Table 3.2 shows the division of the frequencies assigned for the 2.6 GHz band.

The block of unpaired frequencies 2520-2535/2640-2655 MHz has not been assigned.

Operator	Base station reception (MHz)	Base station transmission (MHz)	Unpaired frequencies (MHz)
Belgacom	2500-2520	2620-2640	-
KPN Group Belgium	2535-2550	2655-2670	-
Mobistar	2550-2570	2670-2690	-
BUCD	-	-	2575-2620

Table 3.2 - Division for the 2.6 GHz band

4. 800 MHz band

4.1. Frequency plan for the 800 MHz band

In accordance with Decision [2010/267/EU](#)¹⁴, the frequency plan for the 800 MHz band is a plan of paired frequencies or FDD¹⁵: base stations and terminal stations use different frequencies. The 791-821 MHz sub-band is used for the emission of base stations (downlink) and the 832-862 MHz sub-band is used for the emission of terminal stations (uplink).

Therefore, the band's total capacity is 2 x 30 MHz or 30 MHz duplex. This 30 MHz duplex can be divided into 6 blocks of 5 MHz duplex.

Figure 4.1 gives a view of the 800 MHz band.

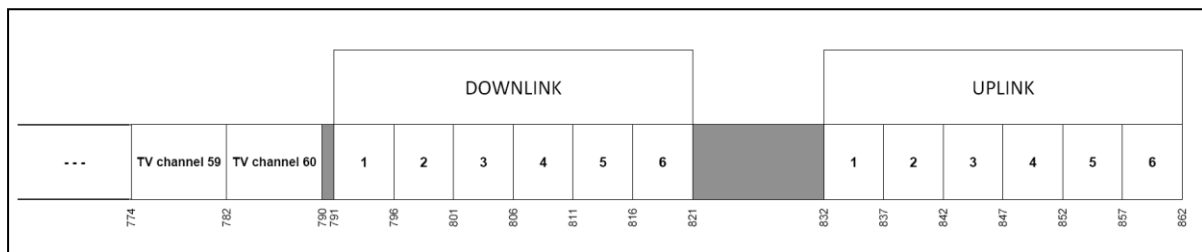


Figure 4.1 - 800 MHz band

¹⁴ Commission Decision 2010/267/EU of 6 May 2010 on harmonised technical conditions of use in the 790-862 MHz frequency band for terrestrial systems capable of providing electronic communications services in the European Union.

¹⁵ Frequency Division Duplex.

4.2. Use of the guard bands

The 790-791 MHz guard band between the broadcasting band (470-790 MHz) and the 800 MHz band will not be used.

Wireless microphones are planned to be used in a part of the duplex guard band (821-832 MHz). For more information, see the communication of the Council of the BIPT of 16 March 2012 on the frequencies for wireless microphones and other PMSE equipment in the radio-interfaces B10 and F2.

4.3. Use of the broadcasting band

As stated above, in Belgium broadcasting is a competence of the Communities.

4.3.1. Flemish Community

The Flemish Government has adopted three decrees regarding digital terrestrial television:

- Decree of the Flemish Government of 12 October 2007 laying down the digital frequency plan for providers of radio and television broadcasting networks;
- Decree of the Flemish Government of 18 July 2008 on the terms and procedure to obtain a licence with a view to providing a radio and television broadcasting network and on the corresponding emission licences;
- Decree of the Flemish Government of 17 October 2008 laying down the packages of digital frequencies that will be released during the first comparative inquiry in view of obtaining a licence to provide a radio and television network and on the corresponding emission licences.

The decree of 12 October 2007 simply takes over all the coverages of the ITU's GE06 plan, destined for the Flemish Community. As a result this decree also took over the channels situated in the 790-862 MHz frequency band. It should be pointed out that BIPT had addressed an appeal for annulment of this decree to the Council of State.

As for the first comparative inquiry the decree of 17 October 2008 takes over all coverages of the plan, with the exception of the channels situated in the 790-862 MHz frequency band.

On the basis of these decrees the VRM assigned¹⁶ the frequency packages to Norkring België on 22 June 2009.

4.3.2. French Community

The management contract of the Radio-Télévision belge de la Communauté française lists the digital TV channels assigned to the RTBF.

Up to now, no frequencies for digital terrestrial television have been assigned to a company other than the RTBF.

4.3.3. German-speaking Community

By virtue of the decree of the Government of the German-speaking Community of 20 July 2009 laying down the digital frequency plan RRC-06 of the German-speaking Community in frequency bands III, IV and V and regulating the transition period, the Liège and Verviers transmitters, channel 45, are made available to the RTBF until 31 December 2012.

¹⁶ [2009-051 - Aanvraag licentie televisieomroepnetwerk NV Norkring België \(PDF\) - Algemene kamer - Televisie - erkenning - 22/06/2009.](#)

4.3.4. Use of channels 60 to 58

In the GE06 plan channel 60 (782-790 MHz) is planned:

- in the province of Luxemburg (French Community);
- in the province of Hainaut, between Mons and Tournai (French Community).

Extended use of channel 60 in the provinces of Liège and Namur has been discussed with our neighbouring countries during coordination meetings, but until now, no final solution has been found.

In the GE06 plan channel 59 (774-782 MHz) is planned:

- in the province of Antwerp (Flemish Community);
- in the whole of the German-speaking Community.

Extended use of channel 59 in the province of Limburg has been discussed with our neighbouring countries during coordination meetings, but until now, no final solution has been found.

In the GE06 plan channel 58 (766-774 MHz) is planned in the western part¹⁷ of the French Community, including Brussels. Use of channel 58 in the eastern part of the French Community has been discussed with our neighbouring countries during the coordination meetings, but up to now no final solution has been found.

4.4. Necessary reorganisations

4.4.1. RTBF transmitters

According to information available to BIPT four digital terrestrial television transmitters of the RTBF, in operation, are using channels in the 800 MHz band. Those for transmitters are:

- Malmedy, channel 61 (790-798 MHz);
- Couvin, channel 64 (814-822 MHz);
- Léglise, channel 66 (830-838 MHz);
- Marche, channel 66.

Those transmitters will have to change channels before wireless broadband networks are rolled out. The substitute channels are not known yet and are still being discussed with our neighbouring countries during cross-border coordination meetings.

4.4.2. Wireless microphones

For more information, see the communication of the Council of the BIPT of 16 March 2012 on the frequencies for wireless microphones and other PMSE equipment in the radio-interfaces B10 and F2.

5. Regulatory framework

Under Article 18 of the ECA¹⁸ the terms for obtaining and exercising the rights of use for radio frequencies are laid down in a royal decree taken following the advice of BIPT and deliberated in the Council of Ministers.

¹⁷ Part situated west of the Wavre-Profondeville axis.

¹⁸ Electronic Communications Act.

The terms for obtaining and exercising the rights of use granted to mobile operators in Belgium are currently laid down in four royal decrees:

- GSM Royal Decree¹⁹ for the rights of use granted in the 900 MHz and 1800 MHz bands to two GSM operators (Belgacom and Mobistar) and for the rights of use granted in the 900 MHz band to the fourth 3G operator (Telenet Voo Bidco);
- DCS Royal Decree²⁰ for the rights of use granted in the 900 MHz and 1800 MHz bands to the DCS operator (KPN Group Belgium) and for the rights of use granted in the 1800 MHz band to the fourth 3G operator (Telenet Voo Bidco);
- 3G Royal Decree²¹ for the rights of use granted in the 2 GHz band to the four 3G operators (Belgacom, Mobistar, KPN Group Belgium and Telenet Voo Bidco);
- 4G Royal Decree²² for the rights of use granted in the 2.6 GHz band to the four 4G operators (Belgacom, Mobistar, KPN Group Belgium and BUCD).

A solution would be to draw up a new royal decree for the rights of use granted in the 800 MHz band. However, BIPT considers proposing to the minister to draw up a single royal decree for the rights of use granted in the 800, 900, 1800, 2000 and 2600 MHz bands and repealing the four existing royal decrees for the reasons explained below.

Article 9, paragraphs 3 and 4 of Directive 2002/21/EC (Framework Directive) as revised by Directive 2009/140/EC establishes the principles of technological neutrality and service neutrality when granting rights of use of radio frequencies. In the future all technologies (2G, 3G, 4G or other) will be allowed to be used in all frequency bands, and splitting up the regulatory framework according to the technology or frequency bands will no longer have much sense.

It is advisable to harmonise as much as possible the terms for obtaining and exercising the rights of use granted to mobile operators in the various frequency bands. The terms laid down in the four royal decrees are often similar without being exactly identical. More and more cross-references between royal decrees appear, in order to maintain a coherent total framework, which makes it difficult and little transparent to understand these decrees.

The royal decrees on GSM, DCS and 3G have been taken based on Article 89, § 1 of the Act of 21 March 1991 on the reform of certain economic public companies. As a result many provisions of these royal decrees have become obsolete.

Regardless of the option chosen, the new royal decree will have to be submitted for consultation to the Communities by virtue of the cooperation agreement²³ of 17 November 2006.

1. Are you in favour of drawing up a single royal decree for the rights of use granted in the 800, 900, 1800, 2000 and 2600 MHz bands and of repealing the four existing royal decrees

¹⁹ Royal Decree of 7 March 1995 on the establishment and operation of GSM mobile telephone networks.

²⁰ Royal Decree of 24 October 1997 on the establishment and operation of DCS-1800 mobile telephone networks.

²¹ Royal Decree of 18 January 2001 laying down the specifications and the procedure for granting licences for third-generation mobile telecommunications systems.

²² Royal Decree of 22 December 2010 on radio access in the 2500-2690 MHz frequency band.

²³ Cooperation Agreement of 17 November 2006 between the Federal State, the Flemish Community, the French Community and the German-speaking Community on the mutual consultation when the regulatory authorities in charge of telecommunications or radio and television broadcasting draw up legislation regarding electronic communications networks, exchange information and exercise powers regarding electronic communications networks.

(GSM, DCS, 3G and 4G)?

6. Granting procedure

BIPT proposes for the mechanism for granting the rights of use in the 800 MHz band to be an auction of the SMRA type²⁴.

Decision 2010/267/EU obliges for the assigned block sizes to be in multiples of 5 MHz. That is why BIPT proposes to assign six lots of 5 MHz duplex (see figure 4.1). Indeed, by dividing the 800 MHz band into six lots of 5 MHz duplex maximum flexibility of the granting procedure can be ensured: the results of the auction could for example be three operators having 10 MHz duplex or 2 operators having 10 MHz duplex and 2 operators having 5 MHz duplex.

BIPT proposes to use the same mechanism as the one used for the auction regarding the 2.6 GHz band in 2011. That mechanism is described in the following documents available on the website www.auction2011.be:

- 4G Royal Decree (Articles 19 to 34);
- Memorandum 4G (section 4.7);
- Auction rules 4G (section 3).

However, following the experience of the auction for the 2.6 GHz band, the following modifications are proposed:

- the deposit would not be paid back to candidates who have not made a single bid to BIPT during the auction. Indeed BIPT feels that a candidate who does not make a single bid unnecessarily hinders the smooth operation of the auction. The loss of the deposit may discourage such manipulations.
- Under certain conditions it would be possible to replace a bid for a specific frequency block by a new bid for another frequency block. This possibility aims to reduce the risk for a candidate of obtaining frequency blocks that are not contiguous.

2. Do you think an auction of the SMRA type is the appropriate mechanism to grant rights of use for the 800 MHz band? If not, what other mechanism do you recommend?
3. What do you think of the changes proposed to the auction procedure for the 2.6 GHz band? Do you see any other advisable changes?
4. What is your opinion about assigning the 800 MHz band based on six lots of 5 MHz duplex? Do you think another division would be more appropriate?

7. Spectrum cap

So as not to hinder competition between the various operators it may be necessary to determine the maximum quantity of spectrum (spectrum cap) an operator is allowed to have in a frequency band.

²⁴ Simultaneous Multiple-Round Auction.

For the 2G and 3G granting procedures the lots had been determined in a specific way. Therefore, there was no explicit spectrum cap, but in practice, the spectrum cap corresponded with the quantity of spectrum in the lots offered. An explicit spectrum cap of 20 MHz duplex was established afterwards for the 2 GHz band FDD, though.

As to the 900 MHz band Belgacom and Mobistar each have 12 MHz duplex until 27 November 2015. From 27 November 2015 onwards, just as KPN Group Belgium, they will only have 10 MHz duplex any more. This can be considered to be an implicit spectrum cap.

As to the 1800 MHz band KPN Group Belgium has 22 MHz duplex until 27 November 2015. From 27 November 2015 onwards, just as Belgacom and Mobistar, it will only have 20 MHz duplex any more. This can also be considered to be an implicit spectrum cap.

For the auction procedure for the 2.6 GHz band a spectrum cap of 20 MHz duplex had been set for the FDD bands.

Table 6.1 shows the (explicit or implicit) spectrum cap for all the frequency bands.

Frequency band	Total spectrum quantity (MHz duplex)	Spectrum cap (MHz duplex)
900 MHz	35	12 ^{25 26} 10 ^{27 26}
1800 MHz	75	22 ^{25 26} 20 ^{27 26}
2 GHz ²⁸	59,4	20 ²⁹
2.6 GHz ²⁸	70	20 ²⁹

Table 6.1 - Spectrum caps

BIPT proposes to set a spectrum cap for the 800 MHz band.

The propagation conditions are similar for the 800 MHz and 900 MHz bands, and they are much more favourable than for the other bands (1800 MHz, 2 GHz and 2.6 GHz). Therefore, the 800 MHz and 900 MHz bands are optimal to cover large areas.

Considering the 800 MHz and 900 MHz bands' interest to cover large areas BIPT also contemplates setting a cumulated spectrum cap for both frequency bands.

5. Are you in favour of setting a spectrum cap for the 800 MHz band? If so, what would be in your opinion the maximum quantity of spectrum an operator should be allowed to have in the 800 MHz band?
6. Are you in favour of setting a cumulated spectrum cap for the 800 MHz and 900 MHz bands? If so, what would be in your opinion the maximum quantity of spectrum an operator should be allowed to have in the 800 MHz and 900 MHz bands combined?

²⁵ Until 27 November 2015.

²⁶ Implicit.

²⁷ From 27 November 2015.

²⁸ FDD part only.

²⁹ Explicit.

8. Technical conditions

Decision [2010/267/EU](#) aims at harmonising the technical conditions of provision and efficient use of the 800 MHz band for terrestrial systems capable of providing electronic communications services in the European Union.

The technical conditions mentioned in the annex to Decision 2010/267/EU are given in the shape of block-edge masks (BEMs). A BEM is an emission mask that is defined, as a function of frequency, relative to the edge of a block of spectrum for which rights of use are granted to an operator. It consists of in-block and out-of-block components which specify the permitted emission levels over frequencies inside and outside the licensed block of spectrum, respectively.

8.1. Base stations

8.1.1. In-block emission limits

Decision 2010/267/EU allows the Member States who wish to do so, to set in-block EIRP limits for base stations, which, unless otherwise justified, should normally lie within the range 56 dBm/5 MHz to 64 dBm/5 MHz.

BIPT does not think it justified to set limits outside the range 56 dBm/5 MHz to 64 dBm/5 MHz. BIPT finds a 60 dBm/5 MHz limit to be appropriate.

8.1.2. Emission limits within the 790-862 MHz band

In order to determine the BEM for a frequency block tables 7.1 and 7.2 should be combined in such a way that for each frequency the limit corresponds with the higher value of the baseline requirements and the specific block requirements.

Frequency range of out-of-block emissions	Maximum mean out-of-block EIRP	Measurement bandwidth
790-791 MHz	17.4 dBm	1 MHz
791-821 MHz	11 dBm	5 MHz
821-832 MHz	15 dBm	1 MHz
832-862 MHz	-49.5 dBm	5 MHz

Table 7.1 - Out-of-block baseline requirements

Frequency range of out-of-block emissions	Maximum mean out-of-block EIRP	Measurement bandwidth
- 10 to - 5 MHz from lower block edge	18 dBm	5 MHz
- 5 to 0 MHz from lower block edge	22 dBm	5 MHz
0 to + 5 MHz from upper block edge	22 dBm	5 MHz
+5 to +10 MHz from upper block edge	18 dBm	5 MHz

Table 7.2 - Out-of-block specific requirements

The limits referred to in tables 7.1 and 7.2 come from Decision 2010/267/EU. These limits are binding and therefore are not the object of this consultation.

8.1.3. Emission limits below 790 MHz

Decision 2010/267/EU makes a distinction between three cases of protecting broadcasting:

- A. For TV channels where broadcasting is protected
- B. For TV channels where broadcasting is subject to an intermediate level of protection
- C. For TV channels where broadcasting is not protected

The maximum mean out-of-block EIRP is respectively 0 dBm³⁰, 10 dBm³⁰ and 22 dBm for a measurement bandwidth of 8 MHz for cases A, B and C.

According to Decision 2010/267/EU:

- Member States should apply the baseline requirement in case A in circumstances where digital terrestrial broadcasting channels are in use at the time of deployment of terrestrial systems capable of providing electronic communications services;
- Member States may apply the baseline requirements in cases A, B or C in circumstances where the relevant broadcasting channels are not in use at the time of deployment of terrestrial systems capable of providing electronic communications services;
- Member States shall take into account that cases A and B reserve the option of bringing relevant broadcasting channels into use for digital terrestrial broadcasting at a future date, while case C is appropriate where there are no plans to bring the relevant broadcasting channels into use;
- Cases A, B, and C listed above can be applied per broadcasting channel and/or per region so that the same broadcasting channel may have different levels of protection in different geographic areas and different broadcasting channels may have different levels of protection in the same geographic area.

The only margin left to the Member States therefore is the choice of which baseline requirements (A, B or C) are applied when the relevant broadcasting channels are not in use at the time of deployment of terrestrial systems capable of providing electronic communications services. That choice will have to be discussed with the Communities, which are in charge of broadcasting.

TV channel 60 (782-790 MHz) is closest to the 800 MHz band (see figure 4.1) and therefore the one for which the out-of-block EIRP limit is most binding. TV channel 60 is situated between -9 and -1 MHz from the first lower block edge of the 800 MHz band. By applying identical requirements to the limits within the 800 MHz band (see table 7.2), a 22 dBm limit is obtained for TV channel 60, which corresponds with case C. Choosing higher requirements (A or B) for TV channel 60 would therefore very likely make it necessary to add extra filters at base station level.

8.2. Terminal stations

For terminal stations Decision 2010/267/EU lays down a maximum mean in-block power limit of 23 dBm³¹.

³⁰ For an in-block EIRP limit over 59 dBm/5 MHz.

³¹ This power limit is specified as EIRP for terminal stations designed to be fixed or installed and as TRP for terminal stations designed to be mobile or nomadic. EIRP and TRP are equivalent for isotropic antennas. It is recognised that this value is subject to a tolerance of up to + 2 dB, to take account of operation under extreme environmental conditions and production spread.

Decision 2010/267/EU lays down that Member States may relax the 23 dBm limit for specific deployments, e.g. fixed terminal stations in rural areas, provided that protection of other services, networks and applications is not compromised and cross-border obligations are fulfilled.

7. Are you in favour of a 60 dBm/5 MHz limit as the in-block EIRP limit for base stations?
8. Can you estimate the extra costs caused by an out-of-block EIRP limit of 0 dBm/8 MHz (case A) or 10 dBm/8 MHz (case B) compared to the 22 dBm/8 MHz limit (case C) for channels 60, 59, 58, ...?
9. Are you in favour of relaxing the in-block power limit of 23 dBm for terminal stations for specific applications? If so, for what applications and what should the power limit be?

9. Coverage obligations

9.1. Existing licences

The GSM and DCS Royal Decrees lay down coverage obligations³². The candidates' engagements regarding coverage were among the selection criteria during the granting procedures organised in 1995 (Mobistar selected) and in 1997 (KPN/Orange selected as it was then called, now KPN Group Belgium). As a consequence, the 2G operators' coverage obligations can be more binding than the obligations imposed by the Royal Decrees. The 2G coverage obligations may only be fulfilled by means of the GSM technology in the 900 MHz and 1800 MHz frequency bands.

The 3G Royal Decree also lays down coverage obligations³³. The 3G coverage obligations may only be fulfilled by means of an IMT-2000 technology chosen³⁴ by the operator. All obligations but one only concern the 2 GHz band, and one obligation relates to all three bands: 900 MHz, 1800 MHz and 2 GHz.

The 4G Royal Decree does not include any coverage obligations.

Table 9.1 gives a summary of coverage obligations for the existing or planned rights of use. Each row in the table represents a coverage obligation. No coverage obligations are imposed on BUCD, which only has rights of use for the 2.6 GHz band.

Operators	Technology	Frequency band
Belgacom Mobistar KPN Group Belgium	GSM	900 MHz and 1800MHz
	UMTS	2 GHz
		900 MHz, 1800 MHz and 2 GHz
Telenet Tecteo Bidco	UMTS	2GHz
		900 MHz, 1800 MHz and 2 GHz

Table 9.1 - Coverage obligations

³² Article 5 of the GSM Royal Decree and article 6 of the DCS Royal Decree.

³³ Article 3 of the 3G Royal Decree.

³⁴ All four 3G operators have chosen the UMTS technology.

9.2. 800 MHz band

As mentioned above, the 800 MHz band is optimal for the coverage of large areas by wireless broadband services. Coverage obligations linked to the rights of use for the 800 MHz band may help to attain the European goal³⁵ of providing all citizens with a broadband access with speeds of at least 30 Mbps by 2020 at the latest. As a matter of fact, the possibility to link coverage obligations to the rights of use for the 800 MHz band is mentioned explicitly in recital (23) of Decision 243/2012/EU.

Contrary to the 2G and 3G licences, no technology is linked to the rights of use for the 800 MHz band. It is clear however, that the 800 MHz band should be used for more advanced services than those provided by the current 2G and 3G technologies. No technology is imposed but BIPT proposes to impose a minimum bit rate for the coverage obligations. In order to be coherent with the European goal set for 2020, a 30 Mbps bit rate seems perfectly appropriate.

If certain geographical areas are already covered by an operator with a minimum bit rate of 30 Mbps by means of frequency bands other than the 800 MHz band, it is no use obliging the operator to also cover those geographical areas with the 800 MHz band. That is why BIPT proposes that the coverage obligations linked to the 800 MHz band can also be fulfilled by means of all frequency bands for which the operator has rights of use.

The roll-out schedule should also take account of the European goal for 2020. Knowing that the rights of use should normally be granted in 2013 or 2014, the period between the granting and 2020 should be at least 6 years. BIPT therefore proposes the following roll-out schedule:

- 30% of the population after 3 years;
- 60% of the population after 4.5 years;
- 90% of the population after 6 years.

Some countries have determined priority roll-out areas for the 800 MHz band. The purpose of the priority roll-out areas is to favour access to broadband services in remote areas and areas with low population density.

In the longer term BIPT is in favour of lifting the coverage obligations for frequency bands that are not optimal for the coverage of large areas by wireless broadband services.

10. What do you think about a coverage obligation with a minimum bit rate of 30 Mbps for the 800 MHz band?
11. Do you think this obligation should be fulfilled exclusively by means of the 800 MHz band or should it be allowed to be fulfilled by way of all available bands, as recommended by BIPT?
12. What is your opinion about the roll-out schedule proposed by BIPT?
13. Are you in favour of imposing more binding coverage obligations for priority roll-out areas? If so, how would you define those priority roll-out areas?
14. Are you in favour of lifting in the longer term the coverage obligations for frequency bands that do are not optimal for the coverage of large areas by wireless broadband services? If so, which are, according to you, the frequency bands that are optimal for the coverage of large areas by wireless broadband services?

³⁵ [Digital Agenda for Europe](#).

10. Quality and availability of the service

The GSM and DCS Royal Decrees lay down the following obligations regarding quality and availability of service³⁶:

- maximum blocking rate of 5%;
- maximum dropping rate of 2%;
- handover possibility between cells.

The 3G Royal Decree lays down³⁷ a maximum blocking rate of 5%.

The 4G Royal Decree does not include any obligations regarding service quality and availability.

15. Are you favour of obligations regarding service quality and availability in the 800 MHz band? If so, what obligations?

11. Shared use of infrastructure and frequencies

BIPT published a communication on 17 January 2012, in which guidelines for infrastructure sharing were presented. In the conclusion of this communication BIPT stresses that mobile infrastructure sharing is authorised in Belgium and does not require another authorisation, provided that the operators remain independent commercially and technically speaking, since lack of independence may generally bias competition, to the detriment of end-users. However, frequency sharing³⁸ is a problem within the Belgian legal framework.

For the existing rights of use (frequency bands of 900 MHz, 1800 MHz, 2 GHz and 2.6 GHz) the licence is personal and joint ownership of the rights of use by several operators is not allowed. This restriction derives from the various royal decrees that apply by virtue of Article 18 of the ECA and laying down the terms for obtaining and exercising rights of use.

So, in order to allow frequency sharing in the 800 MHz band it suffices that the royal decree that will lay down the terms for obtaining and exercising rights of use for the 800 MHz band authorises it. If on the other hand one does not want frequency sharing to be authorised for the 800 MHz band, it would be preferable for the royal decree to forbid it explicitly.

BIPT is of the opinion that shared use of frequencies for providing wireless broadband services in the 800 MHz band can help to reduce the costs of roll-out and operation considerably. Indeed, this would encourage and also push the rapid and extensive construction of a network and the quicker provision of wireless broadband access in rural areas. As the 800 MHz band is optimal for the coverage of large areas by wireless broadband services, BIPT is in favour of frequency sharing between operators in the 800 MHz band, as long as the operators' independence is not compromised.

In order to reach maximum bit rates thanks to the LTE³⁹ technology, an operator has to have a contiguous block of at least 20 MHz duplex. Seeing that no operator would have 20 MHz duplex

³⁶ Article 4 of the GSM Royal Decree and Article 4 of the DCS Royal Decree.

³⁷ Article 4 of the 3G Royal Decree.

³⁸ Regrouping of frequencies of various operators and common use of a frequency block by those operators.

³⁹ The LTE technology makes it possible to reach a theoretical bit rate of 326.4 Mbps in the downlink with a 20 MHz channel. The maximum bit rate is proportional to the width of the channel.

(see section 7), the only solution to take full advantage of the potential of the LTE technology is frequency sharing between operators, so that a common block of 20 MHz duplex can be used.

As the 900 MHz band is also optimal for covering large areas, the possibility of frequency sharing between operators should also apply to that band.

16. Are you in favour of authorising frequency sharing between operators in the 800 MHz band?
17. Are you in favour of authorising frequency sharing between operators in other frequency bands?
18. In case of frequency sharing, what criteria could be used to ensure the operators' independence is not compromised?

12. National roaming

The 3G Royal Decree includes⁴⁰ an obligation for 3G operators who are also 2G operators to offer national roaming to 3G operators who are not a 2G operator. In 2001, the purpose of that obligation was to limit the structural disadvantage new entrants would have had to face, compared to the existing operators, because they did not have their own mobile radio communications network, nor an existing clientele to offer their services to. As such, national roaming was aimed at giving access to a large network, during a transition period, for operators who had not been able yet to develop a network of their own.

The obligation to offer national roaming was not used in 2001 however, because there were not any newcomers. Telenet Tecteo Bidco, which obtained its 3G licence in 2011, could, if desired, take advantage of that obligation.

The 4G Royal Decree, which concerns the 2.6 GHz band, does not include an obligation to offer national roaming. Therefore one can wonder about the need to impose obligations to offer national roaming in the 800 MHz band.

19. Are you in favour of the obligation to offer national roaming to a new entrant? If so, for which services should national roaming be obliged and how long should this obligation last?

13. 2.6 GHz band

As mentioned in section 0, the block of paired frequencies 2520-2535/2640-2655 MHz has not been granted. Considering the spectrum cap of 20 MHz duplex for the 2.6 GHz band it is impossible for one of the three existing 2.6 GHz FDD operators (Belgacom, Mobistar and KPN Group Belgium) to acquire that frequency block.

BIPT therefore proposes to divide the 2520-2535/2640-2655 MHz frequency block into three blocks of 5 MHz duplex and to raise the spectrum cap for the 2.6 GHz band to 30 MHz duplex.

⁴⁰ Article 5 of the 3G Royal Decree.

20. Are you in favour of dividing the 2520-2535/2640-2655 MHz frequency block into three blocks of 5 MHz duplex?

21. Are you in favour of raising the spectrum cap for the 2.6 GHz band to 30 MHz duplex?

14. Miscellaneous

22. Do you have any other comments on the use of the 800 MHz band for wireless broadband services?

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Catherine Rutten
Member of the Council

Luc Hindryckx
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