Additional Agreement

to the Agreement on the co-ordination of the frequency bands 410 – 430 MHz and 440 – 470 MHz concluded between the Administrations of Belgium, France, Germany, Luxembourg, The Netherlands and Switzerland (Groningen, October 2002)

concerning the coordination of broadband systems in the frequency range 450 - 470 MHz

Concluded between Belgium, Germany and The Netherlands

by correspondence

1. Aim of the Agreement

1.1 The aim of this agreement is to make provisions for the coordination of broadband systems in the frequency range 450 – 470 MHz in addition to the “Agreement on the co-ordination of the frequency bands 410 – 430 MHz and 440 – 470 MHz concluded between the Administrations of Belgium, France, Germany, Luxembourg, The Netherlands and Switzerland (Groningen, October 2002)”.

1.2 The relevant provisions of the Groningen Agreement (2002) shall be applied unless otherwise laid down in this additional agreement.

2. Principles – Background

2.1 The Administrations of Belgium, Germany and The Netherlands deemed it necessary to conclude an agreement on the coordination principles for land mobile systems with channel spacing (CS) greater than 1 MHz, i.e. wideband and broadband systems, in the frequency range 450 – 470 MHz.

2.2 Narrowband systems (channel spacing ≤ 25 kHz) on both sides of the border may continue to operate and further be deployed according to the conditions laid down in the Groningen Agreement 2002.

2.3 In the covered coordination zones where at least one administration intends to put broadband systems into operation, the conditions according this additional agreement shall be applied.

2.4 The interpretation regarding the protection requirement of narrowband systems from emissions of foreign broadband systems solely falls to the Administration of the narrowband systems. Administrations can use frequencies for narrowband systems without prior co-ordination in accordance with paragraphs 3 and 4 of the Groningen Agreement (2002). The protection of receivers is limited in accordance with paragraph 5 of the Groningen Agreement.

3. Technical provisions

3.1 For broadband systems the FDD (frequency division duplex) mode of operation is considered with the following arrangement: The duplex spacing shall be 10 MHz with base station transmission (downlink) located in the upper part of the band (460 - 470 MHz) and terminal station transmission (uplink) located in the lower part of the band (450 - 460 MHz).

3.2 In the coordination zones BEL/D/HOL, BEL/HOL and D/HOL the conditions for the operation of broadband systems in border areas are dependent on the extent of overlap between allocations of NB channels and broadband carrier (see Annexes 1, 2 and 3).

Broadband systems may be operated without coordination with the neighbouring country if the produced field strength does not exceed the following values:

a) Full or partial overlap ≥ 500 kHz[1]

20 dBµV/m/25 kHz at a height of 10 m above ground at the borderline for BB carrier operating on NB non-preferential frequencies (blocks)

20 dBµV/m/25 kHz at a height of 10 m above ground at the 40 km line for BB carrier operating on NB preferential frequencies (blocks)

To obtain the value for broadband carrier the bandwidth correction factor as defined in the latest version of the HCM-Agreement annex 1 has to be added.

The field strength values in this sub-clause refer to a time probability of 1%.

b) Partial overlap < 500 kHz

41 dBµV/m/25 kHz at a height of 10 m above ground at the borderline

To obtain the value for broadband carrier the bandwidth correction factor as defined in the latest version of the HCM-Agreement annex 1 has to be added.

The field strength value in this sub-clause refers to a time probability of 1%.

The field strength value in this sub-clause is defined under the assumption that preferential NB channels use their full preferential rights, i.e. 20 dBµV/m/25 kHz at the 40 km line.

Possible measures for cases where preferential NB channels do not use their full preferential rights are:
- channel selective decrease of radiated power of BB carrier (filtering)
- increase of radiated power of NB channel under preferential rights

Before deployment of these measures the operator of the BB system has to declare takeover of all expenses by self-obligation.

The efficiency of these measures has to be proven by individual coordination cases.

The provisions of this sub-clause shall ensure protection of actual assignments as well as future assignment rights under the NB preferential regime.

c) No overlap (BB vs. BB)

55 dBµV/m/5 MHz at a height of 3 m above ground at the borderline

37 dBµV/m/5 MHz at a height of 3 m above ground at a distance of 10 km

Valid for base stations of BB systems using

- the same technologies on both sides of the borderline with centre frequencies not aligned, or
- the same technologies on both sides of the borderline with centre frequencies aligned and with preferential code/PCI or
- different technologies on the opposite sides of the borderline

37 dBµV/m/5 MHz at a height of 3 m above ground at the borderline

Valid for base stations of BB systems using the same technologies on the opposite side of the borderline with centre frequencies aligned and with non-preferential codes/PCI.

[1] ECC Report 276, § 1

The field strength values refer to the predicted mean field strength of each cell produced by the base station and are defined inside a reference frequency block of 5 MHz.

In cases of other frequency block sizes 10 x $\log_{10}$ (frequency block size / 5 MHz) should be added to the field strength values.

The field strength values in this sub-clause refer to a time probability of 10%.

3.3 In the coordination zone BEL/D the following technical conditions shall apply in the frequency range 451-455.74/461-465.74 MHz:

3.3.1 Frequencies for narrowband systems (bandwidth ≤ 25 kHz)

a) Distance between the base station and the borderline ≤ 15 km

Frequencies may be used without coordination if the field strength does not exceed a value of 34 dBµV/m/25 kHz at a height of 10 m above ground at a distance of 15 km inside the affected country.

The propagation curves with a time probability of 10 % for analogue emissions or with a time probability of 1 % for digital emissions shall be used.

b) Distance between the base station and the borderline > 15 km

Frequencies may be used without coordination if the field strength does not exceed a value of 20 dBµV/m/25 kHz at a height of 10 m above ground at a distance of 40 km inside the affected country.

The propagation curves with a time probability of 10 % for analogue emissions or with a time probability of 1 % for digital emissions shall be used.

3.3.2 Frequencies for wideband systems (bandwidth > 25 kHz)

a) Distance between the base station and the borderline ≤ 15 km

Frequencies may be used without coordination if the field strength does not exceed a value of 43 dBµV/m/5 MHz at a height of 10 m above ground at a distance of 15 km inside the affected country.

The propagation curves with a time probability of 1 % shall be used.

b) Distance between the base station and the borderline > 15 km

Frequencies may be used without coordination if the field strength does not exceed a value of 26 dBµV/m/5 MHz at a height of 10 m above ground at a distance of 40 km inside the affected country.

The propagation curves with a time probability of 1 % shall be used.

4. Operators arrangements

In spectrum parts of overlapping broadband carriers operators arrangements have precedence over individual coordination.
The conclusion of arrangements between operators shall be allowed to the extent possible, according to the provisions laid down in the “Agreement between the administrations of Belgium, France, Germany, Luxembourg, The Netherlands and Switzerland concerning the approval of arrangements between operators of terrestrial

systems capable of providing electronic communications services" done at Brussels on 11th October 2011.

5. Status of existing assignments

This additional Agreement shall not apply to existing assignments agreed between administrations prior to this additional Agreement. Coordinated stations in the frequency range 450 - 470 MHz have to be protected until removal from service in accordance with their coordination status. Possible harmful interference caused by them shall be accepted.

6. Revision of the Agreement

With the consent of the other Administrations, the text of this additional Agreement may be modified at the request of one of the signatory Administrations where such a modification becomes necessary in the light of administrative, regulatory or technical developments.

Notably the signatory Administrations agree to inform each other annually or promptly about intended refarming of narrowband applications, which will lead to increased spectrum portions to be used by broadband systems.

7. Withdrawal of the Agreement

Each Administration may withdraw from this additional Agreement subject to 6 months' notice.

8. Languages of the Agreement

This additional Agreement exists in the English language only. One original version is handed over to each signatory Administration.

9. Revocation of previous Agreement

The Additional Agreement between the Administrations of Belgium and Germany on frequency co-ordination in the bands 451,000 - 455,740 and 461,000 - 465,740 MHz, Brussels 01.03.2005 is abrogated.

Existing stations in line with the previous agreement may continue to operate until their switch-off.

10. Date of entry into force

This additional Agreement enters into force on 1st July 2021.

11. Signature of the Agreement

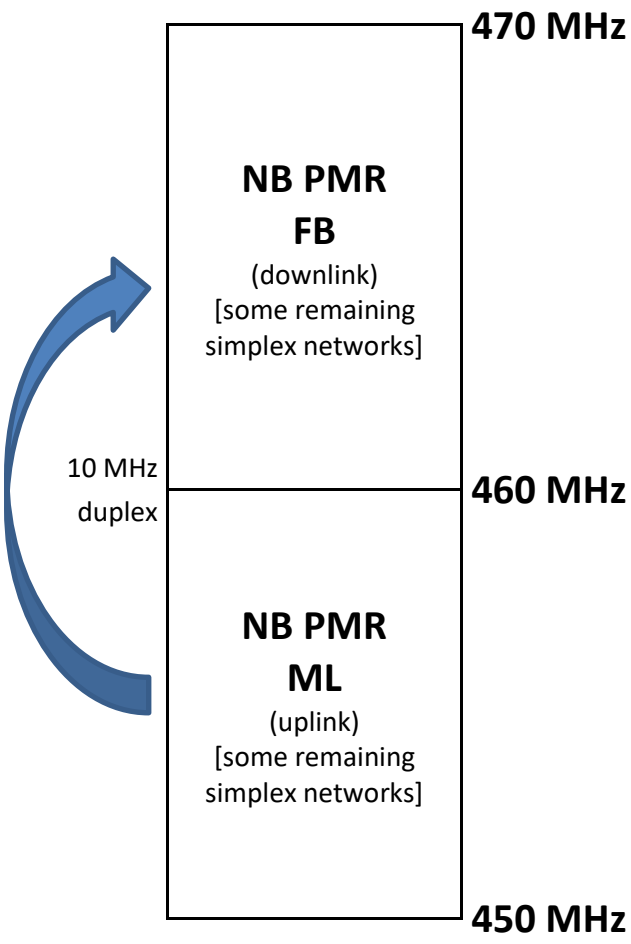
Done by correspondence.

For BELGIUM
Belgian Institute for Postal Services
and Telecommunications
On behalf of the BIPT Council
Mr. A. Debaize _____

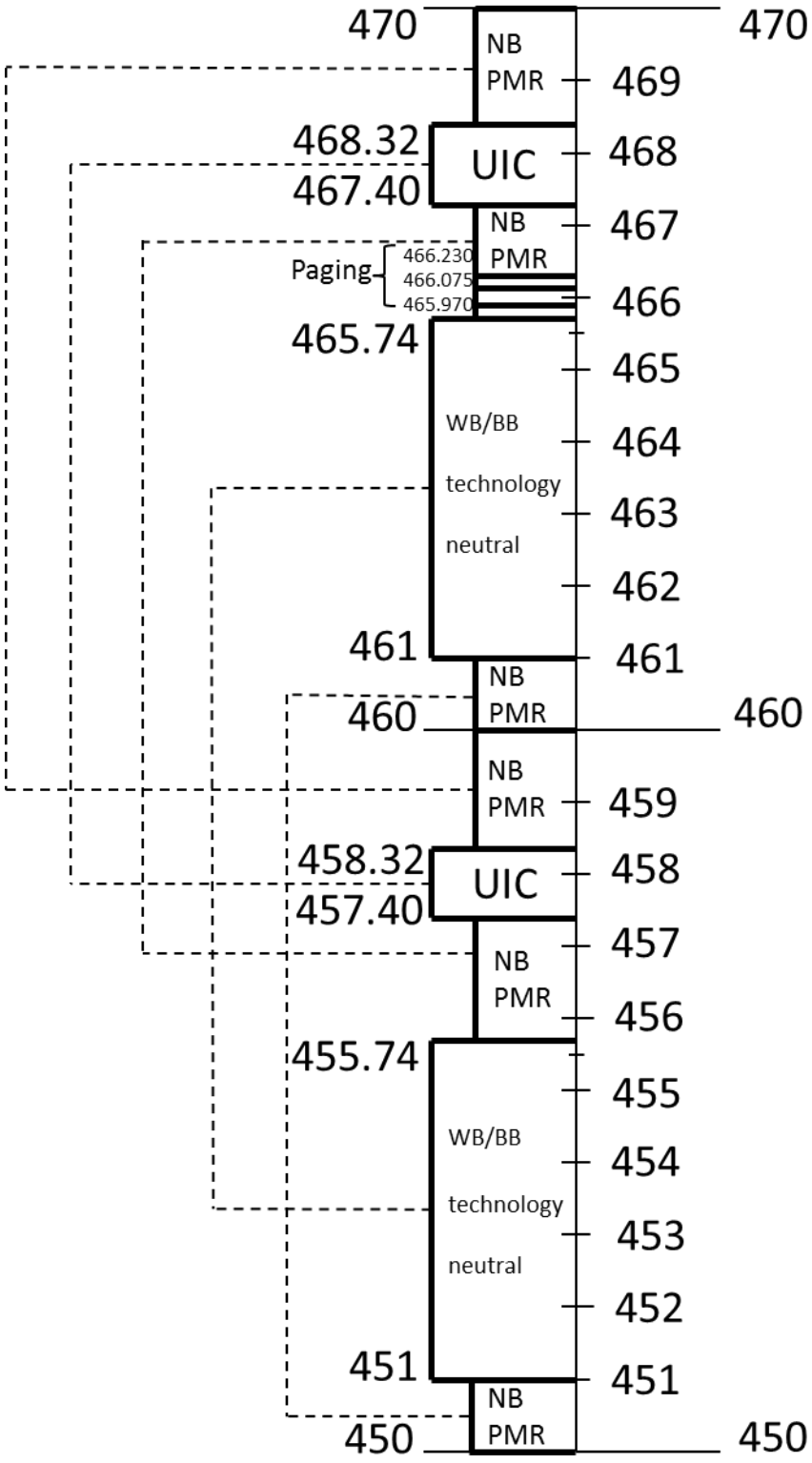
For GERMANY
Bundesnetzagentur
Mr. J. Franke _____

For THE NETHERLANDS
Agentschap Telecom _____
Mrs. M. Tjoelker

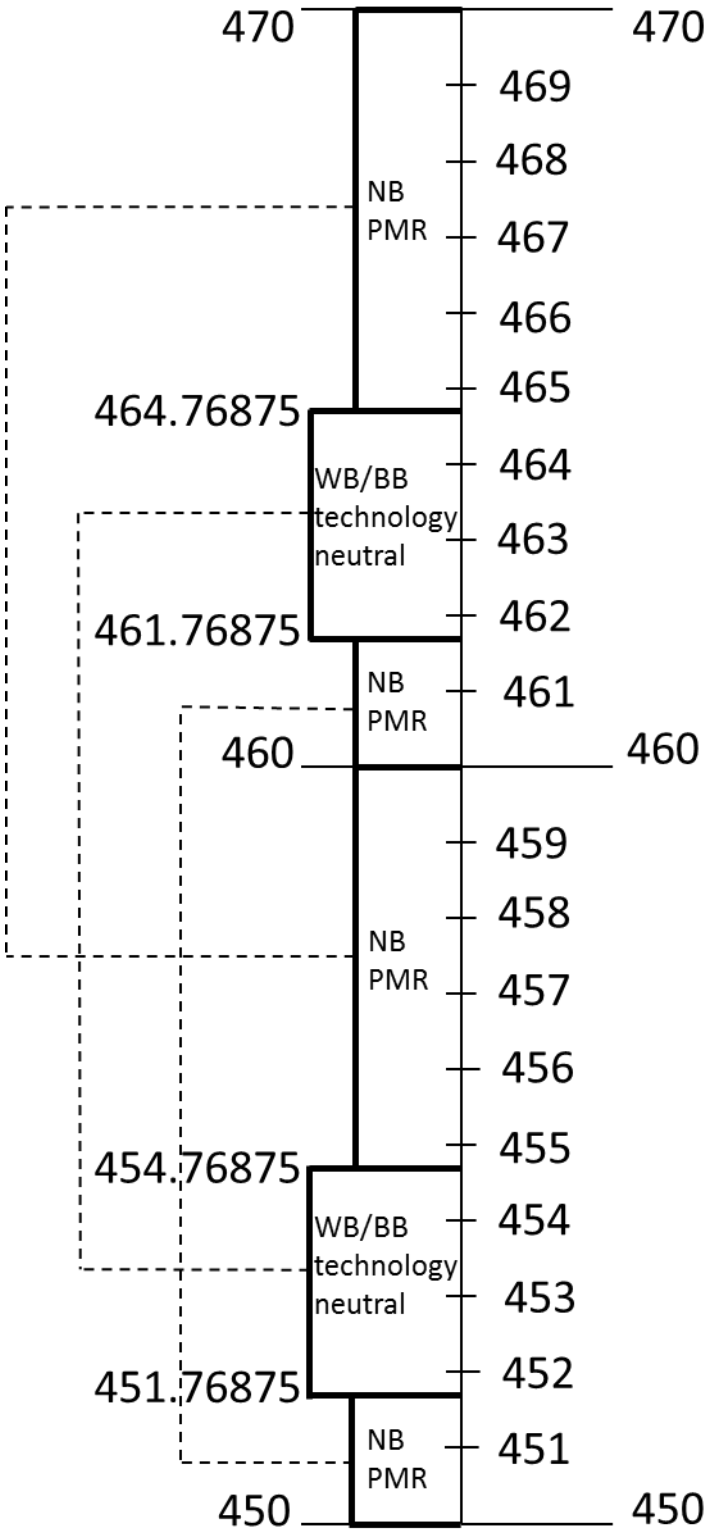
Annex 1: Spectrum usage as of 1Q/2021 in Belgium



Annex 2: Spectrum usage as of 1Q/2021 in Germany



Annex 3: Spectrum usage as of 1Q/2021 in The Netherlands



Annex 4: Resulting situations in coordination zones

Consideration of different spectrum usages in the involved countries leads to the following results:

Coordination zone	Overlap NB vs BB [MHz]	Paragraph	Remark
B (BEL-D-HOL) BEL-D BEL-HOL	 4.74 3.00	 3.2 a) 3.2 a)	
C (D-HOL)	1.74 0.00	3.2 a) 3.2 c)	 1)
D (BEL-HOL)	3.00	3.2 a)	

1) The broadband carrier in Germany is subject to different coordination trigger values.