Technical criteria and principles

agreed between the Electronic Communications Office of the Republic of Latvia and the State Supervisory Department for Telecommunications of the Republic of Belarus of Ministry of Communications and Informatization concerning the use of the frequency bands 1710-1785 MHz / 1805-1880 MHz for terrestrial systems in border areas

Minsk, 20 June 2019

Preamble

According to Article 6 of ITU Radio Regulations, representatives of the Electronic Communications Office of the Republic of Latvia and the State Supervisory Department for Telecommunications of the Republic of Belarus of Ministry of Communications and Informatization (hereinafter referred to as the Parties) have concluded the present technical criteria and principles (hereinafter referred to as the Document) concerning the use of the 1710-1785 MHz / 1805-1880 MHz frequency bands for terrestrial systems in border[1] areas with the aim of optimizing the use of the frequency bands and avoiding mutual interference on a mutually coordinated basis.

The Document cancels and replaces the "Technical criteria and principles agreed between the Electronic Communications Office of the Republic of Latvia and the State Supervisory Department for Telecommunications of the Ministry of Communications and Informatization of the Republic of Belarus concerning the use of the frequency bands 1710-1785 MHz / 1805-1880 MHz for terrestrial systems in border areas" (Riga, 12 March 2015).

1. Principles

1.1. This Document is based on the concept of coordination field strength levels for base stations, allocation of preferential and non-preferential GSM channels (given in Annex 2), allocation of preferential and non-preferential codes for UMTS systems (given in Annex 3), allocation of preferential and non-preferential Physical Cell Identifiers (PCI) for LTE or NR systems (given in Annex 4). This is in conformity with the ECC Recommendation (05)08 of 1 February 2006 "Frequency planning and cross-border coordination between GSM Land Mobile Systems (GSM 900, GSM 1800, and GSM-R)" (amended 3 February 2017) (hereinafter referred to as ECC/REC/(05)08) and the ECC Recommendation (08)02 of 21 February 2008 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands 900 MHz and 1800 MHz excluding GSM vs. GSM systems" (amended 8 February 2019) (hereinafter referred to as ECC/REC/(08)02).

1.2. This Document covers terrestrial Narrowband (NB) and Wideband (WB) systems according to ECC/REC/(05)08 and ECC/REC/(08)02[2]. The relevant standards of terrestrial systems indicated in ECC/DEC/(06)13[3].

1.3. The following frequency arrangement is presumed: FDD[4] mobile stations (user equipment or terminals) transmit and receive in the frequency bands 1710-1785 MHz / 1805-1880 MHz respectively, FDD base stations transmit and receive in the frequency bands 1805-1880 MHz / 1710-1785 MHz respectively.

1.4. The Parties agreed to use a channel plan for GSM based on a 200 kHz grid. Carrier frequencies (radio frequency channels) and channel numbers shall be derived according to ETSI standard EN 301 087[5].

1.5. This Document covers coordination of base stations.

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[1] In the context of this Document the term "border" is understood as the international borderline between the countries of the Parties.

[2] Within this Document the terrestrial Narrowband (NB) systems include: GSM, EC-GSM-IoT (Extended Coverage GSM IoT) and stand-alone (SA) NB-IoT (Narrowband IoT); terrestrial Wideband (WB) systems include: UMTS, LTE, LTE-MTC (LTE Machine Type Communication), LTE-eMTC (evolved MTC), LTE inband NB-IoT, LTE guard-band (GB) NB-IoT and NR (New Radio).

[3] ECC Decision (06)13 of 1 December 2006 "Designation of the bands 880-915 MHz, 925-960 MHz, 1710-1785 MHz and 1805-1880 MHz for terrestrial UMTS, LTE, WiMAX and IoT cellular systems" (amended 8 March 2019) (Annex 1 and Annex 2).

[4] FDD - Frequency Division Duplex.

[5] Digital cellular telecommunications system (Phase 2 & Phase 2+); Base Station System (BSS) equipment specification; Radio aspects.

1.6. Field strength values in this Document are based on a receiving antenna height of 3 m above ground for 10% of time and 50% of locations.

2. Use of frequencies, codes and PCI

2.1. Each Party may use its preferential GSM channels for GSM/ EC-GSM-IoT/ stand-alone (SA) NB-IoT (NB systems) without prior coordination with the other Party if the field strength of each carrier produced by the base station does not exceed a value of 25 dBμV/m/200 kHz at a distance of 15 km inside the other country.

2.2. Each Party may use its non-preferential GSM channels for GSM/ EC-GSM-IoT/ stand-alone (SA) NB-IoT (NB systems) without prior coordination with the other Party if the field strength of each carrier produced by the base station does not exceed a value of 25 dBμV/m/200 kHz at the border.

2.3. Allocation of preferential and non-preferential GSM channels between Parties given in Annex 2.

2.4. Each Party may use the frequency bands 1710-1785 MHz / 1805-1880 MHz for WB systems without coordination with the other Party if the predicted mean field strength produced by the base station cell does not exceed the field strength levels given in Annex 1 at the border and at a distance of 6 km from the border inside the neighboring country respectively.

2.5. Each Party may use all codes (for UMTS) or PCIs (for LTE or NR) available if the predicted mean field strength produced by the base station cell does not exceed the value of 47 dBμV/m/ 5MHz at the border. If the predicted mean field strength produced by the base station cell of UMTS and LTE or NR systems exceeds the value of 47 dBμV/m/ 5MHz at the border each Party shall use only their own preferential codes or PCIs respectively according to the Annex 3 and Annex 4 of this Document.

2.6. If frequency block size is other than 5 MHz, a correction, calculated by the formula $10 \times \lg$ (frequency block size / 5 MHz), dB, shall be added to the field strength values indicated in item 2.4, 2.5.

3. Procedure

3.1. If the predicted mean field strength value produced by the base station exceeds the levels indicated in item 2.1, 2.2 or 2.4 the frequency assignment shall be coordinated with the other Party.

3.2. The period of coordination shall not exceed 45 days from the date of receiving the request and 20 days after the reminder. If no reply is received within 65 days the frequency assignment shall be considered as coordinated. The exchange of coordination information shall take place by e-mail or other electronic means.

3.3. Coordination requests shall be drawn up according to Annex 4 of the ECC/REC/(08)02.

3.4. Complaints of harmful interference shall be based on the median value of measurements of field strength, performed at a receiving antenna height of 3 m at least in two different points over a distance of at least 100 m along the border.

3.5. Reports of harmful interference shall be presented in accordance to Appendix 10 of the ITU Radio Regulations and processed according to Article 15 of the ITU Radio Regulations. The Parties shall take all possible measures in order to eliminate harmful interference.

3.6. For field strength calculations the Parties shall use the latest version of Recommendation ITU-R P.1546 "Method for point-to-area predictions for terrestrial services in the frequency range 30 MHz to 3000 MHz".

3.7. In case of harmful interference between systems indicated in Section 2 of this Document the Parties shall consider measures to eliminate this interference by involving the mobile operators concerned.

4. Revision and cancellation

4.1. This Document may be revised at any time on the initiative of any Party with the consent of the other Party.

4.2. This Document may be cancelled by a mutual decision of both Parties on terms and conditions adopted by the Parties or by a decision of one Party notifying the other Party on its intention at least six months before.

5. Entry into force

5.1. This Document shall come into force on the date of signing it by both Parties.

5.2. This Document has been drawn in two identical copies, one for the Republic of Latvia and one for the Republic of Belarus.

Minsk, 20 June 2019

On behalf of the Electronic Communications Office of the Republic of Latvia	On behalf of the State Supervisory Department for Telecommunications of the Republic of Belarus of Ministry of Communications and Informatization
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Annex 1

Coordination field strength threshold levels for land mobile base stations in the 1710-1785 MHz / 1805-1880 MHz frequency bands between the Republic of Latvia and the Republic of Belarus

	All other cases[6,7,8]	
	Channel bandwidth (BW), MHz	
Coordination field strength level, dBμV/m	**Other than 5 MHz**	**5 MHz**
At the border	$65+10 \times \log_{10}(BW / 5)$	65
At a distance of 6 km inside the territory of the other Party	$47+10 \times \log_{10}(BW / 5)$	47

[6] For the case NB systems (GSM/EC-GSM-IoT/stand-alone (SA) NB-IoT) vs. WB systems (UMTS/LTE/LTE-MTC/LTE-eMTC/LTE in-band NB-IoT/LTE guard-band (GB) NB-IoT/NR) the coordination field strength level for GSM/EC-GSM-IoT/stand-alone (SA) NB-IoT shall be used according to item 2.1 and 2.2 to this Document.

[7] The "All other cases" refers to the terrestrial systems and utilization described in the Introduction part of the ECC/REC/(08)02:

- WB systems vs. WB systems (between UMTS, LTE, LTE-MTC, LTE-eMTC, LTE in-band NB-IoT, LTE guard-band (GB) NB-IoT and NR).
- WB systems (UMTS/LTE/LTE-MTC/LTE-eMTC/LTE in-band NB-IoT/LTE guard-band (GB) NB-IoT/NR) vs. NB systems (GSM/EC-GSM-IoT/stand-alone (SA) NB-IoT).

[8] Using Party's own preferential codes (for UMTS) or PCIs (for LTE and NR).

Annex 2

Allocation of preferential GSM channels in the 1710-1785 MHz / 1805-1880 MHz frequency bands between the Republic of Latvia and the Republic of Belarus

512 BLR (39) 550	551 LVA (59) 609	610 BLR (85) 694	695 LVA (128) 822	823 BLR (63) 885

Summary:
LVA[9] - 187 channels
BLR[10] - 187 channels

[9] LVA - the Republic of Latvia.
[10] BLR - the Republic of Belarus.

Annex 3

Allocation of preferential codes for UMTS (UTRA FDD) systems in the 1710-1785 MHz / 1805-1880 MHz frequency bands between the Republic of Latvia and the Republic of Belarus[11]

Each Party shall use codes sets for UMTS systems in border areas in accordance with the allocation presented in the table.

Set	**A**	**B**	**C**	**D**	**E**	**F**
Code set	0 to10	11 to 20	21 to 31	32 to 42	43 to 52	53 to 63
Set preferential to	LVA	LVA	BLR	BLR	LVA	BLR

[11] According to Annex 3 of ECC/REC/(08)02.

Annex 4

Allocation of preferential Physical Cell Identifiers (PCI) for LTE and NR systems in the 1710-1785 MHz / 1805-1880 MHz frequency bands between the Republic of Latvia and the Republic of Belarus[12]

Each Party shall use PCI sets for LTE and NR systems in border areas in accordance with the allocation presented in the table.

Set	**A**	**B**	**C**	**D**	**E**	**F**
PCI for LTE	0 to 83	84 to 167	168 to 251	252 to 335	336 to 419	420 to 503
PCI for NR	0 to 83 504 to 587	84 to 167 588 to 671	168 to 251 672 to 755	252 to 335 756 to 839	336 to 419 840 to 923	420 to 503 924 to 1007
Set preferential to	LVA	LVA	BLR	BLR	LVA	BLR

[12] According to Annex 5 of ECC/REC/(08)02.