TECHNICAL ARRANGEMENT

between

the Office of Electronic Communications of the Republic of Poland and the Communications Regulatory Authority of the Republic of Lithuania

concerning the use of the frequency bands 1710-1785 MHz and 1805-1880 MHz for terrestrial systems in border areas

Warsaw, 20 December 2018

1. Introduction

According to the Article 6 of ITU Radio Regulations and in the framework of the "HCM Agreement"[1] the representatives of the Office of Electronic Communications of the Republic of Poland and the Communications Regulatory Authority of the Republic of Lithuania (hereinafter referred to as the Parties) have concluded this Technical Arrangement concerning the use of the 1710-1785 MHz / 1805-1880 MHz frequency bands for terrestrial systems with the aim to avoid harmful interference, ensure equal access to the spectrum and optimize the use of the above-stated frequency bands in the border areas on the mutually agreed basis (hereinafter referred to as the Arrangement).

This Arrangement supersedes:

1) "Agreement between the telecommunications Administrations of Poland and Lithuania on the frequency coordination of systems using DCS 1800 standards in the frequency bands 1710-1785 MHz and 1805-1880 MHz (Vilnius, 6 November 1996);

2) "Agreement between administrations of the Republic of Lithuania and the Republic of Poland on frequency planning and frequency usage at border areas for terrestrial systems capable of providing electronic communication services in the frequency bands 1710-1785 MHz and 1805-1880 MHz (done by correspondence, 1 November 2013).

2. Principles

2.1. This Arrangement is based on the concept of coordination field strength levels for base stations, allocation of preferential and non-preferential GSM channels, allocation of preferential and non-preferential code sets for UMTS systems[2], allocation of preferential and non-preferential Physical Cell Identifiers[3] (PCI) for LTE systems. This is in conformity with the ECC Recommendation (05)08 of 3rd February 2017 "Frequency planning and cross-border coordination between GSM Land Mobile Systems (GSM 900, GSM 1800, and GSM-R)" and the ECC Recommendation (08)02 of 27th April 2012 "Frequency planning and frequency coordination for GSM/UMTS/LTE/WiMAX Land Mobile systems operating within the 900 and 1800 MHz bands" (hereinafter referred to as ECC/REC/(08)02).

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

2.3. Allocation of preferential and non-preferential GSM channels between Parties is given in Annex 1 to this Arrangement.

2.4. Allocation of preferential and non-preferential code groups for UMTS systems between Parties is given in Annex 3 to this Arrangement.

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[1] Agreement between the Administrations of Austria, Belgium, the Czech Republic, Germany, France, Hungary, the Netherlands, Croatia, Italy, Liechtenstein, Lithuania, Luxembourg, Poland, Romania, the Slovak Republic, Slovenia and Switzerland on the co-ordination of frequencies between 29.7 MHz and 43.5 GHz for the fixed service and the land mobile service. Agreed by correspondence in 2018.

[2] Coordination of code sets is only needed in case of use of the UMTS systems by both Parties when the channel centre frequencies are aligned.

[3] Coordination of PCI is only needed in case of use of the LTE systems by both Parties when the channel centre frequencies are aligned independently of the channel bandwidth.

[4] FDD – Frequency Division Duplex

2.5. Allocation of preferential and non-preferential Physical Cell Identifiers (PCI) for LTE systems between Parties is given in Annex 4 to this Arrangement.

2.6. 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].

3. Technical provisions

3.1. Each Party may use its preferential GSM channels without prior coordination with the other Party if the field strength level of each carrier produced by the base station does not exceed the value of 25 dBμV/m/200 kHz at a height of 3 m above ground at a distance of 15 km inside the territory of other Party.

3.2. Each Party may use its non-preferential GSM channels without prior coordination with the other Party if the field strength level of each carrier produced by the base station does not exceed the value of 25 dBμV/m/200 kHz at a height of 3 m above ground at the border.

3.3. Each Party may use the frequency bands 1710-1785 MHz / 1805-1880 MHz for wideband systems without coordination with the other Party if the predicted mean field strength level of each carrier produced by a base station does not exceed the field strength levels given in Annex 2 to this Arrangement at a height of 3 m above ground at the border and at a distance of 9 km from the border inside the territory of other Party respectively.

3.4. For UMTS systems in border areas each Party shall use code sets according to the Annex 3 to this Arrangement.

3.5. For LTE systems in border areas each Party shall use PCI according to the Annex 4 to this Arrangement.

3.6. If frequency block size is other than 5 MHz, a correction, calculated by the formula 10 × lg (frequency block size / 5 MHz) dB, shall be added to the field strength values indicated in item 3.3.

3.7. Each Party shall notify the other Party concerning the beginning or cancellation of the use of UMTS FDD and LTE FDD systems located at a distance less than 15 km from border indicating the frequency bands or channels concerned.

4. Coordination procedure

4.1. If the predicted mean field strength value of any carrier produced by the base station exceeds the levels indicated in item 3.1, 3.2 and 3.3 the frequency assignment shall be send for coordination with the other Party.

4.2. 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.

4.3. Coordination requests shall be drawn up according to Annex 4 of the ECC/REC/(08)/02 in the HCM electronic format for mobile service.

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

4.4. 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 above ground at least in two different points over a distance of at least 100 m along the border and the cross-border.

4.5. 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.

4.6. For the field strength calculations the tool of the HCM Agreement shall be applied (using appropriate calculation mode). The Parties may apply other calculation tools using the latest version of ITU-R Recommendation P.1546 "Method for point-to-area predictions for terrestrial services in the frequency range 30 MHz to 3 000 MHz" for 10% of time and 50% of locations. In case of any differences in results of calculations the official version of HCM Program shall be used as a reference.

4.7. Parties understand that, while complying with the provisions in Section 3, some harmful interference between GSM, UMTS, LTE and WiMAX systems at the border areas can occur. In that case the Parties should consider additional measures to eliminate this interference and may invite the mobile operators to solve problem. In case of harmful interference to the above mentioned systems from other networks covered by this Arrangement the Parties shall consider reducing field strength levels produced by their systems compared to those permitted in Annex 2 to this Arrangement in order to eliminate the harmful interference.

5. Operator arrangements

5.1. To further improve the compatibility of terrestrial systems capable of providing electronic communications services in border areas, operators concerned may agree to deviate from technical provisions in this Arrangement and conclude additional arrangements such as:

- preferential frequency distribution,
- preferential code division,
- preferential physical-layer cell identities (PCI),
- frequency carrier definitions,
- synchronisation of concerned networks.

5.2. Such additional arrangements:

- shall only be valid as long as all participating operators hold exclusive rights for concerned frequencies,
- shall not impose disadvantages on other operators,
- are subject to prior consent of the Parties concerned.

6. Revision and cancellation

6.1. This Arrangement may be modified at a request of any of the Party with the consent of the other Party where such a modification becomes necessary in the light of administrative, regulatory or technical development.

6.2. This Arrangement 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.

7. Entry into force

7.1. This Arrangement shall come into force on the date of signing it by both Parties.

7.2. This Arrangement has been drawn in English in two identical copies, one for the Republic of Poland and one for the Republic of Lithuania. The Office of Electronic Communications of the Republic of Poland makes notification in accordance with HCM Agreement to the managing administration.

Warsaw, 20 December 2018

On behalf of the Office of Electronic Communications of the Republic of Poland

Paweł Krzymiński

On behalf of the Communications Regulatory Authority of the Republic of Lithuania

Mindaugas Žilinskas

Annex 1

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

512 POL (38) 549	550 LTU (37) 586	587 POL (37) 623	624 LTU (38) 661	662 POL (38) 699	700 LTU (37) 736

737 POL (37) 773	774 LTU (38) 811	812 POL (37) 848	849 LTU (37) 885

Summary:

POL[6] – 187 channels

LTU[7] – 187 channels

[6] POL – the Republic of Poland

[7] LTU – the Republic of Lithuania

Annex 2

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

Predicted mean field strength level, dBµV/m	UMTS vs. UMTS case (channel bandwidth 5 MHz)		
	Centre frequencies aligned		Centre frequencies not aligned
	Preferential codes used	Non-preferential codes used	
at the border	65	41	65
at a distance of 9 km inside the territory of the other Party	41	not applicable	41

Predicted mean field strength level, dBµV/m	LTE vs. LTE case (channel bandwidth 5 MHz[8])		
	Centre frequencies aligned		Centre frequencies not aligned
	Preferential PCI's used	Non-preferential PCI's used	
at the border	65	41	65
at a distance of 9 km inside the territory of the other Party	41	not applicable	41

Predicted mean field strength level, dBµV/m	All other cases[9] (channel bandwidth 5 MHz[8])
at the border	65
at a distance of 9 km inside the territory of the other Party	41

[8] If the bandwidth of the signal is other than 5 MHz the field strength should be corrected in accordance with item 3.6 of this Arrangement.
[9] The coordination field strength level for GSM shall be used according to item 3.1 and 3.2 to this Arrangement.

Annex 3

Allocation of preferential codes for UMTS (UTRA FDD) system in the 1710-1785 MHz / 1805-1880 MHz frequency bands in the border areas to the Republic of Poland and the Republic of Lithuania

Code set	A	B	C	D	E	F
Code groups	0 to10	11 to 20	21 to 31	32 to 42	43 to 52	53 to 63
Set preferential to	LTU	LTU	LTU	POL	POL	POL

Annex 4

Allocation of preferential Physical Cell Identifiers (PCI) for LTE system in the 1710-1785 MHz / 1805-1880 MHz frequency bands in the border areas to the Republic of Poland and the Republic of Lithuania

Set	A	B	C	D	E	F
PCI	0..83	84..167	168..251	252..335	336..419	420..503
Set preferential to	LTU	LTU	LTU	POL	POL	POL