

TECHNICAL CRITERIA AND PRINCIPLES

**concerning use of the frequency bands
1900-1980 MHz and 2110-2170 MHz for terrestrial systems
agreed between
the Office of Electronic Communications of the Republic of Poland
and
the State Supervisory Department for Telecommunications of the Ministry
of Communications and Informatization of the Republic of Belarus**

Minsk, 15 June 2016

1. Introduction

According to Article 6 of ITU Radio Regulations, representatives of the Office of Electronic Communications of the Republic of Poland and the State Supervisory Department for Telecommunications of the Ministry of Telecommunications and Informatization of the Republic of Belarus (hereinafter referred to as the Parties) have agreed the present Technical Criteria and Principles concerning the use of the paired frequency bands 1920-1980 MHz / 2110-2170 MHz for terrestrial systems with the purpose of avoiding mutual interference and optimising the use of the above-stated frequency bands on a mutually coordinated basis (hereinafter referred to as the Document).

2. Principles of frequency planning and frequency usage at border areas

- 2.1. This Document is based on the concept of coordination field strength levels for base stations, allocation of preferential and non-preferential codes for UMTS system, allocation of preferential and non-preferential Physical Cell Identifiers (PCI) for LTE system. This is in conformity with the ERC Recommendation 01-01 of 5 February 2016 "Cross-border coordination for mobile/fixed communications networks (MFCN) in the frequency bands: 1920-1980 MHz and 2110-2170 MHz" (hereinafter referred to as ERC/REC/(01)01).
- 2.2. This Document cancels and replaces the "Coordination principles and technical criteria for terrestrial UMTS systems at the border areas in the frequency bands 1900-1980 MHz, 2020-2025 MHz and 2110-2170 MHz between the Telecommunications Administrations of the Republic of Belarus, the Republic of Lithuania and the Republic of Poland (Nida, 24th August, 2004)" in relation between Republic of Belarus and Republic of Poland.
- 2.3. The following frequency arrangement is presumed: FDD mobile stations (user equipment or terminals) transmit and receive in the frequency bands 1920-1980 MHz and 2110-2170 MHz respectively, FDD base stations transmit and receive in the frequency bands 2110-2170 MHz and 1920-1980 MHz respectively and TDD base and mobile stations transmit and receive in the unpaired frequency band 1900-1920 MHz.
- 2.4. This Document covers coordination of base stations.
- 2.5. In the context of this Document the term "border" is understood as the international borderline between the countries of the Parties.

3. Technical provisions

- 3.1. 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.
- 3.2. Each Party may use the frequency bands 1920-1980 MHz / 2110-2170 MHz without coordination with the other Party if the predicted mean field strength of each carrier produced by a base station at the border and at a distance of 6 km from the border inside the neighbouring country does not exceed the field strength levels given in Appendix 1.
- 3.3. For UMTS FDD systems in border areas each Party shall use code sets according to the Appendix 2 to this Document.
- 3.4. For UMTS TDD systems in border areas each Party shall use code sets according to the Appendix 3 to this Document.
- 3.5. For LTE FDD systems in border areas each Party shall use PCI's sets according to the Appendix 4 to this Document.
- 3.6. Each Party may use frequency band 1900-1920 MHz for UMTS TDD system using its preferential codes with centre frequencies aligned, or where centre frequencies are not aligned, without coordination with the other Party if the predicted mean field strength value of each carrier produced by the base station does not exceed the value of $36 \text{ dB}\mu\text{V/m/5MHz}$ at the border.
- 3.7. Each Party may use frequency band 1900-1920 MHz for UMTS TDD system using non preferential codes with centre frequencies aligned, without coordination with the other Party if the predicted mean field strength value of each carrier produced by the base station does not exceed the value of $21 \text{ dB}\mu\text{V/m/5MHz}$ at the border.
- 3.8. If frequency block size is wider than 5 MHz, a correction, calculated by the formula $10 \times \log_{10}(\text{frequency block size} / 5 \text{ MHz})$, dB, shall be added to the field strength values indicated in items 3.2, 3.6 and 3.7 respectively.
- 3.9. Each Party shall notify the other Party concerning the beginning or cancellation of the use of UMTS FDD and TDD, LTE FDD or WiMAX FDD systems in border areas 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 3.2, 3.6 and 3.7 the frequency assignment shall be coordinated 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 6 of the ERC/REC/(01)01.
- 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 at least in two different points over a distance of at least 100 m along the 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 field strength calculations the Parties shall use 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 3000 MHz"

5. Revision and cancellation

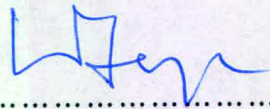
- 5.1. This Document may be revised at any time on the initiative of any Party with the consent of the other Party.
- 5.2. This Document may be cancelled by a mutual decision of both Parties on terms and conditions adopted by the Parties or by a decision of one Party notifying the other Party on its intention at least six months before.
- 5.3. The Parties agreed that the items 3.6 and 3.7 are valid until the expire dates of licenses which have been issued for MNOs of Polish Party for the utilization by TDD systems. Polish Party took an obligation to notify about the termination of the license validity.

6. Entry into force

- 6.1. This Document shall come into force on the date of signing it by both Parties.
- 6.2. This Document has been drawn in two identical copies, one for the Republic of Poland and one for the Republic of Belarus.

Done at Minsk, 15 June 2016

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



.....
/Wiktor Segal/

On behalf of the State Supervisory
Department for Telecommunications
of the Ministry of Communications
and Informatization of the Republic of
Belarus



.....
/Yury Siamashka/

**Coordination field strength levels for land mobile base stations
in the 1920-1980 MHz / 2110-2170 MHz frequency bands
between the Republic of Belarus and the Republic of Poland**

Predicted mean field strength level, dB μ V/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	37	65
at a distance of 6 km inside the territory of the other Party	37	not applicable	37

Predicted mean field strength level, dB μ V/m	LTE vs. LTE case (channel bandwidth 5 MHz ¹)		
	Centre frequencies aligned		Centre frequencies not aligned
	Preferential PCI's used	Non-preferential PCI's used	
at the border	65	37	65
at a distance of 6 km inside the territory of the other Party	37	not applicable	37

Predicted mean field strength level, dB μ V/m	All other cases ² (channel bandwidth 5 MHz ¹)
at the border	65
at a distance of 6 km inside the territory of the other Party	37

¹ If the bandwidth of the signal is larger than 5 MHz the field strength should be corrected in accordance with item 3.5 of this Agreement.

² The following cases refer to the Land Mobile systems and utilization:

- LTE vs. UMTS (and UMTS vs. LTE),
- WiMAX vs. WiMAX,
- LTE vs. WiMAX (and WiMAX vs. LTE),
- UMTS vs. WiMAX (and WiMAX vs. UMTS).

Appendix 2

**Allocation of preferential codes for UMTS (UTRA FDD) system
in the 1920-1980 MHz / 2110-2170 MHz frequency bands in the border
areas
to the Republic of Belarus and the Republic of Poland**

Set	A	B	C	D	E	F
Code set	0 to 10	11 to 20	21 to 31	32 to 42	43 to 52	53 to 63
Set preferential to	POL	BLR	BLR	BLR	POL	POL

**Allocation of preferential codes for UMTS (UTRA TDD) system
in the 1900-1920 MHz frequency band in the border areas
to the Republic of Belarus and the Republic of Poland**

Set	A	B	C	D	E	F
Code set	0 to 10	11 to 20	21 to 31	32 to 42	43 to 52	53 to 63
Set preferential to	POL	BLR	BLR	BLR	POL	POL

**Allocation of preferential Physical Cell Identifiers (PCI) for LTE system
in the 1920-1980 MHz / 2110-2170 MHz frequency bands in the border
areas
to the Republic of Belarus and the Republic of Poland**

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