

AGREEMENT

on coordination between stations in the land mobile service of the Telecommunication Administration of Poland and stations in the aeronautical radionavigation service of the Telecommunication Administration of the Russian Federation in the frequency band
694 – 790 MHz

2015



Preamble

In accordance with Article 6 of the International Telecommunication Union Radio Regulations, the Telecommunication Administration of the Republic of Poland (hereinafter referred to as Republic of Poland) and the Telecommunication Administration of the Russian Federation (hereinafter referred to as the Russian Federation), jointly referred to as "the Parties", enter into this Agreement on coordination between Base Stations (BS), User Equipment (UE) operating in the Land Mobile Service (LMS) of Republic of Poland and stations in the Aeronautical Radionavigation Service (ARNS) of the Russian Federation in the frequency band 694-790 MHz.

Coordination of LMS with the broadcasting service is outside the scope of this Agreement and shall be carried out separately.

This Agreement does not cover coordination between LMS stations in the Republic of Poland and the Russian Federation.

The principles, conditions and technical parameters specified in the corresponding Articles of this Agreement shall be used in the coordination¹ between LMS stations in the Republic of Poland and ARNS stations in the Russian Federation in the frequency band 694-790 MHz.

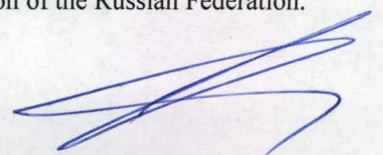
The Telecommunication Administrations recognize that LMS and ARNS stations may be used in accordance with Article 5.1.3 of the GE06 Agreement.

If the Telecommunication Administration of the Republic Poland plans to use the LMS in the frequency band 694-790 MHz, it shall in advance inform the Russian Federation about the start date of LMS use. From that date on, new ARNS stations of the Russian Federation in the frequency bands 703-733 MHz and 738-788 MHz shall be coordinated with the LMS of the Republic of Poland in accordance with the procedures in this Agreement. At the same time coordination of ARNS stations of the Administration of the Russian Federation with the broadcasting service of the Administration of the Republic of Poland in accordance with the Agreement GE06 is no longer required and therefore coordination of ARNS stations of the Administration of the Russian Federation with the Administration of the Republic of Poland under Agreement GE06 in the frequency bands in which present Agreement applies shall be deemed completed.

1. Principles

1.1. In relation to LMS service, this Agreement applies to:

¹ Coordination achieved under this Agreement can be used by the Administrations as an agreement obtained under RR No.9.21 procedure with respect to ARNS of the Telecommunication Administration of the Russian Federation.



- 1.1.1. BS using the Frequency Division Duplex (FDD) mode, where the frequency band 703-733 MHz is used by UE (the uplink), and the frequency band 758-788 MHz is used by BS (the downlink);
- 1.1.2. BS transmitting in 738-758 MHz (the downlink).

1.2 No coordination is required for UE in the frequency range 703-733 MHz, since that is covered by coordination of base stations.

1.3. In case carrier aggregation is used in such a way that the uplink in the frequency band 790-862 MHz band is aggregated with the downlink in the frequency band 694-790 MHz, BS conditions of the «Agreement between the Telecommunications Administration of the Republic of Poland and the Telecommunications Administration of the Russian Federation concerning the use of the frequency band 790 - 862 MHz for terrestrial systems» (Warsaw, 2011) shall apply to BS operating in the frequency band 694-790 MHz with such carrier aggregation.

1.4 In relation to ARNS service, this agreement applies to stations using the frequency bands of 703-733 and 738-788 MHz.

1.5 The term «border» for the purposes of the Agreement should be understood as the land border between the Republic of Poland and the Russian Federation reaching the point on the coast line Vistula Spit at 19E3817 and 54N2737.

1.6 The term «coast line» for the purposes of the Agreement should be understood as a part of coast line of the Kaliningrad Oblast of the Russian Federation north of the latitude of 54N4500.

1.6. This Agreement applies to stations (operating in accordance with the RR) that are brought into use after the signing date of the Agreement.

2. Technical conditions for coordination of stations in the land mobile service with stations in the aeronautical radionavigation service

2.1 When a BS located in the Republic of Poland is operated in accordance with the principle in 1.1.1 or 1.1.2., such BS shall be deemed coordinated with ARNS stations located in the Russian Federation if its distance from the border is 100 km or more. Otherwise items 2.2 and 2.3 of the Agreement apply.

2.2 When a BS located in the Republic of Poland is operated in accordance with the principle in 1.1.1., such BS shall be deemed coordinated with ARNS stations located in the Russian Federation if all of the following conditions are met:

2.2.1. for a BS located in the border area east of longitude 19E4800:

- the predicted mean field strength value produced by the station transmitting in the 758-788 MHz band doesn't exceed the threshold levels defined in Table 1.1 at the border and 9 km into the territory of the Russian Federation;
- in the area between 1 and 60 km from the border of the Russian Federation, the density of BS operating simultaneously in the same

frequency band, taking into account the new frequency assignment to BS, shall not exceed 10 BS sites per 100 km²; in the area between 60 and 100 km from the border of the Russian Federation, the density of BS operating simultaneously in the same frequency band, taking into account the new frequency assignment to BS, shall not exceed 50 BS sites per 100 km².

Table 1.1. Field strength value threshold

Border (B) of the Russian Federation, and 9 km into the territory of the Russian Federation	Field strength value at a height of 3 m, dBμV/m in BW= 5 MHz	Field strength value at a height of 3 m, dBμV/m in BW= 1 MHz
B	55	48
9 km	29	22
Note 1: E can be calculated for other measurement bandwidths (BW) from these values by using the following formula $E_{\text{new}} = E + 10 \log (BW_{\text{new}} / BW)$, where BW_{new} is in MHz		

or if the following condition is met:

- the LMS BS is used in accordance with Article 5.1.3 of the GE06 Agreement.

2.2.2. for a BS located in the border area west of or at longitude 19E4800:

- the predicted mean field strength value produced by the station transmitting in the 758-768 MHz band doesn't exceed the threshold levels defined in Table 1.2 at the border and 9 km into the territory of the Russian Federation;
- the predicted mean field strength value produced by the station transmitting in the 768-788 MHz band doesn't exceed the threshold levels defined in Table 1.2 at the border and 9 km into the territory of the Russian Federation and doesn't exceed the threshold levels defined in Table 1.3 at the coast line of the Russian Federation ;
- in the area between 1 km and 100 km from the border of the Russian Federation, the e.i.r.p. of the LMS BS shall not exceed 55 dBm in the 5 MHz band in any direction towards the border of the Russian Federation, and the effective height of a LMS BS antenna shall not exceed 60 meters;
- in the area between 1 km and 60 km from the border of the Russian Federation, the density of BS operating simultaneously in the same frequency band, taking into account the new frequency assignment to BS, shall not exceed 10 BS sites per 100 km²; in the area between 60 km and 100 km from the border of the Russian Federation, the density of BS

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operating simultaneously in the same frequency band, taking into account the new frequency assignment to BS, shall not exceed 50 BS sites per 100 km².

Table 1.2. Field strength value threshold

Border (B) of the Russian Federation, and 9 km into the territory of the Russian Federation	Field strength value at a height of 3 m, dBμV/m in BW= 5 MHz	Field strength value at a height of 3 m, dBμV/m in BW= 1 MHz
B	55	48
9 km	29	22

Note 1: E can be calculated for other measurement bandwidths (BW) from these values by using the following formula
 $E_{\text{new}} = E + 10 \log (BW_{\text{new}} / BW)$, where BW_{new} is in MHz

Table 1.3. Field strength value threshold

Coast line (C) of the Russian Federation,	Field strength value at a height of 3 m, dBμV/m in BW= 5 MHz	Field strength value at a height of 3 m, dBμV/m in BW= 1 MHz
C	18.5	11.5

Note 1: E can be calculated for other measurement bandwidths (BW) from these values by using the following formula
 $E_{\text{new}} = E + 10 \log (BW_{\text{new}} / BW)$, where BW_{new} is in MHz

or if the following condition is met:

- the LMS BS is used in accordance with Article 5.1.3 of the GE06 Agreement.

2.3 When a BS located in the Republic of Poland is operated in accordance with the principle in 1.1.2., such BS shall be deemed coordinated with ARNS stations located in the Russian Federation if all of the following conditions are met:

2.3.1. for a BS located in the border area east of longitude 19E4800:

- the predicted mean field strength value produced by the station transmitting in the 738-744 MHz band doesn't exceed the threshold levels defined in Table 2.1 at the border and 9 km into the territory of the Russian Federation;
- the predicted mean field strength value produced by the station transmitting in the 744-758 MHz band doesn't exceed the threshold levels defined in Table 2.2 at the border and 9 km into the territory of the Russian Federation;

- in the area between 1 km and 60 km from the border of the Russian Federation, the density of BS operating simultaneously in the same frequency band, taking into account the new frequency assignment to BS, shall not exceed 10 BS sites per 100 km²; in the area between 60 km and 100 km from the border of the Russian Federation, the density of BS operating simultaneously in the same frequency band, taking into account the new frequency assignment to BS, shall not exceed 50 BS sites per 100 km².

Table 2.1. Field strength value threshold

Border (B) of the Russian Federation, and 9 km into the territory of the Russian Federation	Field strength value at a height of 3 m, dBμV/m in BW= 5 MHz	Field strength value at a height of 3 m, dBμV/m in BW= 1 MHz
B	32	25
9 km	-9	-16

Note 1: E can be calculated for other measurement bandwidths (BW) from these values by using the following formula
 $E_{new} = E + 10 \log (BW_{new} / BW)$, where BW_{new} is in MHz

Table 2.2. Field strength value threshold

Border (B) of the Russian Federation, and 9 km into the territory of the Russian Federation	Field strength value at a height of 3 m, dBμV/m in BW= 5 MHz	Field strength value at a height of 3 m, dBμV/m in BW= 1 MHz
B	32	25
9 km	10	3

Note 1: E can be calculated for other measurement bandwidths (BW) from these values by using the following formula
 $E_{new} = E + 10 \log (BW_{new} / BW)$, where BW_{new} is in MHz

or if the following condition is met:

- the LMS BS is used in accordance with Article 5.1.3 of the GE06 Agreement.

2.3.2. for a BS located in the border area west of or at longitude 19E4800:

- the predicted mean field strength value produced by the station transmitting in the 738-744 MHz band doesn't exceed the threshold levels defined in Table 2.3 at the border and 9 km into the territory of the

Russian Federation and doesn't exceed the threshold levels defined in Table 2.4 at the coast line of the Russian Federation;

- the predicted mean field strength value produced by the station transmitting in the 744-758 MHz band doesn't exceed the threshold levels defined in Table 2.5 at the border and 9 km into the territory of the Russian Federation;
- in the area between 1 km and 100 km from the border of the Russian Federation, the e.i.r.p. of the LMS BS shall not exceed 55 dBm in the 5 MHz band in any direction towards the border of the Russian Federation, and the effective height of a LMS BS antenna shall not exceed 60 meters;
- in the area between 1 km and 60 km from the border of the Russian Federation, the density of BS operating simultaneously in the same frequency band, taking into account the new frequency assignment to BS, shall not exceed 10 BS sites per 100 km²; in the area between 60 km and 100 km from the border of the Russian Federation, the density of BS operating simultaneously in the same frequency band, taking into account the new frequency assignment to BS, shall not exceed 50 BS sites per 100 km².

Table 2.3. Field strength value threshold

Border (B) of the Russian Federation, and 9 km into the territory of the Russian Federation	Field strength value at a height of 3 m, dBμV/m in BW= 5 MHz	Field strength value at a height of 3 m, dBμV/m in BW= 1 MHz
B	32	25
9 km	-9	-16

Note 1: E can be calculated for other measurement bandwidths (BW) from these values by using the following formula
 $E_{\text{new}} = E + 10 \log (BW_{\text{new}} / BW)$, where BW_{new} is in MHz

Table 2.4. Field strength value threshold

Coast line (C) of the Russian Federation,	Field strength value at a height of 3 m, dBμV/m in BW= 5 MHz	Field strength value at a height of 3 m, dBμV/m in BW= 1 MHz
C	-11.5	-18.5

Note 1: E can be calculated for other measurement bandwidths (BW) from these values by using the following formula
 $E_{\text{new}} = E + 10 \log (BW_{\text{new}} / BW)$, where BW_{new} is in MHz

Table 2.5. Field strength value threshold

Border (B) of the Russian Federation, and 9 km into the territory of the Russian Federation	Field strength value at a height of 3 m, dBμV/m in BW= 5 MHz	Field strength value at a height of 3 m, dBμV/m in BW= 1 MHz
B	32	25
9 km	10	3

Note 1: E can be calculated for other measurement bandwidths (BW) from these values by using the following formula
 $E_{\text{new}} = E + 10 \log (BW_{\text{new}} / BW)$, where BW_{new} is in MHz

or if the following condition is met:

- the LMS BS is used in accordance with Article 5.1.3 of the GE06 Agreement.

3. Technical conditions for coordination of stations in the aeronautical radionavigation service with stations in the land mobile service

3.1 An ARNS station of the Russian Federation may use the frequency band 703-733 MHz without coordination with the Republic of Poland, if the predicted mean field strength produced by that station does not exceed 25 dB(μ V/m)/1 MHz at a height of 3 m above the ground at the border of the Republic of Poland or if the ARNS station is located more than 100 km away from the border;

3.2 An ARNS station of the Russian Federation may use the frequency band 738-758 MHz without coordination with the Republic of Poland, if the predicted mean field strength produced by this station does not exceed 41 dB(μ V/m)/1 MHz at a height of 3 m above the ground at the border of the Republic of Poland or if the ARNS station is located more than 100 km away from the border;

3.3 An ARNS station of the Russian Federation may use the frequency band 758-788 MHz without coordination with the Republic of Poland, if the predicted mean field strength produced by that station does not exceed 48 dB(μ V/m)/1 MHz at a height of 3 m above the ground at the border of the Republic of Poland or if the ARNS station is located more than 100 km away from the border;

or if the following condition is met:

- the ARNS station is used in accordance with Article 5.1.3 of the GE06 Agreement.

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4. General

4.1 A new frequency assignment to a LMS BS that does not meet the conditions in Article 2 of this Agreement shall be subject to coordination.

4.2. A new frequency assignment to ARNS that does not meet the conditions in Article 3 of this Agreement shall be subject to coordination.

4.3. The coordination procedure shall be performed in accordance with Article 5 of this Agreement.

4.4. If interference is caused by a station covered by this Agreement, a Report of harmful interference shall be presented in accordance with Appendix 10 to the Radio Regulations. Upon receipt of a Report of harmful interference the Party responsible for such station shall take all possible measures to eliminate the interference and inform the other Party accordingly.

4.5 Recommendation ITU-R P.1546-5 "Method for point-to-area predictions for terrestrial services in the frequency range 30 MHz to 3 000 MHz" shall be used, taking into account agreed terrain data and/or clearance angle for calculation of the field strength values created by the terrestrial stations. The field strength values in this agreement are calculated for 10% of the time and 50% of the locations.

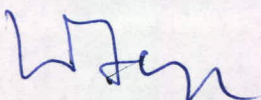
4.6 Technical characteristics required to perform coordination of BS and ARNS stations shall be provided to the other Party. The information provided shall be taken into account by the other Party.

4.7 The criterion of BS sites density shall be verified using the method defined in Annex 1 to this Agreement.

4.8. Information about a new LMS base stations located at distance not more than 100 km from the border, shall be updated by the Telecommunication Administration of the Republic of Poland to the Telecommunication Administration of the Russian Federation at least 2 times per year. Scope the information provided should be consistent with the International Telecommunication Union notice form.

4.9. Information about a new ARNS stations located at distance not more than 100 km from the border, shall be updated by the Telecommunication Administration of the Russian Federation to the Telecommunication Administration of the Republic of Poland at least 2 times per year. Scope the information provided should be consistent with the International Telecommunication Union notice form.

4.10. The aggregate mean field strength of BSs should be calculated using the power sum method.



5. Coordination Procedure

5.1 The Administration wishing to initiate the use of a frequency assignment to a station covered by this Agreement that does not meet the conditions in Article 2 or Article 3 of this Agreement shall send to the other Administration a request to coordinate such frequency assignment. A request shall be sent by mail, fax, or e-mail. If a request is emailed, the requesting Administration shall send a cover letter to the affected Administration by fax and receive confirmation of receipt of that fax.

5.2. The affected Administration shall respond to such frequency assignment coordination request within 10 weeks from the date of the request receipt confirmation. If no response is received, an urgent reminder shall be sent. The Administration that fails to respond within 2 weeks from the date when the urgent reminder is received, shall be deemed as agreed on the proposed assignment, except if the Administration whose consent is sought asks for additional time to review the request.

5.3. If the affected Administration refuses to satisfy a request for coordination, the requesting Administration shall provide to the affected Administration results of its calculations or propose new technical characteristics of the assignment.

5.4. If no response to the proposals referred to in Article 5.3 above is received from the affected Administration within 10 weeks from the date of the receipt of the proposal, an urgent reminder shall be sent. The Administration that fails to respond within 2 weeks from the date when it receives the urgent reminder shall be deemed to accept the coordination proposals submitted.

5.5. The Administration that does not agree with a coordination request received shall propose a reasonable modification of such request, which shall provide for adequate protection of its existing and planned services and preserve the original objective of the coordination request as much as possible.

5.6. In case of controversies arising from application of this Agreement, the Administrations shall be guided by provisions and procedures of the Radio Regulations, as well as applicable international and bilateral agreements.

6. Revision and Termination

6.1. This Agreement may be terminated by mutual agreement of the Parties. Termination of the agreement shall not affect operation of stations already brought into use or coordinated under this Agreement.

6.2. After such termination, the Parties shall exchange lists of stations already brought into use or coordinated under this Agreement.

6.3. This Agreement may be revised, if both Parties agree to do so.




7. Entry into Effect

7.1. This Agreement shall come into force from the date of signing.

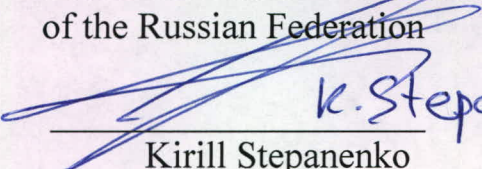
7.2. This Agreement is executed in the English language in two identical originals, one for the Telecommunication Administration of the Republic of Poland and one for the Telecommunication Administration of the Russian Federation.

On behalf of the
Telecommunication Administration
of the Republic of Poland

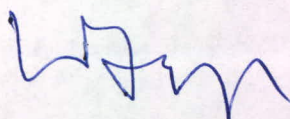


Wiktor Segal

On behalf of the
Telecommunication Administration
of the Russian Federation



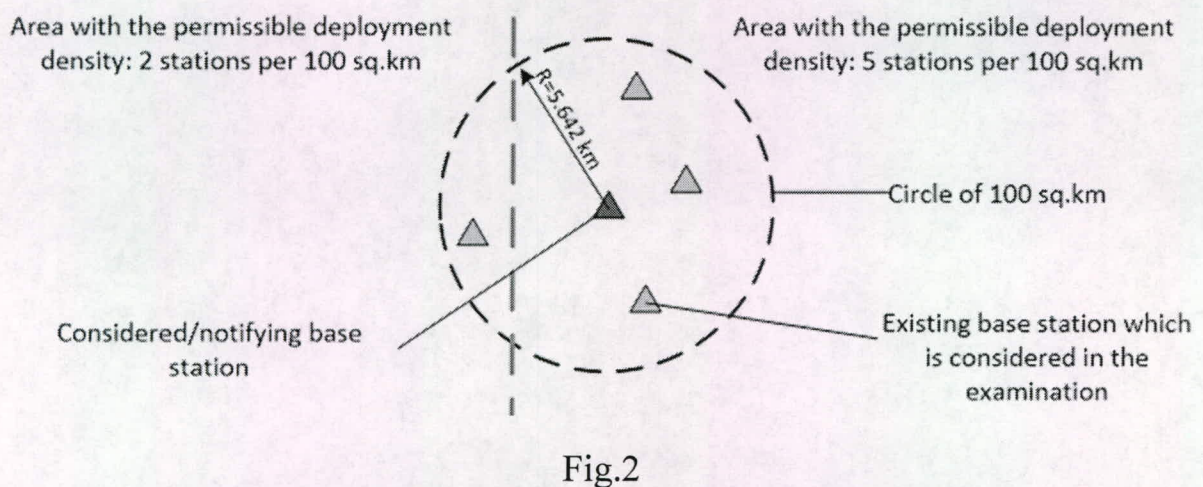
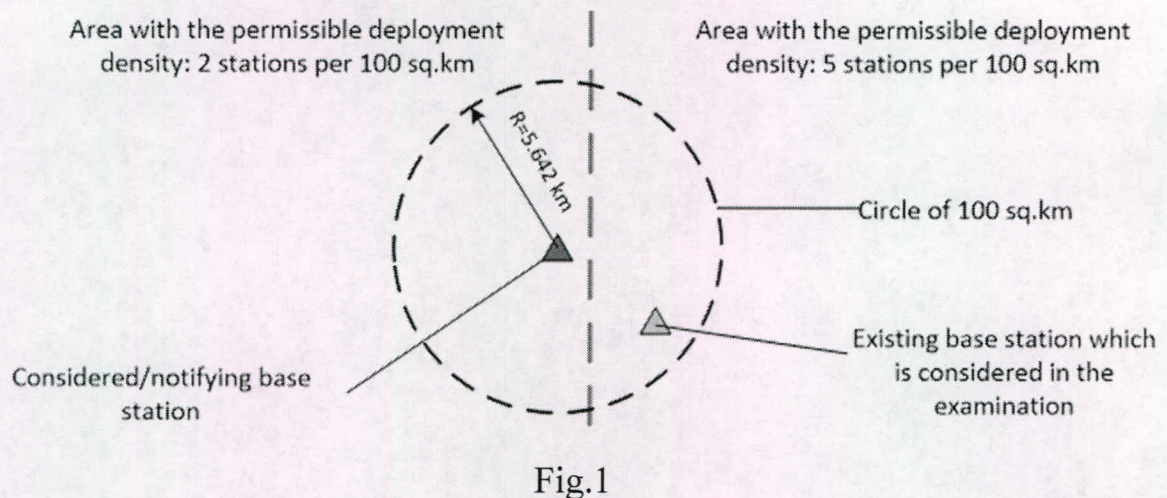
Kirill Stepanenko





Determination of base station site deployment density

1. The deployment density of LMS base station sites shall be determined within a circle of 100 km^2 (the circle radius is 5.642 km). The circle center corresponds to the location of the BS site under consideration.
2. The number of LMS BS sites located within the circle specified in item 1 (including the base station already coordinated or notified or under review) shall be compared with the maximum permitted number of LMS BS sites for the area in which the BS site in question is located (in accordance with items 2.1 and 2.2 of this Agreement) (see Fig. 1 and Fig.2).
3. If a base station site is located on the boundary between two areas with different LMS BS deployment densities, then the larger deployment density value of the two areas shall be taken as the maximum permitted number of BS sites.



W. J. J.

[Signature]