

AGREEMENT

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

Preamble

In accordance with Article 6 of the International Telecommunication Union Radio Regulations, the Telecommunications Administration of the Republic of Latvia (hereinafter referred to as Latvia) 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 Latvia 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 additionally.

This Agreement does not cover coordination between LMS stations in Latvia 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 Latvia and ARNS stations in the Russian Federation in the frequency band 694-790 MHz.

The Parties recognize that LMS and ARNS stations may be used in accordance with Article 5 § 5.1.3 of the GE06 Agreement.

If Latvia 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 in the Russian Federation in the frequency bands 703-733 MHz and 738-788 MHz shall be coordinated with the LMS in Latvia in accordance with the procedures in this Agreement. From that date coordination of ARNS stations in the Russian Federation with the broadcasting service of Latvia in accordance with the Agreement GE06 is no longer required and coordination of ARNS stations in the Russian Federation with Latvia in the frequency bands in which this Agreement applies shall be deemed completed under Agreement GE06.

1. The Principles

1.1. This Agreement applies to LMS stations using the Frequency Division Duplex (FDD) mode, where the frequency band 703-733 MHz is used by UE (uplink), and the frequency band 758-788 MHz is used by BS (downlink).

1.2. This agreement also includes BS transmitting (supplemental downlink) in the 738-758 MHz frequency band

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

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

1.4. In case carrier aggregation is used in such a way that the uplink is in the frequency band 790-862 MHz band and 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 Latvia and the Telecommunications Administration of the Russian Federation concerning the use of the frequency band 790 - 862 MHz for terrestrial systems» (Moscow, 2011) shall apply to BS operating in the frequency band 694-790 MHz with such carrier aggregation.

1.5. This Agreement shall apply to stations operating in accordance with the Radio Regulations that are brought into use after the date when Latvia starts to use the 694-790 MHz band for LMS.

1.6. LMS stations that do not meet the provisions in 1.1 and 1.2 are not covered by this 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 Latvia is operated in accordance with the principle in 1.1. such BS shall be deemed coordinated with ARNS stations located in the Russian Federation if all of the following conditions are met:

- The predicted mean field strength value doesn't exceed the threshold levels defined in Table 1 at the border and 9 km into the territory of the Russian Federation;
- in the area between 1 and 100 km from the border of the Russian Federation, the density of BS operating simultaneously in overlapping frequencies, taking into account the new frequency assignment to BS, shall not exceed 10 BS sites per 100 km².

Table 1. Field strength value threshold

Border (B) of the Russian Federation, and 9 km into the territory of the Russian Federation	Field strength value (E) at height of 3 m, dBμV/m in BW= 5 MHz	Field strength value (E) at 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 § 5.1.3 of the GE06

Agreement.

2.2. If a BS located in Latvia operates in accordance with the principle in 1.2, such BS shall be deemed coordinated with ARNS stations located in the Russian Federation if all of the following conditions are met:

- The predicted mean field strength value in the 738-748 MHz frequency range doesn't exceed the threshold levels defined in Table 2 at the border and 9 km into the territory of the Russian Federation;
- The predicted mean field strength value in the 748-758 MHz frequency range doesn't exceed the threshold levels defined in Table 1 at the border and 9 km into the territory of the Russian Federation;
- in the area between 1 and 100 km from the border of the Russian Federation, the density of BS operating simultaneously in overlapping frequencies, taking into account the new frequency assignment to BS, shall not exceed 10 BS sites per 100 km².

Table 2. Field strength value threshold

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

Note. Field strength values are provided for a single LMS station. Cumulative effect of the LMS network is taken into account (JTG Doc. 4-5-6-7/307-E, 2013).

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

An ARNS station of the Russian Federation shall be deemed coordinated with LMS stations located in Latvia if the following conditions are met:

- The predicted mean field strength value of the ARNS station in the 703-733 MHz frequency range doesn't exceed 25 dBμV/m/5 MHz at a height of 3 m above the ground at the border of Latvia;

- The predicted mean field strength value of the ARNS station in the 738-748 MHz frequency range doesn't exceed 48 dB μ V/m/5 MHz at a height of 3 m above the ground at the border of Latvia;
- The predicted mean field strength value of the ARNS station in the 748-788 MHz frequency range doesn't exceed 55 dB μ V/m/5 MHz at a height of 3 m above the ground at the border of Latvia;
- 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 § 5.1.3 of the GE06 Agreement.

Note. Field strength value 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.

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" or its latest version 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. The information provided shall be taken into account.

4.7. The density of BS sites shall be calculated in accordance with the method defined in Annex 1 to this Agreement.

4.8. Information about a new LMS BS that is located at distance not more than 100 km from the border, shall be provided by the Telecommunication Administration of Latvia to the Telecommunication Administration of the Russian

Federation within 2 (two) weeks after such BS is brought into use. The information should be provided in the form of the International Telecommunication Union notice for LMS BS frequency assignment.

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

4.11. During coordination process the calculated aggregate field strength values in the locations of ARNS stations shall be compared with the field strength thresholds as defined in the Table 3 of the Agreement. If the calculated aggregate field strength value does not exceed the value defined in Table 3 for corresponding ARNS station(s) coordination of LMS station shall be normally accepted. If LMS stations are used in accordance with Article 5 § 5.1.3 of the GE06 Agreement, then for such case values produced by corresponding broadcasting stations or allotments already agreed in accordance to GE06 Agreement in the locations of ARNS shall be applied as limit for such LMS stations.

Table 3

ARNS System Types	System Type Code	Aggregate field strength threshold (dB μ V/m)
RSBN	AA8	42 at 10 m in reference bandwidth 3 MHz
RLS 2 (Type 1) (airborne receiver)	BD	52 at 10 000 m in reference bandwidth 4 MHz
RLS 2 (Type 1) (ground receiver)	BA	29 at 10 m in reference bandwidth 4 MHz
RLS 2 (Type 2)	BC	73 at 10 000 m in reference bandwidth 3 MHz
RLS 2 (Type 2) (ground receiver)	AA2	24 at 10 m in reference bandwidth 8 MHz
RLS 1 (Types 1 and 2)	AB	13 at 10 m in reference bandwidth 6 MHz
Other ARNS ground stations	N/A	13 at 10 m in reference bandwidth 6 MHz
Other ARNS airborne stations	N/A	52 at 10 000 m in reference bandwidth 4 MHz

Note 1. The values in the table are the maximum allowed aggregate interference field strength in a shared channel.

Note 2. Field strength values can be calculated from the above values for other bandwidths, using the following formula:

$$E_{\text{new}} = E + 10 \log (BW_{\text{new}} / BW), \text{ where } BW_{\text{new}} \text{ is in MHz.}$$

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 sent by e-mail, the requesting Administration shall send a cover letter to the affected Administration by fax and obtain a receipt confirmation for the 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 in agreement, 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 either Party which shall give one year notice to the other Party. Such termination shall not affect the 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 or terminated without notice, if both Parties agree to do so.

7. Entry into Force

7.1. This Agreement shall enter into force on 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 Latvia and one for the Telecommunication Administration of the Russian Federation.

For the
Telecommunications Administration
of the Republic of Latvia

On behalf of the
Telecommunication Administration
of the Russian Federation

Geneva, 3 November 2015

Determination of base station site deployment density

1. Deployment density of LMS base station sites shall be determined within a circle of 100 km^2 (the circle radius is 5.6 km). The circle's 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 stations 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.

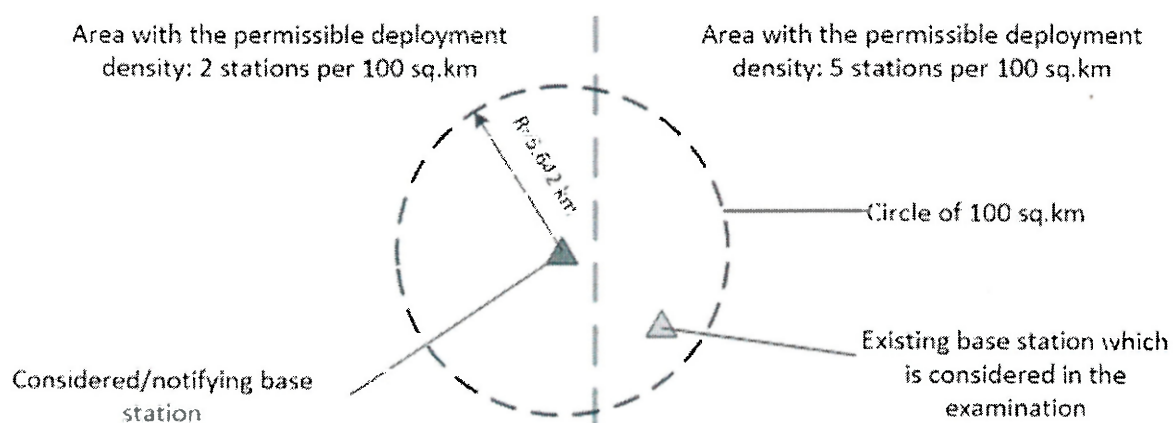


Fig.1

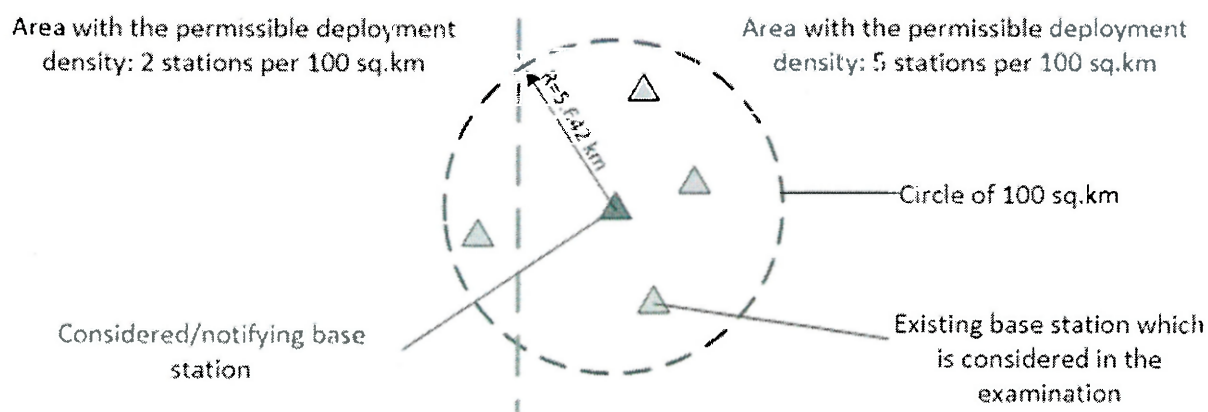


Fig.2