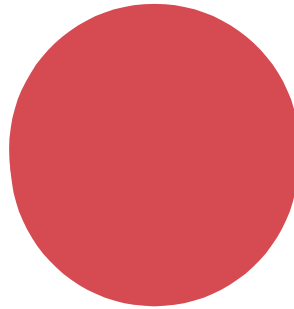


# **Information Memorandum**

## **Annex N**



**Border coordination agreements with  
Russia (700 MHz frequency band)**



**2018**

## **AGREEMENT**

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

2015

A handwritten signature in black ink, consisting of several overlapping, sweeping lines that form a stylized, somewhat abstract shape.

## **DRAFT AGREEMENT**

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

2015



Kirill Stepanenko

## Preamble

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

The principles, conditions and technical parameters specified in the corresponding Articles of this Agreement shall be used in the coordination<sup>1</sup> between LMS stations in Denmark 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.

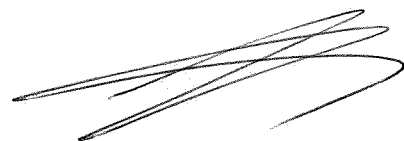
If the Telecommunication Administration of Denmark plans to use the LMS in the frequency band 694-790 MHz, it shall in advance inform the Russian Federation about the start date of LMS use. From that date on, new ARNS stations of the Russian Federation in the frequency bands 703-733 MHz and 738-788 MHz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

## 1. 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 (the «uplink»), and the frequency band 758-788 MHz is used by BS (the «downlink»).

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<sup>1</sup> Coordination reached 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.



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

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

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

1.5 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<sup>1</sup> of the stations in the land mobile service of Denmark with the stations in the aeronautical radionavigation service of the Russian Federation**

2.1 When a BS located in Denmark operates 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;

or if the following condition is met:

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

**Table 1. Field strength value thresholds**

<b>Border (B) of the Russian Federation, and 9 km into the territory of the Russian Federation</b>	<b>Field strength value at height 3 m, (dB<math>\mu</math>V/m) in BW= 5 MHz</b>	<b>Field strength value at height 3 m, (dB<math>\mu</math>V/m) in BW= 1 MHz</b>
B	15	8
9 km	13.5	6.5

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  $BW_{\text{new}}$  is in MHz

2.2 When a BS located in Denmark 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 doesn't exceed the threshold levels defined in Table 2 at the border and 9 km into the territory of the Russian Federation;

or if the following condition is met:

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

**Table 2. Field strength value thresholds**

<b>Border (B) of the Russian Federation, and 9 km into the territory of the Russian Federation</b>	<b>Field strength value at height 3 m, (dB<math>\mu</math>V/m) in BW= 5 MHz</b>	<b>Field strength value at height 3 m, (dB<math>\mu</math>V/m) in BW= 1 MHz</b>
B	-7	-14
9 km	-8.5	-15.5
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 $BW_{\text{new}}$ is in MHz		

### **3. Technical conditions for coordination of stations in the aeronautical radionavigation service of the Russian Federation with stations in the Land Mobile Service of Denmark**

3.1 An ARNS station of the Russian Federation may use the frequency bands 703-733 MHz and 758-788 MHz without coordination with Denmark, if the predicted mean field strength produced by that station does not exceed 36 dB( $\mu$ V/m)/1 MHz at a height of 3 m above the ground on the border of Denmark;

3.2 An ARNS station of the Russian Federation may use the frequency band 738-758 MHz without coordination with Denmark, if the predicted mean field strength produced by this station does not exceed 36 dB( $\mu$ V/m)/1 MHz at a height of 3 m above the ground on the border of Denmark;

or if the following condition is met:

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

### **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 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 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. This 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.

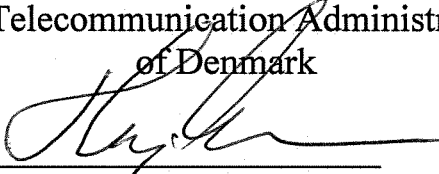
6.3. This Agreement may be revised or terminated without notice, if both Parties agree to do so.

## 7. Entry into Effect

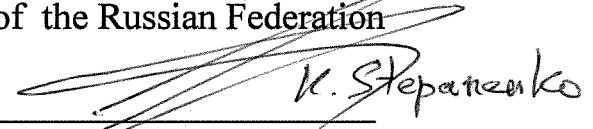
7.1. This Agreement shall become effective after 18.09.2015.

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

On behalf of the  
Telecommunication Administration  
of Denmark

  
\_\_\_\_\_  
Henning Blume Andersen

On behalf of the  
Telecommunication Administration  
of the Russian Federation

  
\_\_\_\_\_  
Kirill Stepanenko