

**Agreement between the Finnish Communications  
Regulatory Authority and the Estonian National  
Communications Board concerning the use of the  
frequency bands 876 - 880 MHz and 921 - 925 MHz in the  
border areas**

**Geneva, 2003**

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## Preamble

According to Article 6 of the Radio Regulations, the representatives of Telecommunications Administrations of Estonia and Finland (hereinafter referred to as Parties) have concluded this Agreement concerning the use of the frequency bands 876-880 MHz and 921-925 MHz with the purposes of avoiding mutual interference to the stations of Land Mobile Service and optimising the use of above-stated frequency band on a mutually coordinated basis.

In accordance with Decision ECC/DEC/(02)05 the frequencies 876-880 MHz (mobile station transmit) paired with 921-925 MHz (base station transmit) are allocated for international and national railway operations (R-GSM).

## 1 Use of frequencies in the 876 - 880 MHz and 921 - 925 MHz bands

- 1.1 The centre frequencies of the duplex channels in the 876 - 880 MHz and 921 - 925 MHz frequency bands spaced by 200 kHz are listed in Table 1 of Annex 1.
- 1.2 The channel spacing for simplex Direct Mode Operation (DMO) channels in 876.000-876.100 MHz is 12.5 kHz (Table 2 of Annex 1).
- 1.3 Estonia may use the channels in Annex 1 without coordination with Finland if the field strength of every single carrier produced by a base station does not exceed 19 dB $\mu$ V/m within zone F (Annex 2).
- 1.4 Finland may use the channels in Annex 1 without coordination with Estonia if the field strength of every single carrier produced by a base station does not exceed 19 dB $\mu$ V/m within zone E (Annex 2).
- 1.5 Five (5) simplex channels (see Table 2 in Annex 1) within the band 876.000 – 876.100 MHz are designated for Direct Mode Operation (DMO) of R-GSM systems on the harmonized basis in accordance with ECC/DEC/(02)05. Both Parties may use these channels for DMO services in R-GSM network without coordination on a non-protected basis with technical parameters presented in Table 3 of Annex 1.

## 2. Technical provisions

- 2.1 The above mentioned field strength values are based on the latest version of ITU-R Recommendation P.1546 (cold sea, receiving antenna height of 3 m, 10% of the time and 50 % of the locations).
- 2.2 The permitted interference field-strength level corresponds to CEPT Recommendation T/R 20-08 (Lecce 1989).
- 2.3 A field strength exceeding above-mentioned levels shall be coordinated with the other administration
- 2.4 A complaint in case of interference shall be based on the median values of measurements of field strength at 3 m of receiving antenna height at least on two different occasions over a range of at least 100 m along the protected zone as indicated in Annex 2.

### 3. Revision of the Agreement

3.1 This agreement can be extended, revised<sup>1</sup> or cancelled by a mutual decision of both Telecommunication Administrations.

3.2 If mutual agreement on cancellation can not be reached, this Agreement can be cancelled by a decision of one Telecommunication Administration subject to a six-month notice to the other Administration.

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This Agreement shall come into effect from *01 July 2003*.

This agreement has been drawn up in two identical copies, of which each party has taken its own.

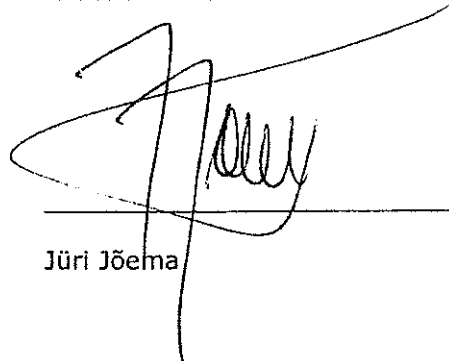
Geneva, 10 June 2003

For the Finnish Administration



Kari Koho

For the Estonian Administration



Jüri Jõeema

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<sup>1</sup> This agreement may need to be revised if ERC Recommendation T/R 25-08 (Lecce 1989, revised in Vienna 1999) or T/R 20-08 (Lecce 1989) is modified.

List of annexes:

- Annex 1: R-GSM channels and parameters assumed for DMO systems
- Annex 2: Definition of protected zones

## Annex 1

### R-GSM channels and parameters assumed for DMO systems

Channel #	Centre Frequency Mobile TX [MHz]	Centre Frequency Base TX [MHz]
955	876.200	921.200
956	876.400	921.400
957	876.600	921.600
958	876.800	921.800
959	877.000	922.000
960	877.200	922.200
961	877.400	922.400
962	877.600	922.600
963	877.800	922.800
964	878.000	923.000
965	878.200	923.200
966	878.400	923.400
967	878.600	923.600
968	878.800	923.800
969	879.000	924.000
970	879.200	924.200
971	879.400	924.400
972	879.600	924.600
973	879.800	924.800
974	880.000	925.000

- Channel number 974 may be considered as a guard channel to other services in adjacent bands on national basis.

**Table 1.** R-GSM channels

Centre Frequency of terminal TX/Rx [MHz]	Comments
876.0125	DMO
876.0250	DMO
876.0375	DMO
876.0500	DMO
876.0625	DMO

**Table 2.** 876.000 - 876.100 MHz for Direct Mode Operation (DMO) using single frequency mode.

Parameter	Mobile Station
Channel Spacing	12.5 kHz
Transmit Power	30 dBm
Receiver Bandwidth	8 kHz
Antenna Height	1.5 m
Antenna Gain	0 dBi
Active Interferer Density Range	variable
Receiver Sensitivity	- 107 dBm
Receiver Protection Ratio	21 dB
Power Control Characteristic	not used

**Table 3.** Parameters assumed for 12.5 kHz DMO Systems.

## **Definition of protected zones**

### **In Estonia**

#### **Zone E**

The Estonian coast including the following islands:  
Saaremaa, Hiiumaa, Vormsi, Naissaar and Prangli

### **In Finland**

#### **Zone F**

The south coast of Finland