FICORA 15W/2006 M

UNOFFICIAL TRANSLATION

Regulation

ON COLLECTIVE FREQUENCIES FOR LICENCE-EXEMPT RADIO TRANSMITTERS AND ON THEIR USE

Issued in Helsinki on 3 August 2006

The Finnish Communications Regulatory Authority (FICORA) has, under section 7, subsection 2 of the Act on Radio Frequencies and Telecommunications Equipment of 16 November 2001 (1015/2001), prescribed as follows:

General provisions

Section 1

Scope of application

This Regulation applies to the following radio transmitters whose conformity with requirements has been attested in a way mentioned in Sections 21 a or 45 of the Act on Radio Frequencies and Telecommunications Equipment, and which operate only on the collective frequencies assigned in the Annex:

1) cordless CT1 telephones taken into use on 31 December 2003 at the latest, cordless CT2 telephones taken into use on 31 December 2004 at the latest, and DECT equipment;

2) mobile terminals and other terminals for GSM 900, GSM 1800, UMTS and the 450 MHz digital broadband mobile network;

3) LA telephones (national Citizen Band equipment) which have been approved according to the regulations of 25 March 1981 by the General Directorate of Posts and Telecommunications and taken into use on 31 December 1992 at the latest;

4) PR 27 telephones;

4A) CB telephones;

5) non-specific short range devices except radio transmitters on the collective frequency 468.200 MHz and which have not been taken into use on 31 December 2007 at the latest;

6) telecommand equipment for use with scale model aircraft;

7) equipment for automatic vehicle identification for railways (AVI);

8) wide-band data transmission equipment (RLAN/WLAN);

9) low-power alarms for security and safety and social alarms;
10) equipment for detecting movement and equipment for alert;
11) radio frequency identification devices (RFID);
12) on-site paging systems;
13) wireless loudspeakers, equipment for in-ear monitoring, headphones, aids for the hearing impaired, helmet radio telephones and radio microphones;
14) ultra low-power medical implants;
15) satellite telephones;
16) Inmarsat B, C, D, M, M4[1] , BGAN, Inmarsat phone[2] , EMS MSSAT, EMS PRODAT, SpaceChecker S-SMS, Thuraya and other stations complying with Decision ECC/DEC/(02)11, except stations aboard vessels in international traffic;
17) Arcanet stations and OmniTRACS stations within the EUTELTRACS system;
18) terminal equipment for fixed wireless access networks which is connected to a central switching exchange for which the Finnish Communications Regulatory Authority has granted a licence referred to in Section 7 of the Act on Radio Frequencies and Telecommunications Equipment;
19) terminals belonging to the VIRVE (Finland's Public Authority Network) emergency services network;
20) PMR446 telephones;
20A) digital PMR446 equipment;
21) road transport and traffic telematics;
22) VSAT[3], SIT[4] and SUT[5] satellite terminals;
23) terminals of the GSM-R network of the Finnish State Railways;
24) mobile satellite earth stations[6] on the collective frequency 14 - 14.5 GHz placed on board an aircraft;
25) low-power FM transmitters; and
26) Orbcomm satellite terminals.

[1] Also called GAN, Global Area Network
[2] Also called Inmarsat Mini-M
[3] Very Small Aperture Terminal
[4] Satellite Interactive Terminal
[5] Satellite User Terminal
[6] Satellite earth stations referred to in the ECC (European Electronic Communications Committee) Decision ECC/DEC/(05)11

Section 2

Possession and use of radio transmitters

No such licence as mentioned in Section 7 of the Act on Radio Frequencies and Telecommunications Equipment is required for the possession and use of the radio transmitters mentioned in Section 1 above. The provisions mentioned below shall be obeyed in the use of these radio transmitters.

Special provisions on use

Section 3

Cordless telephones, DECT, wide-band data transmission equipment (RLAN / WLAN)

1. To the equipment may be connected only that type of antenna with which it was attested that the equipment meets the essential requirements. However, to DECT equipment it is permitted to connect an antenna with a maximum gain of 12 dBi.
2. No amplifier shall be connected between the equipment and the antenna or the base station and the antenna, if it is not attested that the equipment combination complies with requirements.

Section 4

Mobile terminals, other terminals for GSM 900, GSM 1800, UMTS and the 450 MHz digital broadband mobile network , satellite telephones, Inmarsat B, C, D, M, M4[1] , BGAN and phone[2] , EMS-MSSAT, EMS-PRODAT, SpaceChecker S-SMS, Thuraya, other stations complying with Decision ECC/DEC/(02)11, Arcanet and OmniTRACS stations, VSAT, SIT and SUT satellite terminals and terminals of the GSM-R network of the Finnish State Railways

1. These terminals shall not be used on board airborne aircraft or in any other equipment used in aviation.
2. VSAT, SIT and SUT satellite terminals shall not be used closer than at 500 m distance from airfield areas (from the protective fence).

Section 5

LA radio telephones, PR 27 telephones and CB telephones

1. These telephones shall not be used on board airborne aircraft or in any other equipment used in aviation.
2. No amplifier shall be connected between the telephone and its antenna, if it is not attested that the equipment combination complies with requirements.
3. With these telephones a separate antenna with a maximum gain of 3 dBd may be used.
4. The country-specific settings of the CB telephone must not be changed to work on other frequencies and transmitter power than referred to in item 4A in the Annex.

Section 6

Satellite earth stations placed on board an aircraft

1. A satellite earth station on the collective frequency 14 - 14.5 GHz, placed on board on aircraft shall not be used closer than at 100 m distance from an airfield runway or a control tower.

Section 7

Other radio transmitters to which this Regulation shall apply

1. A radio transmitter shall not be used on board airborne aircraft or in any other equipment used in aviation, unless allowed on any collective frequency defined in the Annex to this Regulation.
2. No amplifier shall be connected between a radio transmitter and its antenna, if it is not attested that the equipment combination complies with requirements.

Miscellaneous provisions

Section 8

Period of validity

This Regulation enters into force on 3 August 2006 and will remain in force until further notice.

Section 9

Information and publication

This Regulation is included in the Series of Regulations issued by the Finnish Communications Regulatory Authority and it can be obtained from the Customer Service Office of FICORA:

Visiting address	Itämerenkatu 3 A, HELSINKI
Postal address	PO Box 313
	FI-00181 HELSINKI
Tel. national	(09) 6966 500
Tel. international	+358 9 6966 500
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Fax international	+358 9 6966 410
Website	http://www.ficora.fi

The Decisions and Recommendations of the European Radiocommunications Committee (ERC) and the European Electronic Communications Committee (ECC), referred to in this Regulation, can be obtained at the website of the European Radiocommunications Office (ERO), address http://www.ero.dk.

Helsinki 3 August 2006

Rauni Hagman
Director-General Rauni Hagman

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ANNEX

COLLECTIVE FREQUENCIES ASSIGNED BY THE FINNISH COMMUNICATIONS REGULATORY AUTHORITY FOR THE RADIO TRANSMITTERS REFERRED TO IN SECTION 1

The Radio Frequency Regulation and its Annex, The Frequency Allocation Table, (Regulation 4) shall also be obeyed in the use of the radio transmitters mentioned below.

1 CORDLESS CT1 TELEPHONES TAKEN INTO USE ON 31 DECEMBER 2003 AT THE LATEST, CORDLESS CT2 TELEPHONES TAKEN INTO USE ON 31 DECEMBER 2004 AT THE LATEST, AND DECT EQUIPMENT

CT1 phones, fixed part	959.0125 MHz + (0...39) x 25 kHz
CT1 phones, portable part	914.0125 MHz + (0...39) x 25 kHz
CT2 phones	864.150 MHz + (0...39) x 100 kHz
DECT equipment	1881.792 MHz + (0...9) x 1.728 MHz

2 MOBILE TERMINALS AND OTHER TERMINALS FOR GSM 900, GSM 1800, UMTS AND THE 450 MHZ DIGITAL BROADBAND MOBILE NETWORK

450 MHz digital broadband mobile network	453.700 - 456.925 MHz
GSM 900	880.200 MHz + (0...173) x 200 kHz
GSM 1800	1710.200 MHz + (0...373) x 200 kHz
UMTS	1900 - 1980 MHz and 2020 – 2025 MHz[7]

[7] Channel spacing according to ERC Decision ERC/DEC/(99)25

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3 LA TELEPHONES APPROVED ACCORDING TO THE REGULATIONS OF 25 MARCH 1981 BY THE GENERAL DIRECTORATE OF POSTS AND TELECOMMUNICATIONS AND TAKEN INTO USE ON 31 DECEMBER 1992 AT THE LATEST

Channel	Frequency	Channel	Frequency	Channel	Frequency
1	26.965 MHz	9	27.065 MHz	16	27.155 MHz
2	26.975 "	10	27.075 "	17	27.165 "
3	26.985 "	11	27.085 "	18	27.175 "
4	27.005 "	11A	27.095 "	19	27.185 "
5	27.015 "	12	27.105 "	20	27.205 "
6	27.025 "	13	27.115 "	21	27.215 "
7	27.035 "	14	27.125 "	22	27.225 "
8	27.055 "	15	27.135 "		

Transmitter power ≤ 5 W and effective radiated power of equipment with integral antenna ≤ 1 W ERP.
Channel spacing 10 kHz.

4 PR 27 TELEPHONES

Channel	Frequency	Channel	Frequency	Channel	Frequency
1	26.965 MHz	14	27.125 MHz	27	27.275 MHz
2	26.975 "	15	27.135 "	28	27.285 "
3	26.985 "	16	27.155 "	29	27.295 "
4	27.005 "	17	27.165 "	30	27.305 "
5	27.015 "	18	27.175 "	31	27.315 "
6	27.025 "	19	27.185 "	32	27.325 "
7	27.035 "	20	27.205 "	33	27.335 "
8	27.055 "	21	27.215 "	34	27.345 "
9	27.065 "	22	27.225 "	35	27.355 "
10	27.075 "	23	27.255 "	36	27.365 "
11	27.085 "	24	27.235 "	37	27.375 "
12	27.105 "	25	27.245 "	38	27.385 "
13	27.115 "	26	27.265 "	39	27.395 "
				40	27.405 "

Transmitter power ≤ 4 W and effective radiated power of equipment with integral antenna ≤ 4 W ERP.
Only frequency modulation[8].
Channel spacing 10 kHz.

[8] FM, G3E

4A CB TELEPHONES

Channel	Frequency	Channel	Frequency	Channel	Frequency
1	26.965 MHz	14	27.125 MHz	27	27.275 MHz
2	26.975 "	15	27.135 "	28	27.285 "
3	26.985 "	16	27.155 "	29	27.295 "
4	27.005 "	17	27.165 "	30	27.305 "
5	27.015 "	18	27.175 "	31	27.315 "
6	27.025 "	19	27.185 "	32	27.325 "
7	27.035 "	20	27.205 "	33	27.335 "
8	27.055 "	21	27.215 "	34	27.345 "
9	27.065 "	22	27.225 "	35	27.355 "
10	27.075 "	23	27.255 "	36	27.365 "
11	27.085 "	24	27.235 "	37	27.375 "
12	27.105 "	25	27.245 "	38	27.385 "
13	27.115 "	26	27.265 "	39	27.395 "
				40	27.405 "

Transmitter power and effective radiated power (ERP) of equipment with integral antenna:

1) at frequency modulation[8] ≤ 4 W,

2) at double-sideband modulation[9] carrier power ≤ 1 W and

3) at single-sideband modulation[10] modulation peak power ≤ 4 W.

Channel spacing 10 kHz.

[9] AM DSB, A3E

[10] SSB, J3E and R3E

5 NON-SPECIFIC SHORT RANGE DEVICES [11]

Voice applications and other short range audio applications and video applications are allowed only on frequencies above 2.4 GHz, unless stated otherwise.

In the frequency bands where channel spacing is defined, the centre frequency of the first channel is at a distance of channel spacing/2 from the lower frequency band edge.

26.825 MHz	Transmitter power ≤ 500 mW and effective radiated power of equipment with integral antenna ≤ 100 mW ERP. Channel spacing 10 kHz.
26.845 "	
26.865 "	
26.885 "	
26.905 "	
26.925 "	
26.935 "	
26.945 "	
26.995 "	
27.045 "	
27.095 "	
27.145 "	
27.195 "	
27.255 "	
26.957 – 27.283 MHz	Effective radiated power ≤ 10 mW ERP. Audio applications are allowed.
40.660 – 40.790 MHz	Transmitter power ≤ 500 mW and effective radiated power of equipment with integral antenna ≤ 100 mW ERP.
40.660 – 40.700 MHz	Effective radiated power ≤ 10 mW ERP. Audio applications are allowed.
138.200 – 138.450 MHz	Effective radiated power ≤ 500 mW ERP. Other radio transmitters that use this

[11] Non-specific short-range devices are, among others, equipment for control, alarm, telemetry, telecommand and data transmission, social alarms and video applications. ERC Recommendation CEPT/ERC/REC 70-03, applicable parts of Annexes 1 and 8, and applicable parts of ERC Decisions ERC/DEC/(01)03, ERC/DEC/(01)04, ERC/DEC/(01)05, ERC/DEC/(01)06, ERC/DEC/(01)10 and ERC/DEC/(01)12

	frequency band may cause interference in short range devices using this band. Duty cycle ≤ 10%.[12]
433.050 – 434.790 MHz	Effective radiated power ≤ 25 mW ERP. Duty cycle ≤ 10 %[12, 13] Amateur radio transmitters may cause interference in other radio equipment.
433.050 – 434.790 MHz	Effective radiated power ≤ 1 mW ERP. Power spectral density of transmission below - 13 dBm/10 kHz ERP for broadband transmitters. No restrictions on duty cycle. Amateur radio transmitters may cause interference in other radio equipment.
434.040 – 434.790 MHz	Effective radiated power ≤ 10 mW ERP. Channel spacing max. 25 kHz. No restrictions on duty cycle. Amateur radio transmitters may cause interference in other radio equipment.
468.200 MHz	Transmitter power ≤ 500 mW and effective radiated power ≤ 500 mW ERP. Total bandwidth of emission max. 25 kHz. New equipment to be taken into use on 31 December 2007 at the latest.
863.000 - 870.000[14]	Effective radiated power ≤ 25 mW ERP. Duty cycle ≤ 0.1%[12,15] or LBT[22]. Channel spacing ≤ 100 kHz[16]. FHSS[17] modulation. Number of channels ≥ 47.

[12] The duty cycle is defined as the ratio, expressed as a percentage, of the maximum transmitter "on" time, relative to a one hour period.
[13] The duty cycle ≤ 10 % entered into force for radio transmitters to be placed on the market from 1 April 2003, no restrictions on the duty cycle before that.
[14] Sub-bands 868,600-868,700 MHz, 869,200-869,250 MHz, 869,250-869,300 MHz, 869,300-869,400 MHz, 869,650-869,700 MHz are not included, because these sub-bands are intended for low-power alarms for security and safety and social alarms (see section 9 of the Annex).
[15] Duty cycle ≤ 1% if the band is limited to 865-868 MHz.
[16] Recommended channel spacing is 100 kHz. 25 kHz and 50 kHz spacing is also allowed.
[17] Frequency hopping spread spectrum.

863.000 - 870.000[14]	Effective radiated power ≤ 25 mW ERP[18]. Power spectral density ≤ -4.5 dBm/100 kHz[19]. Duty cycle ≤ 0.1%[12,15] or LBT[22]. DSSS[20] and other broadband modulation except FHSS[17].
863.000 - 870.000[14]	Effective radiated power ≤ 25 mW ERP. Duty cycle ≤ 0.1%[12,15] or LBT[22]. Channel spacing ≤ 100 kHz[16,21]. Other modulations except FHSS[17].
868.000 – 868.600 MHz	Effective radiated power ≤ 25 mW ERP. Duty cycle ≤ 1%[12] or LBT[22].
868.700 – 869.200 MHz	Effective radiated power ≤ 25 mW ERP. Duty cycle ≤ 0.1%[12] or LBT[22].
869.400 – 869.650 MHz	Effective radiated power ≤ 500 mW ERP. Channel spacing 25 kHz. Duty cycle ≤ 10%[12] or LBT[22]. The frequency band may be used as 1 channel for high-speed data transmission.
869.700 – 870.000 MHz	Effective radiated power ≤ 5 mW ERP. Voice applications allowed with LBT[22] together with a one minute carrier time-out timer.
2400.000 – 2483.500 MHz	Effective radiated power ≤ 10 mW EIRP. Use allowed in an aircraft or other equipment used in aviation.
5725 – 5875 MHz	Effective radiated power ≤ 25 mW EIRP.

[18] Duty cycle ≤ 1% and radiated power ≤ 10 mW ERP for other wideband modulation than FHSS or DSSS with bandwidth of 200 kHz to 3 MHz.
[19] Power spectral density +6,2 dBm/100 kHz if the band is limited to 865-868 MHz and +0,8 dBm/100 kHz if the band is limited to 865-870 MHz.
[20] Direct sequence spread spectrum.
[21] Bandwidth of 50 kHz to 200 KHz is allowed if the band is limited to 865,500-867,500 MHz.
[22] To start a transmitter is allowed only using a communication protocol (Listen Before Talk, LBT). LBT is defined in ETSI Standard EN 300 220.

24.00 – 24.25 GHz	Effective radiated power ≤ 100 mW EIRP.
61.00 – 61.50 GHz	Effective radiated power ≤ 100 mW EIRP.
122 – 123 GHz	Effective radiated power ≤ 100 mW EIRP.
244 – 246 GHz	Effective radiated power ≤ 100 mW EIRP.

Collective frequency bands with restrictions relating to individual pieces of equipment:

230.000 – 231.000 MHz	Collective frequency band for social alarms whose conformity with the essential requirements has been attested based on an application that has arrived before 1 August 1997, and which have been taken into use on 30 June 1998 at the latest, *and* for non-specific short range devices whose conformity with the essential requirements has been attested based on an application that has arrived before 31 December 1997, and which have been taken into use on 31 December 1998 at the latest. Transmitter power ≤ 500 mW and effective radiated power ≤ 500 mW ERP.
868.150 – 868.650 MHz	Transmitter power ≤ 500 mW and effective radiated power ≤ 500 mW ERP for non-specific short range devices whose conformity with the essential requirements has been attested based on an application that has arrived before 31 July 1998, and which have been taken into use on 31 December 1998 at the latest.

6 TELECOMMAND EQUIPMENT FOR USE WITH SCALE MODEL AIRCRAFT[23]

35.000 MHz	35.080 MHz	35.160 MHz
35.010 "	35.090 "	35.170 "
35.020 "	35.100 "	35.180 "

[23] Short range devices, ERC Recommendation CEPT/ERC/REC 70-03, applicable parts of Annex 8, ERC Decision ERC/DEC/(01)11

35.030 "	35.110 "	35.190 "
35.040 "	35.120 "	35.200 "
35.050 "	35.130 "	35.210 "
35.060 "	35.140 "	35.220 "
35.070 "	35.150 "	

Effective radiated power ≤ 100 mW ERP.
Channel spacing 10 kHz.

7 EQUIPMENT FOR AUTOMATIC VEHICLE IDENTIFICATION FOR RAILWAYS (AVI)[24]

2447.0 MHz 2448.5 MHz 2450.0 MHz 2451.5 MHz 2453.0 MHz

Effective radiated power ≤ 500 mW EIRP.
Channel spacing 1.5 MHz.

8 WIDE-BAND DATA TRANSMISSION EQUIPMENT (RLAN/WLAN)[25]

2400.000 – 2483.500 MHz	Effective radiated power ≤ 100 mW EIRP.
5150.000 – 5250.000 MHz	Effective radiated power ≤ 200 mW EIRP, power spectral density of transmission has to be ≤ 0.25 mW/25 kHz EIRP. Only indoor use permitted.
5250.000 – 5350.000 MHz	Effective radiated power ≤ 200 mW EIRP, power spectral density of transmission has to be ≤ 10 mW/1 MHz EIRP. Only indoor use permitted.
5470.000 – 5725.000 MHz	Effective radiated power ≤ 1 W EIRP, power spectral density of transmission has to be ≤ 50 mW/1 MHz EIRP.

[24] Short range devices, ERC Recommendation CEPT/ERC/REC 70-03, applicable parts of Annex 4.
[25] Short range devices, ERC Recommendation CEPT/ERC/REC 70-03, applicable parts of Annex 3 and ERC Decision ERC/DEC/(01)07 and ECC Decision ECC/DEC/(04)08

RLAN equipment operating in the bands 5250 - 5350 MHz and 5470 - 5725 MHz shall employ transmit power control which provides a mitigation factor of at least 3 dB on the maximum permitted output power of the systems. If transmit power control is not in use, the maximum permitted mean EIRP and the corresponding mean EIRP density limits shall be reduced by 3 dB.
RLAN equipment operating in the bands 5250 - 5350 MHz and 5470 - 5725 MHz shall use mitigation techniques complying with the detection, operational and response requirements described in Standard EN 301 893.

9 LOW-POWER ALARMS FOR SECURITY AND SAFETY AND SOCIAL ALARMS[26]

In the frequency bands where channel spacing is defined, the centre frequency of the first channel is at a distance of channel spacing/2 from the lower frequency band edge.

142.250 MHz	Effective radiated power ≤ 1 mW ERP. Total bandwidth of emission ≤ 25 kHz.
169.4750 - 169.4875 MHz	Only social alarms. Effective radiated power ≤ 10 mW ERP. Channel spacing 12.5 kHz. Duty cycle ≤ 0.1%[12]
169.5875 - 169.6000 MHz	Only social alarms. Effective radiated power ≤ 10 mW ERP. Channel spacing 12.5 kHz. Duty cycle ≤ 0.1%[12]
868.600 – 868.700 MHz	Effective radiated power ≤ 10 mW ERP. Channel spacing 25 kHz. Duty cycle ≤ 0.1%.[12] The frequency band may be used as 1 channel for high-speed data transmission.

[26] Short range devices, ERC Recommendation CEPT/ERC/REC 70-03, applicable parts of Annex 7, ERC Decisions ERC/DEC/(97)06 and ERC/DEC/(01)09

869.250 – 869.300 MHz	Effective radiated power ≤ 10 mW ERP. Channel spacing 25 kHz. Duty cycle ≤ 0.1%.[12]
869.300 – 869.400 MHz	Effective radiated power ≤ 10 mW ERP. Channel spacing 25 kHz. Duty cycle ≤ 1.0%.[12]
869.650 – 869.700 MHz	Effective radiated power ≤ 25 mW ERP. Channel spacing 25 kHz . Duty cycle ≤ 10%.[12]
869.200 – 869.250 MHz	Only for social alarms. Effective radiated power ≤ 10 mW ERP. Channel spacing 25 kHz. Duty cycle ≤ 0.1%.[12]

10 EQUIPMENT FOR DETECTING MOVEMENT AND EQUIPMENT FOR ALERT[27]

2400.000 – 2483.500 MHz	Effective radiated power ≤ 25 mW EIRP.
9500 – 9975 MHz	Effective radiated power ≤ 25 mW EIRP. Restrictions relating to individual pieces of equipment: Effective radiated power ≤ 500 mW EIRP for equipment for detecting movement and equipment for alert whose conformity with requirements has been attested based on an application that has arrived before 31 December 1998 and which have been taken into use on 31 December 1999 at the latest.
10.45 – 10.50 GHz	Effective radiated power ≤ 500 mW EIRP.
13.40 – 14.00 GHz	Effective radiated power ≤ 25 mW EIRP.
24.00 – 24.25 GHz	Effective radiated power ≤ 100 mW EIRP.

[27] Short range devices, ERC Recommendation CEPT/ERC/REC 70-03, applicable parts of Annex 6, ERC Decision ERC/DEC/(01)08

	Restrictions relating to individual pieces of equipment: Effective radiated power ≤ 500 mW EIRP for equipment for detecting movement and equipment for alert whose conformity with requirements has been attested based on an application that has arrived before 31 December 1998 and which have been taken into use on 31 December 1999 at the latest.

Collective frequency bands with restrictions relating to individual pieces of equipment:

10.50 – 10.55 GHz	Collective frequency band for equipment for detecting movement and equipment for alert whose conformity with the essential requirements has been attested based on an application that has arrived before 31 December 1997, and which have been taken into use on 31 December 1998 at the latest. Effective radiated power ≤ 500 mW EIRP.

11 RADIO FREQUENCY IDENTIFICATION DEVICES (RFID)[28]

865.000 – 868.000 MHz	Effective radiated power ≤ 100 mW ERP. Channel spacing 200 kHz.[29]
865.600 – 867.600 MHz	Effective radiated power ≤ 2 W ERP. Channel spacing 200 kHz. [29]
865.600 – 868.000 MHz	Effective radiated power ≤ 500 mW ERP. Channel spacing 200 kHz. [29]
2446.0 – 2454.0 MHz	Effective radiated power ≤ 500 mW EIRP. Effective radiated power ≤ 4 W EIRP only indoors and duty cycle ≤ 15 %.[30]

[28] ERC Recommendation CEPT/ERC/REC 70-03, applicable parts of Annex 11.
[29] To start a transmitter is only allowed using a communication protocol (Listen Before Talk, LBT).

12 ON-SITE PAGING SYSTEMS

27.720 MHz	27.820 MHz	27.920 MHz
27.740 "	27.840 "	27.940 "
27.760 "	27.860 "	30.300 "
27.780 "	27.880 "	40.680 "
27.800 "	27.900 "	

Transmitter power ≤ 5 W and effective radiated power of equipment with integral antenna ≤ 5W ERP.
Channel spacing 10 kHz.

Collective frequencies for on-site paging systems up to and including 31 December 2004:

26.965 MHz	Transmitter power ≤ 5 W and effective radiated power of equipment with integral antenna ≤ 5W ERP. Channel spacing 10 kHz.
27.075 "	
27.255 "	
27.400 "	

Collective frequencies with restrictions relating to individual pieces of equipment:

27.450 MHz	Collective frequencies only for on-site paging systems that have been taken into use on 1 January 1989 at the latest. Transmitter power ≤ 5 W and effective radiated power of equipment with integral antenna ≤ 5 W ERP. Channel spacing 10 kHz.
27.490 MHz	

[30] The duty cycle shall be ≤ 15 % during any 200 ms period (i.e. 30 ms on, 170 ms off)

13 WIRELESS LOUDSPEAKERS, EQUIPMENT FOR IN-EAR MONITORING, HEADPHONES, AIDS FOR THE HEARING IMPAIRED, HELMET RADIO TELEPHONES AND RADIO MICROPHONES[31]

In frequency bands where the channel spacing is defined, the centre frequency of the first channel shall be at a distance of channel spacing/2 from the lower edge of the frequency band.

31.100 MHz	33.500 MHz	Effective radiated power ≤ 10 mW ERP.
32.100 "	36.700 "	Total bandwidth of emission max. 200
32.900 "	37.100 "	kHz.
42.400 –	43.600 MHz	
169.4125 - 169.4625 MHz		Channel spacing 50 kHz. Effective radiated power ≤ 10 mW ERP. Aids for the hearing impaired. Shared use with short range devices.
169.4875 - 169.5875 MHz		Channel spacing 50 kHz. Effective radiated power ≤ 10 mW ERP. Only Aids for the hearing impaired.
863.000 - 865.000 MHz		Effective radiated power ≤ 10 mW ERP. Total bandwidth of emission for analogue transmitters max. 300 kHz. Total bandwidth of emission for digital transmitters max. 1200 kHz. The centre frequency of the outermost channel shall be at a distance of the total bandwidth/2 from the frequency band edge.
864.800 - 865.000 MHz		Effective radiated power ≤ 10 mW ERP. Channel spacing max. 50 kHz. Narrow band analogue voice devices.

[31] Short range devices, ERC Recommendation CEPT/ERC/REC 70-03, applicable parts of Annexes 10 and 13, ERC Decision ERC/DEC/(01)18, ECC Decision ECC/DEC/(05)02

14 ULTRA LOW-POWER MEDICAL IMPLANTS[32]

30.0 – 37.5 MHz	Applications for blood pressure measuring. Effective radiated power ≤ 1 mW ERP. Duty cycle ≤ 10 %.
402.000 – 405.000 MHz	Effective radiated power ≤ 25 μW ERP. Channel spacing ≤ 25 kHz. The centre frequency of the first channel shall be at a distance of channel spacing/2 from the lower frequency band edge.

15 SATELLITE TELEPHONES[33]

1610.0 – 1621.35 MHz	Globalstar
1621.35 – 1626.5 MHz	Iridium

16 INMARSAT-B, C, D, M, M4[1], BGAN, INMARSAT-PHONE[2]. EMS-MSSAT-. EMS-PRODAT-. SPACECHECKER S-SMS-, THURAYA- [34] AND OTHER STATIONS COMPLYING WITH DECISION ECC/DEC/(02)11

1626.5 – 1645.5 MHz

1646.5 – 1660.5 MHz

17 ARCANET STATIONS AND OMNITRACS STATIONS WITHIN THE EUTELTRACS SYSTEM[35]

14.00 – 14.25 GHz

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[32] Short range devices, ERC Recommendation CEPT/ERC/REC 70-03, Annex 12, ERC Decision ERC/DEC/(01)17

[33] ERC Decisions ERC/REC/(97)03 and ERC/DEC/(97)05

[34] ERC Decisions ERC/DEC/(98)12 (Inmarsat-D), ERC/DEC/(98)13 (Inmarsat-C), ERC/DEC/(98)14 (Inmarsat-M), ERC/DEC/(98)18 (EMS-Prodat), ERC/DEC/(98)19 (EMS-MSSAT), ERC/DEC/(98)29 (Inmarsat Mini-M), ERC/DEC/(99)18 (Inmarsat-B), ERC/DEC/(99)20 (Inmarsat-M4), ERC/DEC/(01)22 (Space-Checker), ERC/DEC/(01)25 (Thuraya)

[35] ERC Decisions ERC/DEC/(98)17 (ARCANET) and ERC/DEC/(98)15 (Euteltracs-Omnitracs)

18 TERMINAL EQUIPMENT FOR FIXED WIRELESS ACCESS NETWORKS

3410 – 3590 MHz
10.150 – 10.240 GHz / 10.500 – 10.590 GHz
24.549 – 25.333 GHz / 25.557 – 26.341 GHz

19 TERMINALS BELONGING TO THE VIRVE (FINLAND'S PUBLIC AUTHORITY NETWORK) EMERGENCY SERVICES NETWORK

380.0125 MHz + (0...199) x 25 kHz (380.0125 – 384.9875 MHz)
Direct Mode Operation (DMO):
380.0125 MHz + (0...239) x 25 kHz (380.0125 – 385.9875 MHz)
390.0125 MHz + (0...239) x 25 kHz (390.0125 – 395.9875 MHz)

Use allowed in an aircraft and other equipment used in aviation.

20 PMR446 TELEPHONES[36]

446.00625 MHz + (0...7) x 12.5 kHz
Effective radiated power ≤ 500 mW ERP.
Total bandwidth of emission 12.5 kHz.

20A DIGITAL PMR446 EQUIPMENT[37]

446.10625 MHz + (0...7) x 12.5 kHz
Effective radiated power ≤ 500 mW ERP. Channel spacing 12.5 kHz.

446.103125 MHz + (0...15) x 6.25 kHz
Effective radiated power ≤ 500 mW ERP. Channel spacing 6.25 kHz.

[36] ERC Decisions CEPT/ERC/DEC/(98)/25 and CEPT/ERC/DEC/(98)/26
[37] ECC Decision ECC/DEC/(05)/12

21 ROAD TRANSPORT AND TRAFFIC TELEMATICS[38]

5795 – 5805 MHz	Road toll systems. Effective radiated power ≤ 8 EIRP.
21.650 – 26.650 GHz	Automotive Short Range Radars (SRR). The spectral power density of UWB transmission ≤ -41.3 dBm/MHz EIRP and spectral density measured as peak value 0 dBm/50 MHz EIRP. 24.05 – 24.25 GHz narrowband component, peak power 20 dBm EIRP. Duty cycle ≤ 10 % for peak emission higher than – 10 dBm EIRP. New radars shall be taken into use on 30.6.2013 at the latest.[39]
76.00 – 77.00 GHz	Effective radiated power: Peak power ≤ 316 W EIRP. Average power ≤ 100 W EIRP. Average power for pulsed radars ≤ 225 mW EIRP.
77 – 81 GHz	Automotive Short Range Radars (SRR). The spectral power density ≤ -9 dBm/MHz EIRP and peak power ≤ 46 dBm EIRP outside a vehicle.[40]

22 VSAT, SIT AND SUT SATELLITE TERMINALS[41]

14.0 – 14.25 GHz	VSAT
29.5 – 30.00 GHz	SIT and SUT Transmitter power ≤ 2 W. Effective radiated power ≤ 50 dBW EIRP.

[38] Short range devices, ERC Recommendation CEPT/ERC/REC 70-03, applicable parts of Annex 5
[39] ECC Decision, which enters into force on 1.7.2005, and Commission Decision 2005/50/EC also include further terms for taking equipment into use.
[40] Commission decision 2004/545/EY and ECC Decision ECC/DEC/(04)03
[41] ERC Decisions ERC/DEC/(00)05, ERC/DEC/(00)03 and ERC/DEC/(00)04

23 TERMINALS OF THE GSM-R NETWORK OF THE FINNISH STATE RAILWAYS

876.2000 MHz + (0…19) x 200 kHz

Direct Mode Operation (DMO):

876.0125 MHz + (0…4) x 12.5 kHz

24 MOBILE SATELLIE EARTH STATIONS ON THE COLLECTIVE FREQUENCY 14 - 14.5 GHZ PLACED ON BOARD AN AIRCRAFT

14 - 14.5 GHz	Effective radiated power ≤ 50 dBW EIRP.

25 LOW-POWER FM TRANSMITTERS[42]

87.5 - 108 MHz	Effective radiated power ≤ 50 nW ERP. Channel spacing 200 kHz.

26 ORBCOMM SATELLITE TERMINALS[43]

148.00 - 150.05 MHz

[42] ERC Recommendation CEPT/ERC/REC 70-03, applicable parts of Annex 13
[43] ERC Decisions ERC/DEC/(99)05 and ERC/DEC/(99)06