

---

Issued: 16 February 2024	Enters into force: 19 February 2024	Validity: until further notice
-----------------------------	--	-----------------------------------

---

Legal basis:  
Act on Electronic Communications Services (917/2014), sections 39(3) and 39(4)

Radio Regulation of the Finnish Transport and Communications Agency Traficom (4AE/2024M)

---

Provisions on sanctions for operations violating this Regulation are laid down in:  
Act on Electronic Communications Services (917/2014), section 348(1)

---

Implemented EU legislation:  
The Decisions and Recommendations of the European Radiocommunications Committee (ERC) and the European Electronic Communications Committee (ECC), referred to in this Regulation, are available on the website of the European Communications Office (ECO) at <https://www.cept.org/eco>.

---

Modification details:  
Repeals Traficom Regulation 15 AT/2023 M issued on 12 January 2023

---

## **Collective frequencies for licence-exempt radio transmitters and their use**

### (Index)

1	Scope of application .....	3
1.1	Radio transmitters falling within the scope of the Regulation .....	3
1.1.1	Radio transmitters subject to a register notification.....	4
2	Objective of the Regulation .....	5
3	Possession and use of radio transmitters without a radio licence.....	5
4	Antennas and amplifiers connected to radio transmitters .....	5
5	Use of radio transmitters on board airborne aircraft .....	5
6	Definitions 5	
7	Mobile equipment .....	6
7.1	Terminals for digital mobile networks and terrestrial systems capable of providing electronic communications services and terminals for local radio networks based on mobile technology.....	6
7.1.1	Use of terminal equipment on board airborne aircraft (MCA) .....	6
7.1.2	Use of terminal equipment on board airborne aircraft in terrestrial networks or systems.....	6
7.2	Mobile network base stations for aircraft (MCA) .....	6
7.3	Mobile network base stations for vessels (MCV) .....	7

7.4	Terminals belonging to the VIRVE (Finland's public authority network) emergency services network.....	8
8	Equipment for satellite systems .....	8
8.1	Terminal equipment for mobile satellite systems.....	8
8.2	Terminals for non-geostationary fixed satellite communications.....	9
8.3	Terminals for geostationary fixed satellite communications .....	9
8.4	Mobile satellite earth stations on the collective frequency 14–14.5 GHz placed on board aircraft (AES) .....	9
8.5	Earth stations on mobile platforms (ESOMP) for geostationary and non-geostationary fixed satellite communications in the frequency band 29.5–30 GHz	10
8.5.1	ESOMP terminals for geostationary satellite communications on board aircraft in the frequency band 27.5 GHz–30 GHz. ....	10
8.5.2	ESOMP terminals for geostationary satellite communications on board vessels in the frequency band 27.50 GHz–30.0 GHz. ....	10
8.5.3	ESOMP terminals for geostationary satellite communications in terrestrial use in the frequency band 29.5 GHz–30 GHz .....	10
8.5.4	ESOMP terminals for non-geostationary satellite communications in the frequency band 29.5 GHz–30 GHz .....	10
8.6	Earth stations in motion (ESIM) for non-geostationary fixed satellite communications in the frequency band 14.0–14.5 GHz .....	11
8.7	Earth stations in motion (ESIM) for geostationary fixed satellite communications in the frequency band 14.0–14.25 GHz .....	11
9	Wide-band data transmission equipment .....	11
9.1	Wide-band data transmission equipment including wireless local networks (WAS/RLAN) .....	11
9.2	Broadband fixed wireless access (BFWA) .....	13
9.3	Fixed radio link equipment .....	13
10	Short range devices .....	13
10.1	Non-specific short range devices.....	13
10.1.1	Collective frequency bands with restrictions relating to individual pieces of equipment: .....	17
10.2	Low-power alarms for security and safety and social alarms.....	17
10.3	Equipment for detecting movement and equipment for alert .....	18
10.3.1	Collective frequency bands with restrictions relating to individual pieces of equipment: .....	19
10.4	Radio frequency identification devices (RFID) .....	19
10.5	Wireless loudspeakers, equipment for in-ear monitoring, headphones, hearing aids, helmet radio telephones and radio microphones .....	20
10.6	Ultra low-power medical implants .....	21
10.7	Transport and traffic telematics .....	21

10.8	Low-power FM transmitters.....	23
10.9	UWB devices .....	23
10.10	Tracing, tracking and data acquisition systems .....	24
10.11	Telecommand equipment for use with model aircraft .....	25
10.12	Equipment for automatic vehicle identification for railways (AVI) .....	25
10.13	Inductive equipment .....	25
10.14	NMR equipment.....	25
11	Radio telephones and paging systems .....	26
11.1	PMR446 telephones.....	26
11.2	Digital PMR446 equipment .....	26
11.3	Radio equipment for recreational and professional use (RHA68) .....	26
11.4	Paging systems .....	28
11.4.1	Collective frequencies for on-site paging systems that have been taken into use on 31 December 2004 at the latest: .....	28
11.4.2	Collective frequencies with restrictions relating to individual pieces of equipment: .....	29
11.5	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.....	29
11.6	CB and PR 27 telephones.....	29
11.7	LA telephones approved under 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 .....	30
12	Entry into force .....	30

## **1 Scope of application**

### **1.1 Radio transmitters falling within the scope of the Regulation**

This Regulation applies to the following radio transmitters used only on the collective frequencies assigned in this Regulation and whose conformity with requirements has been attested in such a way as mentioned in section 255 of the Act on Electronic Communications Services:

- 1) terminals for digital mobile networks and terrestrial systems capable of providing electronic communications services and terminals for local radio networks based on mobile technology
- 2) terminals belonging to the VIRVE (Finland's Public Authority Network) emergency services network
- 3) terminal equipment for mobile satellite communications which operate under the control of a satellite system and which have a transmitter and a receiver part, and terminal equipment for mobile communications which are registered to a satellite system and which have only transmitter part, except stations aboard

vessels and aircraft operating in the frequency bands 1626.5–1645.5 MHz and 1646.5–1660.5 MHz

- 4) terminals for non-geostationary fixed satellite communications
- 5) HEST and LEST terminals for geostationary fixed satellite communications
- 6) mobile satellite earth stations on the collective frequency 14–14.5 GHz placed on board aircraft (AES)
- 7) earth stations on mobile platforms (ESOMP) for geostationary and non-geostationary fixed satellite communications in the frequency band 29.5–30 GHz
- 8) earth stations in motion (ESIM) for non-geostationary fixed satellite communications in the frequency band 14.0–14.5 GHz
- 9) earth stations in motion (ESIM) for geostationary fixed satellite communications in the frequency band 14.0–14.25 GHz
- 10) wide-band data transmission equipment including wireless local networks (WAS/RLAN)
- 11) broadband fixed wireless access (BFWA)
- 12) fixed radio link equipment
- 13) non-specific short range devices
- 14) low-power alarms for security and safety and social alarms
- 15) equipment for detecting movement and equipment for alert
- 16) radio frequency identification devices (RFID)
- 17) wireless loudspeakers, equipment for in-ear monitoring, headphones, hearing aids, helmet radio telephones and radio microphones
- 18) ultra low-power medical implants
- 19) transport and traffic telematics
- 20) low-power FM transmitters
- 21) UWB equipment
- 22) tracking, tracing and data acquisition systems
- 23) telecommand equipment for use with model aircraft
- 24) equipment for automatic vehicle identification for railways (AVI)
- 25) inductive equipment
- 26) PMR446 telephones
- 27) digital PMR446 equipment
- 28) radio equipment for recreational and professional use (RHA68)
- 29) on-site paging systems
- 30) cordless CT1 and, CT2 telephones, and DECT equipment
- 31) CB and PR 27 telephones
- 32) LA telephones (national Citizen Band equipment)

#### 1.1.1 Radio transmitters subject to a register notification

This Regulation also applies to the following radio transmitters, which meet the requirements on the exemption from licensing and for the possession and use of which a register notification referred to in section 39(4) of the Act on Electronic Communications Services has also been submitted to the Finnish Transport and Communications Agency.

- 1) base stations for the GSM1800, UMTS2100 and LTE1800 radio systems, placed on board aircraft and intended for providing mobile communication services on board aircraft (MCA services); and

- 2) base stations for the GSM1800, UMTS2100, LTE1800 and LTE2600 radio systems, placed on board vessels and intended for providing mobile communication services on board vessels (MCV services).

## **2 Objective of the Regulation**

This Regulation lays down provisions on collective frequencies for as well as use and registration of such radio transmitters whose conformity with requirements has been verified as provided in the Act on Electronic Communications Services, and for the possession and use of which a radio licence is not required.

## **3 Possession and use of radio transmitters without a radio licence**

No radio licence is required for the possession and use of a radio transmitter specified above in 1.1 as referred to in Section 39 of the Act on Electronic Communications Services. However, a register notification referred to in section 39(4) of the Act on Electronic Communications Services must be submitted for the possession and use of a radio transmitter referred to in 1.1.1 in order to be able to possess and use such radio transmitter without a licence.

## **4 Antennas and amplifiers connected to radio transmitters**

Only antennas that together with the radio transmitter form a combination complying with the requirements may be connected to the radio transmitter and used with the radio transmitter.

An amplifier must not be connected between the radio transmitter and the antenna, if it is not attested that the equipment combination complies with requirements.

## **5 Use of radio transmitters on board airborne aircraft**

Radio transmitters must not be used on board airborne model aircraft, unmanned aircraft or other aircraft, unless allowed in accordance with the special provisions on use defined below in 7-11.

## **6 Definitions**

### Radiated power

A radio transmitter's radiated power is the sum of the transmitter power and the antenna gain subtracted by the attenuation of the transmission lines. The maximum radiated power is stated as W ERP units when it is compared to a dipole antenna (gain dBd) or as W EIRP units when it is compared to an isotropic antenna (gain dBi).

### Duty cycle

The duty cycle is the ratio, expressed as a percentage, of the maximum transmitter "on" time, relative to a one hour period, unless otherwise defined.

## **7 Mobile equipment**

### **7.1 Terminals for digital mobile networks and terrestrial systems capable of providing electronic communications services and terminals for local radio networks based on mobile technology**

452.425–456.925 MHz

703–733 MHz

832–862 MHz

880–915 MHz

1710–1785 MHz

1920–1980 MHz

2300–2320 MHz, local networks

2500–2620 MHz

3400–3800 MHz

24.250–25.100 GHz, local networks

25.100–27.500 GHz

#### **7.1.1 Use of terminal equipment on board airborne aircraft (MCA)**

Mobile network terminals using GSM or LTE technology in the frequency band 1710–1785 MHz, and mobile network terminals using UMTS technology in the frequency band 1920–1980 MHz may be used in the minimum altitude of 3000 metres on board airborne aircraft equipped with an operational base station referred to in European Commission Decisions 2008/294/EC and 2013/654/EU as well as Implementing Decision (EU) 2016/2317.

#### **7.1.2 Use of terminal equipment on board airborne aircraft in terrestrial networks or systems**

Terminal devices of terrestrial systems capable of providing mobile or electronic communications services may be used on board airborne model aircraft, unmanned aircraft or in other aircraft if the terminal device is needed for performing public administrative functions, search operations as referred to in the Police Act (872/2011), rescue operations as referred to in the Rescue Act (379/2011), emergency medical services or first response services as referred to in the Health Care Act (1326/2010), or monitoring or supervision functions vital for security of supply. The terminal devices may also be used when the instances performing these functions train or exercise the functions. However, it is not allowed to use of terminal equipment on 2300–2320 MHz, 24,250–25,100 GHz and 25,100–27,500 GHz in terrestrial networks or systems without a radio licence.

### **7.2 Mobile network base stations for aircraft (MCA)**

Collective frequencies for mobile network base stations provided on board aircraft:

1805-1880 MHz	GSM1800
1805-1880 MHz	LTE1800
1805-1880 MHz	5G NR non-active antenna system
2110-2170 MHz	UMTS2100

**Operational requirements:**

- The minimum height above ground for any transmission from a system in operation must be 3,000 metres.
- Until 1 January 2026, the system or the aircraft fuselage must prevent mobile terminals from attempting to register with UMTS mobile networks on the ground operating in the frequency bands 925–960 MHz or 2110–2170 MHz.
- The system, while in operation, must limit the transmit power of GSM mobile terminals transmitting in the 1 800 MHz band to a nominal value of 0 dBm / 200 kHz at all stages of communication, including initial access.
- The system, while in operation, must limit the transmit power of LTE mobile terminals transmitting in the 1 800 MHz band to a nominal value of 5 dBm / 5 MHz at all stages of communication.
- The system, while in operation, must limit the transmit power of 5G NR mobile terminals transmitting in the 1 800 MHz band to a nominal value of 5 dBm / channel at all stages of communication, including initial access.
- The system, while in operation, must limit the transmit power of UMTS mobile terminals transmitting in the 2 100 MHz band to a nominal value of -6 dBm / 3.84 MHz at all stages of communication and the maximum number of users should not exceed 20.

In other respects, the use of the system and the radiated power of base stations at different heights and in different frequency bands must comply with the Commission Decision on mobile communication services on aircraft (MCA services)<sup>1</sup>.

**7.3 Mobile network base stations for vessels (MCV)**

Collective frequencies for mobile network base stations provided on board vessels:

1805–1880 MHz	GSM, LTE non-AAS, 5G NR non-AAS
2110–2170 MHz	UMTS
2620–2690 MHz	LTE non-AAS, 5G NR non-AAS

Maximum power level for base stations on board vessels measured in external areas of the vessel:

System	Frequency band [MHz]	Power level	Remarks
GSM	1805-1880	-80 dBm/200 kHz	with reference to a 0 dBi measurement antenna gain
LTE non-AAS	1805-1880	-98 dBm/5 MHz	

<sup>1</sup> Commission Decision on harmonised conditions of spectrum use for the operation of mobile communication services on aircraft (MCA services) in the Community (2008/294/EC) and Commission Implementing Decision amending Decision 2008/294/EC to include additional access technologies and frequency bands for mobile communications services on aircraft (MCA services) (2013/654/EU). Commission Implementing Decision (EU) 2016/2317 amending Decision 2008/294/EC and Implementing Decision 2013/654/EU, in order to simplify the operation of mobile communications on board aircraft (MCA services) in the Union. Commission Implementing Decision (EU) 2022/2324 amending Decision 2008/294/EC, to include additional access technologies and measures for the operation of mobile communications services on aircraft (MCA services) in the Union.

5G NR non-AAS	1805-1880	-98 dBm/5 MHz	corresponds to -120 dBm/15 kHz*
UMTS	2110-2170	-102 dBm/5 MHz	Common Pilot Channel
LTE	2620-2690	-98 dBm/5 MHz	
5G NR non-AAS	2620-2690	-98 dBm/5 MHz	corresponds to -120 dBm/15 kHz*
*For SSB channel bandwidth other than 15 kHz a conversion factor of $10 \cdot \log_{10}(\text{SSB bandwidth}/15 \text{ kHz})$ shall be added.			

Minimum distance from the baseline, as defined in the United Nations Convention on the Law of the Sea, where the system may be used and distance within which only indoor vessel base station antennas may be used:

System	Minimum distance [nautical miles]	Distance within which only indoor vessel base station antennas may be used [nautical miles]
GSM1800	2	2-12
LTE1800	4	4-12
UMTS2100	2	2-12
LTE2600	4	4-12

The carrier frequency for the base stations of the LTE1800, UMTS2100 and LTE2600 systems shall not be aligned with land network carrier centre frequencies.

Otherwise the use of system must comply with the Commission Decision on mobile communication services provided on board vessels (MCV services)<sup>2</sup>.

#### **7.4 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)

The use is also allowed on board aircraft and in other equipment used in aviation.

## **8 Equipment for satellite systems**

### **8.1 Terminal equipment for mobile satellite systems<sup>3</sup>**

Terminal equipment with a transmitter and a receiver part:

148.00–150.05 MHz

Orbcomm, Swarm and Myriota

<sup>2</sup> Commission Implementing Decision (EU) 2024/340 on harmonised conditions for the use of radio spectrum for mobile communication services on board vessels in the Union, repealing Decision 2010/166/EU.

<sup>3</sup> ERC Decisions ERC/DEC/(99)05 and ERC/DE/(99)06. In the frequency band 148 - 148.9 MHz the satellite terminal equipment must not cause interference to other radio communication. If interference is detected, the use of the terminal equipment must be interrupted and may not be continued until the re-occurrence of the interference has been prevented. ECC Decisions ECC/DEC/(06)09, ECC/DEC/(12)01, ECC/DEC/(09)02 and ECC/DEC/(09)04. European Commission Decisions 2007/98/EC and 2009/449/EC and Decision No 626/2008/EC of the European Parliament and of the Council.



399.9–400.05 MHz	Argos Kineis and Myriota
1610.0–1626.5 MHz	
1980–1995 MHz	Inmarsat Ventures Limited. The use is allowed also on board airborne aircraft at a height exceeding 1 km.
1995–2010 MHz	Solaris Mobile Limited. The use is allowed also on board airborne aircraft.
1626.5–1645.5 MHz	
1646.5–1660.5 MHz	
1670–1675 MHz	
Terminal equipment with only a transmitter part:	
401.620–401.680 MHz	Tracking transmitters belonging to the Argos satellite system <sup>4</sup> .
1613.8–1626.5 MHz	Effective radiated power ≤ 30 dBm EIRP. Duty cycle ≤ 1%.

## **8.2 Terminals for non-geostationary fixed satellite communications<sup>5</sup>**

14.00–14.25 GHz	Effective radiated power ≤ 60 dBW EIRP.
14.25–14.5 GHz	Effective radiated power ≤ 45 dBW EIRP.

Terminals must be at fixed locations.

## **8.3 Terminals for geostationary fixed satellite communications<sup>6</sup>**

14.0–14.25 GHz	Effective radiated power ≤ 60 dBW EIRP
14.25–14.5 GHz	Effective radiated power ≤ 50 dBW EIRP
29.5–30.00 GHz	Effective radiated power ≤ 60 dBW EIRP

Terminals must be at fixed locations.

## **8.4 Mobile satellite earth stations on the collective frequency 14–14.5 GHz placed on board aircraft (AES)<sup>7</sup>**

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

<sup>4</sup> Argos certified transmitter including platform identification number.

<sup>5</sup> ECC Decision ECC/DEC/(17)04

<sup>6</sup> ECC Decisions ECC/DEC/(06)03 (HEST) and ECC/DEC/(06)02 (LEST).

<sup>7</sup> ECC Decision ECC/DEC/(05)11.

**8.5 Earth stations on mobile platforms (ESOMP) for geostationary and non-geostationary fixed satellite communications in the frequency band 29.5–30 GHz<sup>8</sup>**

- 8.5.1 ESOMP terminals for geostationary satellite communications on board aircraft in the frequency band 27.5 GHz–30 GHz.
- Effective radiated power of satellite terminal within the airfield boundary  $\leq 58.4$  dBW
- Effective radiated power of satellite terminal outside the airfield boundary  $\leq 60$  dBW
- Satellite terminals on board aircraft must be in compliance with ECC Decision ECC/DEC/(13)01. In the frequency bands 27.8285–28.4445 GHz and 28.9485–29.4525 GHz, satellite terminals must be in compliance with the power density limits set in Annex 2 to the ECC Decision.
- 8.5.2 ESOMP terminals for geostationary satellite communications on board vessels in the frequency band 27.50 GHz–30.0 GHz.
- Effective radiated power of satellite terminal  $\leq 60$  dBW
- Satellite terminals on board vessels must be in compliance with ECC Decision ECC/DEC/(13)01. In the frequency bands 27.8285–28.4445 GHz and 28.9485–29.4525 GHz, satellite terminals must be in compliance with the power density limit set in Annex 2 to the ECC Decision.
- 8.5.3 ESOMP terminals for geostationary satellite communications in terrestrial use in the frequency band 29.5 GHz–30 GHz
- Effective radiated power of satellite terminal within the airfield boundary  $\leq 52.4$  dBW
- Effective radiated power of satellite terminal outside the airfield boundary  $\leq 60$  dBW
- Satellite terminals in terrestrial use must be in compliance with ECC Decision ECC/DEC/(13)01.
- 8.5.4 ESOMP terminals for non-geostationary satellite communications in the frequency band 29.5 GHz–30 GHz
- Effective radiated power of satellite terminal on board aircraft within the airfield boundary  $\leq 58.4$  dBW
- Effective radiated power of satellite terminal in terrestrial use within the airfield boundary  $\leq 52.4$  dBW
- Effective radiated power of satellite terminal outside the airfield boundary  $\leq 70$  dBW

---

<sup>8</sup> Satellite terminals operating in the satellite network in accordance with ECC Decisions ECC/DEC/(13)01 and ECC/DEC/(15)04.



	less than 12 dB. Power spectral density of transmission $\leq 10$ mW/1 MHz EIRP.
5250.000–5350.000 MHz	WAS/RLAN. Use allowed only inside buildings and trains <sup>13</sup> . Effective radiated power $\leq 200$ mW EIRP, power spectral density of transmission $\leq 10$ mW/1 MHz EIRP.
5470.000–5725.000 MHz	WAS/RLAN. Effective radiated power $\leq 1$ W EIRP, power spectral density of transmission $\leq 50$ mW/1 MHz EIRP. Installations in road vehicles are only allowed for equipment controlled by a fixed WAS/RLAN station with DFS. Installations in aircraft are not allowed <sup>14</sup> . Use in unmanned aircraft is not allowed.
5945.000–6425.000 MHz	Low power indoor WAS/RLAN devices (LPI WAS/RLAN). Effective radiated power $\leq 23$ dBm EIRP, power spectral density of transmission $\leq 10$ dBm/MHz EIRP. The equipment is only allowed to be used indoors (also inside aircraft, and on trains equipped with metallized windows or with corresponding windows attenuating the signal strength).
5945.000–6425.000 MHz	Very low power WAS/RLAN devices (VLP WAS/RLAN). Effective radiated power $\leq 14$ dBm EIRP, power spectral density of transmission $\leq 1$ dBm/MHz EIRP or 10 dBm/MHz EIRP if channel width is less than 20 MHz. If spectral power density is above 1 dBm/MHz then frequency hopping must be used (at least 15 hop channels). Must not be used on board unmanned aircraft.
57.0–71.0 GHz	Effective radiated power $\leq 40$ dBm EIRP, power spectral density of transmission $\leq 23$ dBm/MHz EIRP and transmit power $\leq 27$ dBm. The use is also allowed on board airborne aircraft or in any other equipment used in aviation.
57.0–71.0 GHz	Effective radiated power $\leq 55$ dBm EIRP, power spectral density of transmission $\leq 38$ dBm/MHz EIRP and minimum transmitting antenna gain 30 dBi. Only fixed outdoor installations.
57.0–71.0 GHz	Effective radiated power $\leq 40$ dBm EIRP, power spectral density of transmission $\leq 23$ dBm/MHz EIRP. Fixed outdoor installations not permitted. The use is also allowed on board airborne aircraft or in any other equipment used in aviation.

<sup>13</sup> WAS/RLAN use is allowed with a radiated power of  $\leq 100$  mW EIRP until 31 December 2028 in large aircraft (excluding multi-engine helicopters) as defined in Commission Regulation (EU) No 1321/2014.

<sup>14</sup> With the exception of the frequency band 5600–5650 MHz, WAS/RLAN use is allowed with a radiated power of  $\leq 100$  mW EIRP until 31 December 2028 in large aircraft (excluding multi-engine helicopters) as defined in Commission Regulation (EU) No 1321/2014.

RLAN equipment operating in the bands 5250–5350 MHz and 5470–5725 MHz must 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 in the bands 5250–5350 MHz and 5470–5725 MHz must be reduced by 3 dB.

RLAN equipment operating in the bands 5250–5350 MHz and 5470–5725 MHz must use mitigation techniques complying with the detection, operational and response requirements described in Standard EN 301 893.

## 9.2 Broadband fixed wireless access (BFWA)<sup>15</sup>

5725.000–5795.000 MHz      Effective radiated power ≤ 4 W EIRP, power spectral density of transmission ≤ 23 dBm/1 MHz EIRP.

5815.000–5850.000 MHz      Effective radiated power ≤ 4 W EIRP, power spectral density of transmission ≤ 23 dBm/1 MHz EIRP.

Equipment operating in the bands 5725–5795 MHz and 5815–5850 MHz must use mitigation techniques complying with the detection, operational and response requirements described in Standard EN 302 502.

## 9.3 Fixed radio link equipment<sup>16</sup>

59.0 - 63.0 GHz      Transmitter power ≤ 10 dBm and effective radiated power ≤ 55 dBm EIRP. Power spectral density ≤ -10 dBm/MHz.

# 10 Short range devices

## 10.1 Non-specific short range devices<sup>17</sup>

The use of non-specific short range devices is also allowed on board airborne aircraft or in any other equipment used in aviation.

13.553 - 13.567 MHz      Effective radiated power ≤ 10 mW ERP.

26.825 MHz      Transmitter power of equipment using an external antenna ≤ 500 mW and effective radiated power of equipment with integral antenna ≤ 100 mW ERP. Voice, audio and video applications are not allowed.  
26.845 "  
26.865 "  
26.885 "  
26.905 "  
26.925 "  
26.935 "  
26.945 "  
26.995 "

<sup>15</sup> ECC Recommendation ECC/REC/(06)04.

<sup>16</sup> ECC recommendation ECC/REC/(09)01

<sup>17</sup> 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, applicable parts of ERC Decision ERC/DEC/(01)12. European Commission Decision 2006/771/EC, supplemented by Implementing Decision (EU) 2022/180 . European Commission Decision (EU) 2018/1538 and (EU) 2022/172.

27.045 "	
27.095 "	
27.145 "	
27.195 "	
27.255 "	
26.957–27.283 MHz	Effective radiated power $\leq$ 10 mW ERP.
40.660–40.790 MHz	Transmitter power of equipment using an external antenna $\leq$ 500 mW and effective radiated power of equipment with integral antenna $\leq$ 100 mW ERP. Voice, audio and video applications are not allowed.
40.660–40.700 MHz	Effective radiated power $\leq$ 10 mW ERP.
138.200–138.450 MHz	Effective radiated power $\leq$ 500 mW ERP. Duty cycle $\leq$ 10 %.
169.400–169.475 MHz	Effective radiated power $\leq$ 500 mW ERP. Channel width $\leq$ 50 kHz. Duty cycle $\leq$ 1 %.
169.400–169.4875 MHz	Effective radiated power $\leq$ 10 mW ERP. Duty cycle $\leq$ 0.1 %.
169.4875–169.5875 MHz	Effective radiated power $\leq$ 10 mW ERP. Duty cycle $\leq$ 0.001 % <sup>18</sup> .
169.5875–169.8125 MHz	Effective radiated power $\leq$ 10 mW ERP. Duty cycle $\leq$ 0.1 %.
433.050–434.790 MHz	Effective radiated power $\leq$ 25 mW ERP. Duty cycle $\leq$ 10 % <sup>19</sup> .
433.050–434.790 MHz	Effective radiated power $\leq$ 1 mW ERP. Power spectral density of transmission below $-13$ dBm/10 kHz ERP for broadband transmitters. Voice applications allowed with an appropriate access protocol <sup>22</sup> together with an automatic carrier time-out timer. Other audio and video applications are not allowed.
434.040–434.790 MHz	Effective radiated power $\leq$ 10 mW ERP. Channel width $\leq$ 25 kHz. Voice applications allowed with an appropriate access protocol <sup>22</sup> together with an automatic carrier time-out timer. Other audio and video applications are not allowed.

<sup>18</sup> Between 00:00h and 06:00h a duty cycle may be  $\leq$  0.1%.

<sup>19</sup> The duty cycle  $\leq$  10% entered into force for radio transmitters placed on the market as from 1 April 2003, no restrictions on the duty cycle before that.

468.200 MHz	Transmitter power $\leq$ 500 mW and effective radiated power $\leq$ 500 mW ERP. Channel width $\leq$ 25 kHz. New equipment to be taken into use on 31 December 2007 at the latest.
862-863 MHz	Effective radiated power $\leq$ 25 mW ERP. Duty cycle $\leq$ 0.1%. Channel width $\leq$ 350 kHz.
863.000–865.000 MHz	Effective radiated power $\leq$ 25 mW ERP. Duty cycle $\leq$ 0.1% or an appropriate access protocol <sup>22</sup> .
865.000–868.000 MHz	Effective radiated power $\leq$ 25 mW ERP. Duty cycle $\leq$ 0.1% or an appropriate access protocol <sup>22</sup> .
865.000-868.000 MHz	Data networks <sup>20</sup> . Transmissions are only allowed in the following frequency bands 865.600–865.800 MHz, 866.200–866.400 MHz, 866.800–867.000 MHz and 867.400–867.600 MHz.  Effective radiated power $\leq$ 500 mW ERP. Channel width $\leq$ 200 kHz. Duty cycle for network access points $\leq$ 10% and for other network devices $\leq$ 2.5%. Automatic power control (APC) or similar mitigation technique.  Effective radiated power $\leq$ 25 mW ERP. Duty cycle $\leq$ 1% or an appropriate access protocol <sup>22</sup> .
868.000–870.000 MHz <sup>21</sup>	Effective radiated power $\leq$ 25 mW ERP. Duty cycle $\leq$ 1% or an appropriate access protocol <sup>22</sup> .
868.000–868.600 MHz	Effective radiated power $\leq$ 25 mW ERP. Duty cycle $\leq$ 1% or an appropriate access protocol <sup>22</sup> .
868.700–869.200 MHz	Effective radiated power $\leq$ 25 mW ERP. Duty cycle $\leq$ 0.1% or an appropriate access protocol <sup>22</sup> .

<sup>20</sup> Data network refers to several short range radio transmitters that form a radio network. The network access point serves as a central connection point between devices in the data network and an external network.

<sup>21</sup> 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.

<sup>22</sup> One appropriate access protocol is defined in ETSI Standard EN 300 220.

869.400–869.650 MHz	Effective radiated power $\leq$ 500 mW ERP. Duty cycle $\leq$ 10% or an appropriate access protocol <sup>22</sup> .
869.700–870.000 MHz	Effective radiated power $\leq$ 5 mW ERP. Voice applications allowed with an appropriate access protocol <sup>22</sup> together with an automatic carrier time-out timer.
869.700–870.000 MHz	Effective radiated power $\leq$ 25 mW ERP. Duty cycle $\leq$ 1% or an appropriate access protocol <sup>22</sup> .
870.000–873.000 MHz	Effective radiated power $\leq$ 25 mW ERP. Channel width $\leq$ 600 kHz. Duty cycle $\leq$ 1 %.
874.000–874.400 MHz	Data networks <sup>20</sup> . Effective radiated power $\leq$ 500 mW ERP. Channel width $\leq$ 200 kHz. Duty cycle for network access points $\leq$ 10% and for other network devices $\leq$ 2.5%. Automatic power control (APC) or similar mitigation technique.
917.300–918.900 MHz	Data networks <sup>20</sup> . Transmissions are only allowed in the following frequency bands: 917.300–917.700 MHz and 918.500–918.900 MHz.  Effective radiated power $\leq$ 500 mW ERP. Channel width $\leq$ 200 kHz. Duty cycle for network access points $\leq$ 10% and for other network devices $\leq$ 2.5%. Automatic power control (APC) or similar mitigation technique.
917.400–919.400 MHz	Data networks <sup>20</sup> . Effective radiated power $\leq$ 25 mW ERP. Channel width $\leq$ 600 kHz. Duty cycle $\leq$ 1%.
2400.000–2483.500 MHz	Effective radiated power $\leq$ 10 mW EIRP.
5725–5875 MHz	Effective radiated power $\leq$ 25 mW EIRP.
24.00–24.25 GHz	Effective radiated power $\leq$ 100 mW EIRP.
57–64 GHz	Effective radiated power $\leq$ 100 mW EIRP. Transmitter power $\leq$ 10 dBm.
61.00–61.50 GHz	Effective radiated power $\leq$ 100 mW EIRP.
122–122.25 GHz	Effective radiated power $\leq$ 10 dBm EIRP/250 MHz and power spectral density of transmission $\leq$ –48 dBm/MHz with an elevation angle of above 30 degrees.



122.25–123 GHz	Effective radiated power ≤ 100 mW EIRP.
244–246 GHz	Effective radiated power ≤ 100 mW EIRP.
10.1.1	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. Effective radiated power ≤ 500 mW ERP.
868.150–868.650 MHz	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.
<b>10.2 Low-power alarms for security and safety and social alarms<sup>23</sup></b>	
142.250 MHz	Effective radiated power ≤ 1 mW ERP. Channel width ≤ 25 kHz.
868.600–868.700 MHz	Effective radiated power ≤ 10 mW ERP. Channel width 25 kHz. Duty cycle ≤ 1%. The frequency band may be used as one channel for high-speed data transmission.
869.250–869.300 MHz	Effective radiated power ≤ 10 mW ERP. Channel width 25 kHz. Duty cycle ≤ 0.1%.
869.300–869.400 MHz	Effective radiated power ≤ 10 mW ERP. Channel width 25 kHz. Duty cycle ≤ 1.0%.
869.650–869.700 MHz	Effective radiated power ≤ 25 mW ERP. Channel width 25 kHz. Duty cycle ≤ 10%.
869.200–869.250 MHz	Only for social alarms. Effective radiated power ≤ 10 mW ERP. Channel width 25 kHz. Duty cycle ≤ 0.1%.

<sup>23</sup> Short range devices, ERC Recommendation CEPT/ERC/REC 70-03, applicable parts of Annex 7. ECC Decision ECC/DEC/(05)02. European Commission Decision 2006/771/EC, supplemented by Implementing Decision (EU) 2022/180.

### 10.3 Equipment for detecting movement and equipment for alert<sup>24</sup>

2400.000–2483.500 MHz	Effective radiated power $\leq$ 25 mW EIRP.
9500–9975 MHz	Effective radiated power $\leq$ 25 mW EIRP. Restrictions relating to individual pieces of equipment: Effective radiated power $\leq$ 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 $\leq$ 500 mW EIRP.
10.500–10.600 GHz	Effective radiated power $\leq$ 25 mW EIRP. Duty cycle $\leq$ 10%. Only indoor use permitted.
13.40–14.00 GHz	Effective radiated power $\leq$ 25 mW EIRP.
17.1–17.3 GHz	Ground based synthetic aperture radars (GBSAR). Effective radiated power $\leq$ 26 dBm EIRP. Appropriate access protocol <sup>25</sup> .
24.00–24.25 GHz	Effective radiated power $\leq$ 100 mW EIRP. Restrictions relating to individual pieces of equipment: Effective radiated power $\leq$ 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.
4.5–7.0 GHz	Tank level probing radars. Spectral power density outside the tank $\leq$ -41.3 dBm/MHz EIRP. Effective radiated power inside the tank $\leq$ +24 dBm EIRP.
8.5–10.6 GHz	Tank level probing radars. Spectral power density outside the tank $\leq$ -41.3 dBm/MHz EIRP. Effective radiated power inside the tank $\leq$ +30 dBm EIRP.
24.05–27.00 GHz	Tank level probing radars. Spectral power density outside the tank $\leq$ -41.3 dBm/MHz EIRP. Effective radiated power inside the tank $\leq$ +43 dBm EIRP.
57–64 GHz	Tank level probing radars. Spectral power density outside the tank $\leq$ -41.3 dBm/MHz EIRP. Effective radiated power inside the tank $\leq$ +43 dBm EIRP.

<sup>24</sup> Short range devices, ERC Recommendation CEPT/ERC/REC 70-03, applicable parts of Annex 6, ERC Decision ERC/DEC/(01)08. European Commission Decision 2006/771/EC, supplemented by Implementing Decision (EU) 2022/180.

<sup>25</sup> One appropriate access protocol is defined in ETSI Standard EN 300 440.

75–85 GHz	Tank level probing radars. Spectral power density outside the tank $\leq -41.3$ dBm/MHz EIRP. Effective radiated power inside the tank $\leq +43$ dBm EIRP.
6.0–8.5 GHz 24.05–26.50 GHz 57–64 GHz 75–85 GHz	Level probing radars <sup>26</sup> .
10.3.1	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 $\leq 500$ mW EIRP.
<b>10.4 Radio frequency identification devices (RFID)<sup>27</sup></b>	
865.000–865.600 MHz	Effective radiated power $\leq 100$ mW ERP. Channel width 200 kHz <sup>28</sup> .
865.600–867.600 MHz	Effective radiated power $\leq 2$ W ERP. Channel width 200 kHz <sup>28</sup> .
867.600–868.000 MHz	Effective radiated power $\leq 500$ mW ERP. Channel width 200 kHz <sup>28</sup> .
865.000–868.000 MHz	Frequency bands of the interrogator: 865.600–865.800 MHz 866.200–866.400 MHz 866.800–867.000 MHz 867.400–867.600 MHz Effective radiated power of the interrogator $\leq 2$ W ERP.
916.100–918.900 MHz	The centre frequencies of the interrogator: 916.300 MHz 917.500 MHz 918.700 MHz Effective radiated power of the interrogator $\leq 2$ W ERP. Channel width $\leq 400$ kHz.

<sup>26</sup> Technical conditions and geographical restrictions are defined in standard EN 302 729 and ECC Decision ECC/DEC/(11)02.

<sup>27</sup> ERC Recommendation CEPT/ERC/REC 70-03, applicable parts of Annex 11. European Commission Decision 2006/771/EC, supplemented by Implementing Decision (EU) 2022/180. European Commission Decision (EU) 2018/1538.

<sup>28</sup> Access protocol and channelling are based on standard EN 302 208-2 V1.1.1.

2446.0–2454.0 MHz Effective radiated power  $\leq$  500 mW EIRP.  
Effective radiated power  $\leq$  4 W EIRP only indoors  
and duty cycle  $\leq$  15%<sup>29</sup>.

**10.5 Wireless loudspeakers, equipment for in-ear monitoring, headphones, hearing aids, helmet radio telephones and radio microphones<sup>30</sup>**

31.100 MHz 33.500 MHz Effective radiated power  $\leq$  10 mW ERP.  
32.100 " 36.700 " Channel width  $\leq$  200 kHz.  
32.900 " 37.100 "  
42.400–43.600 MHz

169.4000–169.4750 MHz Hearing aids. Shared use with short range devices.  
Effective radiated power  $\leq$  500 mW ERP. Channel  
width  $\leq$  50 kHz.

169.4875–169.5875 MHz Hearing aids. Shared use with short range devices.  
Effective radiated power  $\leq$  500 mW ERP. Channel  
width  $\leq$  50 kHz.

173.965–174.015 MHz Hearing aids. Effective radiated power  $\leq$  10 mW  
ERP. Channel width  $\leq$  50 kHz.

174-195 MHz Radio microphones, equipment for in-ear monitor-  
ing and hearing aids. Effective radiated power  $\leq$  50  
mW ERP.

216-225 MHz Radio microphones, equipment for in-ear monitor-  
ing and hearing aids. Effective radiated power  $\leq$  50  
mW ERP.

470-694 MHz Radio microphones, equipment for in-ear monitor-  
ing and hearing aids. Effective radiated power  $\leq$  50  
mW ERP.<sup>31</sup>

823–826 MHz Radio microphones, equipment for in-ear monitor-  
ing and hearing aids. Effective radiated power  $\leq$  12  
mW ERP, body worn radio microphones  $\leq$  60 mW  
ERP.

826–832 MHz Radio microphones, equipment for in-ear monitor-  
ing and hearing aids. Effective radiated power  $\leq$  60  
mW ERP.

863.000–865.000 MHz Effective radiated power  $\leq$  10 mW ERP.

<sup>29</sup> The duty cycle must be  $\leq$  15% during any 200 ms period (i.e. 30 ms on, 170 ms off).

<sup>30</sup> Short range devices, ERC Recommendation CEPT/ERC/REC 70-03, applicable parts of Annex 10, ECC Decision ECC/DEC/(05)02. European Commission Decisions 2005/928/EC and 2008/673/EC. European Commission Decision 2006/771/EC, supplemented by Implementing Decision (EU) 2022/180. European Commission Decision 2014/641/EU.

<sup>31</sup> The frequency selected for a radio microphone shall be such that it does not interfere with reception of the terrestrial television. There is a tool for searching available frequencies on TRAFICOM's website. (<https://www.traficom.fi>)

864.800–865.000 MHz	Narrow-band analogue voice devices. Effective radiated power $\leq$ 10 mW ERP. Channel width $\leq$ 50 kHz.
1785.0–1804.8 MHz	Radio microphones, equipment for in-ear monitoring and hearing aids. Effective radiated power $\leq$ 20 mW EIRP, body-worn radio microphones $\leq$ 50 mW EIRP.
1795–1800 MHz	Wireless audio applications. Effective radiated power $\leq$ 20 mW EIRP.

### 10.6 Ultra low-power medical implants<sup>32</sup>

30.0–37.5 MHz	Applications for blood pressure measuring. Effective radiated power $\leq$ 1 mW ERP. Duty cycle $\leq$ 10%.
401.000–402.000 MHz	Effective radiated power $\leq$ 25 $\mu$ W ERP and an appropriate access protocol or duty cycle $\leq$ 0.1% and radiated power $\leq$ 250 nW ERP. Channel width $\leq$ 25 kHz. Adjacent channels may be combined so that the bandwidth of the emission is max. 100 kHz.
402.000–405.000 MHz	Effective radiated power $\leq$ 25 $\mu$ W ERP. Channel width $\leq$ 25 kHz. Adjacent channels may be combined so that the channel width is max. 300 kHz.
405.000–406.000 MHz	Effective radiated power $\leq$ 25 $\mu$ W ERP and an appropriate access protocol or duty cycle $\leq$ 0.1% and radiated power $\leq$ 250 nW ERP. Channel width $\leq$ 25 kHz. Adjacent channels may be combined so that the channel width is max. 100 kHz.
2483.5–2500 MHz	Effective radiated power $\leq$ 10 mW EIRP. Duty cycle $\leq$ 10%. An appropriate access protocol. Channel width $\leq$ 1 MHz. The frequency band may be used as one channel for high-speed data transmission. Peripheral units are for indoor use only.

### 10.7 Transport and traffic telematics<sup>33</sup>

5795–5805 MHz	Road toll systems as well as tachograph, weight and dimension applications. Effective radiated power $\leq$ 8 W EIRP.
5805–5815 MHz	Road toll systems as well as tachograph, weight and dimension applications. Effective radiated power $\leq$ 2 W EIRP.

<sup>32</sup> Short range devices, ERC Recommendation CEPT/ERC/REC 70-03, Annex 12, ERC Decision ERC/DEC/(01)17. European Commission Decision 2006/771/EC, supplemented by Implementing Decision (EU) 2022/180.

<sup>33</sup> Short range devices, ERC Recommendation CEPT/ERC/REC 70-03, applicable parts of Annex 5. European Commission Decision 2006/771/EC, supplemented by Implementing Decision (EU) 2022/180.

5855-5875 MHz	Intelligent transport systems (ITS) <sup>34</sup> . Effective radiated power $\leq 33$ dBm EIRP. Power spectral density of transmission $\leq 23$ dBm/MHz EIRP. Power control range 30 dB.
5875-5925 MHz	Intelligent transport systems (ITS) <sup>35</sup> . Effective radiated power $\leq 33$ dBm EIRP. Power spectral density of transmission $\leq 23$ dBm/MHz EIRP. Appropriate access protocol.
24.050-24.250 GHz	Effective radiated power $\leq 100$ mW EIRP.
21.650–26.650 GHz	Automotive Short Range Radars (SRR). Power spectral density of UWB transmission $\leq -41.3$ dBm/MHz EIRP, except for frequencies below 22 GHz where the spectral power density is $\leq -61.3$ dBm/MHz EIRP, and spectral density measured as peak value 0 dBm/50 MHz EIRP. 24.05–24.25 GHz narrow-band component, peak power 20 dBm EIRP. Duty cycle $\leq 10\%$ for peak emission higher than $-10$ dBm EIRP. Radars operating in the frequency band 21.65–24.25 GHz must be taken into use on 30 June 2013 at the latest. Radars operating in the frequency band 24.25–26.65 GHz must be taken into use on 1 January 2018 at the latest <sup>36</sup> . Introduction of radars in the 24.25-26.65 GHz in a vehicle for which type approval was granted before 1 January 2018 is allowed until 1 January 2022.
63-64 GHz	In-vehicle equipment. Effective radiated power $\leq 40$ dBm EIRP <sup>37</sup> . Equipment placed on the market by 1 January 2020.
63.72-65.88 GHz	In-vehicle equipment. Effective radiated power $\leq 40$ dBm EIRP.
76–77 GHz	Effective radiated power: peak power $\leq 316$ W EIRP, average power $\leq 100$ W EIRP, average power for pulsed radars $\leq 225$ mW EIRP.
76–77 GHz	Anti-collision radars for helicopters <sup>38</sup> . Effective radiated power: peak power $\leq 30$ dBm EIRP and power spectral density $\leq 3$ dBm/MHz. Duty cycle $\leq 56\%/s$ .
77–81 GHz	Automotive Short Range Radars (SRR). Power spectral density of transmission $\leq -3$ dBm/MHz

<sup>34</sup> ECC recommendation ECC/REC/(08)01.

<sup>35</sup> European Commission Decision (EU) 2020/1426. ECC Decision ECC/DEC/(08)01.

<sup>36</sup> ECC Decision ECC/DEC/(04)10 and European Commission Decisions 2005/50/EC, 2011/485/EU and (EU) 2017/2077 also include further terms for taking equipment into use.

<sup>37</sup> ECC Decision ECC/DEC/(09)01.

<sup>38</sup> EEC Decision ECC/DEC/(16)01.

EIRP and peak power  $\leq 55$  dBm EIRP. Power spectral density  $\leq -9$  dBm/MHz EIRP outside a vehicle<sup>39</sup>.

### **10.8 Low-power FM transmitters<sup>40</sup>**

87.5–108 MHz

Effective radiated power  $\leq 50$  nW ERP. Channel width  $\leq 200$  kHz.

### **10.9 UWB devices<sup>41</sup>**

3.1–4.8 GHz

UWB devices using low duty cycle (LDC). Power spectral density of transmission  $\leq -41.3$  dBm/MHz EIRP. Fixed installed equipment for indoor use and for use in automotive and railway vehicles only. The power spectral density caused by fixed installed equipment in automotive or railway vehicles must be  $\leq -53.3$  dBm/MHz EIRP outside these vehicles.

3.1–4.8 GHz

UWB equipment using DAA mitigation techniques. Power spectral density of transmission  $\leq -41.3$  dBm/MHz EIRP. Fixed installed equipment for indoor use and for use in automotive and railway vehicles only. Fixed installed equipment in automotive and railway vehicles must employ transmit power control (TPC), and the power spectral density caused by the equipment must be  $\leq -53.3$  dBm/MHz EIRP outside these vehicles.

3.8–4.2 GHz

Vehicular access systems with applicable mitigation technique. Power spectral density of transmission  $\leq -41.3$  dBm/MHz EIRP. Low duty cycle (LDC).

4.2–4.8 GHz

Power spectral density of transmission  $\leq -41.3$  dBm/MHz EIRP. New devices must be taken into use on 31 December 2010 at the latest. For devices without mitigation technique, to be taken into use after this date, the power spectral density is  $\leq -70$  dBm/MHz EIRP. Fixed installed equipment for indoor use for use in automotive and railway vehicles only. Fixed installed equipment in automotive and railway vehicles must employ transmit power control (TPC) or have a power spectral density of  $\leq -53.3$  dBm/MHz EIRP.

6.0–8.5 GHz

Power spectral density of transmission  $\leq -41.3$  dBm/MHz EIRP. Fixed installed equipment for indoor use and for use in automotive and railway

<sup>39</sup> European Commission Decision 2004/545/EC and ECC Decision ECC/DEC/(04)03.

<sup>40</sup> ERC Recommendation CEPT/ERC/REC 70-03, applicable parts of Annex 10. European Commission Decision 2006/771/EC, the valid technical Annex is in Decision (EU) (EU) 2019/1345.

<sup>41</sup> ECC Decisions ECC/DEC/(06)04, ECC/DEC/(07)01 and ECC/DEC/(12)03, and European Commission Decision (EU) 2019/785. The limits for effective radiated power in different frequency ranges for each application are defined in the relevant harmonised standards.

vehicles only. Fixed installed equipment in automotive and railway vehicles must employ transmit power control (TPC) or have a power spectral density of  $\leq -53.3$  dBm/MHz EIRP. Fixed installed equipment in automotive and railway vehicles must employ low duty cycle (LDC) or transmit power control (TPC), and the power spectral density caused by the equipment must be  $\leq -53.3$  dBm/MHz EIRP outside these vehicles.

6.0-8.5 GHz

Vehicular access systems with applicable mitigation technique. Power spectral density of transmission  $\leq -41.3$  dBm/MHz EIRP. Low duty cycle (LDC) or transmit power control (TPC).

6.0-8.5 GHz

Equipment intended for internal data transmission on board aircraft and approved to be used on board aircraft in accordance with Commission Decision (EU) 2019/785.

8.5-9.0 GHz

UWB equipment using DAA mitigation technique. Power spectral density of transmission  $\leq -41.3$  dBm/MHz EIRP. Fixed installed equipment for indoor use and for use in automotive and railway vehicles only. Fixed installed equipment in automotive and railway vehicles must employ transmit power control (TPC), and the power spectral density caused by the equipment must be  $\leq -53.3$  dBm/MHz EIRP outside these vehicles.

2.2-9.0 GHz

Building material analysis and material sensing devices using UWB technology.

30 MHz- 12.4 GHz

Ground- and wall-probing radars<sup>42</sup>.

### 10.10 Tracing, tracking and data acquisition systems<sup>43</sup>

155.400 MHz + (0...5) x 25 kHz

Transmitters for tracking and tracing. Effective radiated power  $\leq 2$  W ERP. Channel width 25 kHz. Duty cycle  $\leq 10\%$ .

169.4000-169.4750 MHz

Meter reading systems. Effective radiated power  $\leq 500$  mW ERP. Channel width  $\leq 50$  kHz. Duty cycle  $\leq 10\%$ .

<sup>42</sup> ECC Decision ECC/DEC/(06)08. A circular exclusion zone has been set up around the Metsähovi radioastronomy station. As a rule, the use of ground- and wall-probing radars is forbidden within the exclusion zone. The centre of the zone is at (WGS84) N 60° 13' 04" E 24° 23' 35", and the zone has a radius of 3 km. The use of ground- and wall-probing radars within the exclusion zone requires separate agreement with the Metsähovi radioastronomy station. Metsähovi's contact details are available at [www.aalto.fi](http://www.aalto.fi). Ground- and wall-probing radars must not cause interference to other radio communication. If interference is detected, the use of the radar must be interrupted and may not be continued until the re-occurrence of the interference has been prevented.

<sup>43</sup> Short range devices, ERC Recommendation CEPT/ERC/REC 70-03, applicable parts of Annexes 2 and 13. ECC Decision ECC/DEC/(05)02. European Commission Decision 2006/771/EC, supplemented by Implementing Decision (EU) 2022/180.



430-440 MHz	Medical data acquisition systems (capsule endoscopy). Power spectral density $\leq -50$ dBm/100 kHz ERP and maximum power in total $-40$ dBm/10 MHz.
870.000-874.400 MHz	Data networks <sup>20</sup> . Effective radiated power $\leq 500$ mW ERP. Channel width $\leq 200$ kHz. Duty cycle for network access points $\leq 10\%$ and for other network devices $\leq 2.5\%$ . Automatic power control (APC) or similar mitigation technique.
915.000-919.400 MHz	Data networks <sup>20</sup> . Effective radiated power $\leq 25$ mW ERP. Channel width $\leq 600$ kHz. Duty cycle $\leq 1\%$ .
2483.5-2500 MHz	MBAN systems. Effective radiated power $\leq 1$ mW EIRP. Channel width $\leq 3$ MHz. Duty cycle $\leq 10\%$ . Only indoors use permitted.
2483.5-2500 MHz	MBAN systems. Effective radiated power $\leq 10$ mW EIRP. Channel width $\leq 3$ MHz. Duty cycle $\leq 2\%$ . Only indoors use permitted.

### **10.11 Telecommand equipment for use with model aircraft<sup>44</sup>**

34.995–35.225 MHz                      Effective radiated power  $\leq 100$  mW ERP.

### **10.12 Equipment for automatic vehicle identification for railways (AVI)<sup>45</sup>**

2447.0 MHz; 2448.5 MHz; 2450.0 MHz; 2451.5 MHz; 2453.0 MHz

Effective radiated power  $\leq 500$  mW EIRP.

### **10.13 Inductive equipment**

100 Hz-30 MHz<sup>46</sup>

### **10.14 NMR equipment<sup>47</sup>**

9 kHz–130 MHz

---

<sup>44</sup> Short range devices, ERC Recommendation CEPT/ERC/REC 70-03, applicable parts of Annex 8, ERC Decision ERC/DEC/(01)11.

<sup>45</sup> Short range devices, ERC Recommendation CEPT/ERC/REC 70-03, applicable parts of Annex 11.

<sup>46</sup> Inductive equipment according to Recommendation ERC/REC 70-03 and the Commission Implementing Decision (EU) 2022/180. In Finland, the use of other inductive equipment complying with the requirements of standard EN 300 330 or any other European harmonized standard whose conformity with the requirements has been assessed as specified in section 255 of the Act on Electronic Communications Services is not restricted.

<sup>47</sup> Enclosed Nuclear Magnetic Resonance (NMR) devices. European Commission Decision 2006/771/EC, supplemented by Implementing Decision (EU) 2022/180. ERC Recommendation CEPT/ERC/REC 70-03, applicable parts of Annex 6.

## 11 Radio telephones and paging systems

### 11.1 PMR446 telephones<sup>48</sup>

446.00625 MHz + (0...15) x 12.5 kHz

Effective radiated power ≤ 500 mW ERP.  
Channel width 12.5 kHz.

### 11.2 Digital PMR446 equipment<sup>48</sup>

446.00625 MHz + (0...15) x 12.5 kHz

Effective radiated power ≤ 500 mW ERP. Channel width 12.5 kHz.

446.003125 MHz + (0...31) x 6.25 kHz

Effective radiated power ≤ 500 mW ERP. Channels width 6.25 kHz.

### 11.3 Radio equipment for recreational and professional use (RHA68)

Radio channels for recreational and professional use (RHA68 channels) may only be used for the purpose specified for these channels.

Base stations<sup>49</sup> operating on channels in channel group A are subject to a licence but mobile stations are exempted from licensing.

Equipment operating on channels in channel group E are exempted from licensing, but base stations are only allowed on channels 15, 16 and 18–21.

The channel width is 25 kHz unless otherwise stated.

Frequency group A:

Channel	Frequency	Maximum effective radiated power	Purpose of use
1.	68.100 MHz	25 W ERP	Radio communications for road services
2.	68.300 MHz	25 W ERP	Radio communications for car racing
3.	68.425 MHz	25 W ERP	Radio communications for voluntary rescue services
4.	68.525 MHz	25 W ERP	Radio communications for car racing
17.	68.225 MHz	25 W ERP	Radio communications for voluntary rescue services

<sup>48</sup> ECC Decision ECC/DEC/(15)05. European Commission Decision 2006/771/EC, supplemented by Implementing Decision (EU) 2022/180.

<sup>49</sup> If a station (i.e. transmitter, transmitter power source and transmitter antenna) is incapable of moving as a single entity and simultaneously transmitting a signal, it is considered a base station.

Channels 1–4 and 17 form shared channel group A. The users of group A must agree on the shared use among themselves.

Frequency group E:

<b>Channel</b>	<b>Frequency</b>	<b>Maximum effective radiated power</b>	<b>Purpose of use</b>
5.	68.050 MHz	5 W ERP	Recreational and professional communications
6.	68.575 MHz	5 W ERP	Recreational and professional communications
7.	68.175 MHz	5 W ERP	Recreational and professional communications
8.	67.500 MHz	5 W ERP	Recreational and professional communications
9.	71.375 MHz	5 W ERP	Recreational and professional communications
10.	71.425 MHz	5 W ERP	Recreational and professional communications
11.	71.475 MHz	5 W ERP	Recreational and professional communications
12.	71.625 MHz	5 W ERP	Recreational and professional communications
13.	70.200 MHz	5 W ERP	Recreational and professional communications
14.	71.025 MHz	5 W ERP	Recreational and professional communications
15.	71.050 MHz	25 W ERP	Recreational and professional communications
16.	71.100 MHz	25 W ERP	Recreational and professional communications
18.	68.375 MHz	25 W ERP	Recreational and professional communications
19.	71.175 MHz	25 W ERP	Recreational and professional communications
20.	71.750 MHz	25 W ERP	Recreational and professional communications
21.	71.900 MHz	25 W ERP	Recreational and professional communications
22.	71.350 MHz	5 W ERP	Recreational and professional communications
23.	71.550 MHz	5 W ERP	Recreational and professional communications
24.	71.575 MHz	5 W ERP	Recreational and professional communications
25.	71.600 MHz	5 W ERP	Recreational and professional communications
26.	72.325 MHz	5 W ERP	Recreational and professional communications

The channels in channel group E are allowed for analogue voice transmission and the transmission of manually activated short data messages. Automatic or timed data messages or repeated data messages based on single activation are not allowed. The maximum duration of data transmission is 3 seconds.

Channels 22–26 in channel group E may also be used for digital voice communications. The channel width in that case is 12.5 kHz or 6.25 kHz and the centre frequencies are as follows:

71.34375 MHz,  
71.35625 MHz,  
71.54375 MHz,  
71.55625 MHz,  
71.56875 MHz,  
71.58125 MHz,  
71.59375 MHz,  
71.60625 MHz,  
72.31875 MHz ja  
72.33125 MHz

Channels 15, 16 and 18–21 must not be used within 10 kilometres from the borders of Russia, Sweden and Norway. In base station use, when the transmitter antenna is at a height exceeding 5 metres above the ground, the channels must not be used within 40 kilometres from the borders of Russia, Sweden and Norway.

#### 11.4 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  $\leq 5$  W and effective radiated power of equipment with integral antenna  $\leq 5$  W ERP. Channel width 10 kHz.

450.175 MHz  
450.200 MHz

Effective radiated power  $\leq 2$  W ERP. Channel width  $\leq 25$  kHz. Duty cycle  $\leq 10$  %.

##### 11.4.1 Collective frequencies for on-site paging systems that have been taken into use on 31 December 2004 at the latest:

26.965 MHz  
27.075 "  
27.255 "  
27.400 "

Transmitter power  $\leq 5$  W and effective radiated power of equipment with integral antenna  $\leq 5$  W ERP. Channel width 10 kHz.

**11.4.2 Collective frequencies with restrictions relating to individual pieces of equipment:**

27.450 MHz  
27.490 MHz

Collective frequencies only for on-site paging systems that have been taken into use on 1 January 1989 at the latest.

Transmitter power  $\leq 5$  W and effective radiated power of equipment with integral antenna  $\leq 5$  W ERP. Channel width 10 kHz.

**11.5 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**

DECT equipment

1881.792 MHz + (0...9) x 1.728 MHz

An antenna with a maximum gain of  $\leq 12$  dBi may be connected to the 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

**11.6 CB and PR 27 telephones<sup>50</sup>**

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 "

<sup>50</sup> ECC Decision ECC/DEC/(11)03.

40 27.405 "

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

- 1) at frequency modulation<sup>51</sup>  $\leq 4$  W (these devices were previously referred to as PR-27),
- 2) at double-sideband modulation<sup>52</sup> carrier power  $\leq 4$  W and
- 3) at single-sideband modulation<sup>53</sup> peak power  $\leq 12$  W.

Channel width 10 kHz. With these telephones a separate antenna with a maximum gain of 3 dBd may be used.

**11.7 LA telephones approved under 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  $\leq 5$  W and effective radiated power of equipment with integral antenna  $\leq 1$  W ERP. Channel width 10 kHz. With these telephones a separate antenna with a maximum gain of 3 dBd may be used.

**12 Entry into force**

This Regulation enters into force on 19 February 2024 and will remain in force until further notice.

This Regulation repeals the Regulation bearing the same title issued by the Finnish Transport and Communications Agency on 12 January 2023 (Finnish Transport and Communications Agency 15 AT/2023 M).

<sup>51</sup> FM, 3GE

<sup>52</sup> AM DSB, A3E

<sup>53</sup> SSB, J3E and R3E

In Helsinki on 16 February 2024

Jarkko Saarimäki

Director-General

Jarno Ilme

Deputy Director-General

Digital Connections