

C- Radio licence exemption:

C.2 Station licence exemption.

STATION LICENCE EXEMPTION

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Follows a list of frequency bands reserved / in use, as well as their conditions of use.

Under the terms of paragraph a) of no. 1 and no. 2 of article 9 of Decree-Law no. 151-A/2000 of 20 July, the following are exempt from network licences:

a) SRD - Short Range Devices

These stations should operate on a non-interference and non-protection base regarding licensed radiocommunications stations or networks.

STATION LICENCE EXEMPTION

SRD - Station characterization							
Application	Frequency Band	Maximum power or field strength limits	Antenna type	Channel spacing	Duty Cycle		
General use ¹	6.765 - 6.795 MHz	42 dB μ A/m a 10 m	Integral or dedicated	No spacing	< 10% up to 100%		
	13.553 - 13.567 MHz						
	26.957 - 27.283 MHz						
	26.957 - 27.283 MHz	10 mW e.m.r.p.					
	40.660 - 40.700 MHz						
	433.050 - 434.790 MHz ²	1 mW e.m.r.p. ³				≤ 25 kHz	up to 100%
	434.040 - 434.790 MHz ²	10 mW e.m.r.p.					
	863 -870 MHz ^{2 4}	≤ 25 mW e.m.r.p.				≤ 100 kHz ⁵	≤ 0.1% or LBT ⁶
		≤ 25 mW e.m.r.p. ⁴ -4.5 dBm/100 kHz ⁷				No spacing	≤ 0.1% or LBT ^{4, 6}
	868.000 - 868.600 MHz ²	25 mW e.m.r.p.				≤ 100 kHz ^{5, 8}	≤ 0.1% or LBT ⁶
				No spacing	< 1%		
	868.700 - 869.200 MHz ²	500 mW e.m.r.p.		25 kHz	< 0.1%		
	869.400 - 869.650 MHz ²				< 10%		
	869.700 - 870.000 MHz	5 mW e.m.r.p.		No spacing	up to 100%		
	2400 - 2483.5 MHz	10 mW e.i.r.p.					
	5725 - 5875 MHz	25 mW e.i.r.p.					
	24.00 - 24.25 GHz	100 mW e.i.r.p.					
61.00 - 61.50 GHz							
122 - 123 GHz							
244 - 246 GHz							
Radio local area networks (RLANs)	2400 - 2483.5 MHz	100 mW e.i.r.p. ⁹	Integral or dedicated	No spacing Binary rhythm > 250 kbps			

¹ Video applications are only allowed above the 2.4 GHz band.

² Audio and voice signal applications are not allowed in this band.

³ The power density for modulations with bandwidths above 250 kHz is limited to -13 dBm/10 kHz.

⁴ For broadband modulations other than FHSS and DSSS with bandwidths between 200 kHz and 3 MHz, the duty cycle can be increased up to 1% if the band is limited to 865-868 MHz and the power below 10 mW e.m.r.p.

⁵ The preferential spacing is 100 kHz, allowing 50 kHz and 25 kHz subdivisions.

⁶ Duty cycle may be 1% if the band is limited to 865-868 MHz.

⁷ The power density may be increased up to 6.2 dBm/100 kHz and 0.8 dBm/100 kHz, if the band is limited to 865-868 MHz and 865-870 MHz, respectively.

⁸ For narrow band modulations with bandwidth from 50 to 200 kHz the band is limited to 865.5-867.5 MHz.

⁹ For systems that use direct sequence spectrum spreading techniques, the value of the maximum power spectrum density should be limited to -20 dBW/1 MHz; for systems that use frequency leap spectrum spreading techniques, the value of the maximum power spectrum density should be limited to -10 dBW/100 kHz.

STATION LICENCE EXEMPTION

SRD - Station characterization (cont.)					
Application	Frequency Band	Maximum power or field strength limits	Antenna type	Channel spacing	Duty Cycle
Wireless access systems / Radio local area networks (WAS/RLAN)	5150 - 5350 MHz ^{10, 11}	200 mW e.i.r.p. ¹²	Dedicated	no spacing	
	5470 - 5725 MHz ¹¹	1 W e.i.r.p. ¹²			
	17.1 - 17.3 GHz	100 mW e.i.r.p.			
Railway applications	2446 - 2454 MHz ¹³	500 mW e.i.r.p.	Integral	no spacing	
	27.095 MHz	see figure 1	Dedicated	see figure 1	
Road transport and traffic telematics	5795 - 5805 MHz	2 W e.i.r.p.	Integral or dedicated	14	
	5805 - 5815 MHz ¹⁵			14	
	63-64 GHz ¹⁶	To be defined	Integral or dedicated	no spacing	
	76-77 GHz ¹⁷	55 dBm peak			
Movement detection and alert	2400 - 2483.5 MHz	25 mW e.i.r.p.	Integral or dedicated	no spacing	
	9200 - 9500 MHz				
	9500 - 9975 MHz				
	13.4 - 14.0 GHz				
	24.05 - 24.25 GHz	100 mW e.i.r.p.			

¹⁰ In accordance with Commission Decision 2005/513/CE of 11 July 2005

¹¹ The following conditions should be respected:

- a) In the 5150-5350 MHz only indoor uses are allowed
- b) Transmitter power control (TPC) in the 5250-5350 MHz and 5470-5725 MHz band, to ensure an attenuating factor of at least 3 dB in the maximum power allowed by the systems, or, in case the TPC is not operating, the maximum power allowed for the average e.i.r.p. and the corresponding power density maximum value should be reduced in 3 dB.
- c) Dynamic frequency selection (DFS) associated with the channel selection mechanism for a uniform spreading in the 5250-5350 MHz and 5470-5725 MHz bands.
- d) In the 5150-5250 MHz band, the maximum value of power density for the average e.i.r.p. should be limited to 0.25 mW/25 kHz, for each 25 kHz.
- e) In the 5250-5350 MHz band, the maximum value of power density for the average e.i.r.p. should be limited to 10mW/MHz, for each 1 MHz.
- f) In the 5470-5725 MHz band, the maximum value of power density for the average e.i.r.p. should be limited to 50mW/MHz, for each 1 MHz.

¹² Maximum value of the average e.i.r.p.

¹³ Transmission only in the presence of trains.

¹⁴ Frequencies: 5797.5 MHz, 5802.5 MHz, 5807.5 MHz and 5812.5 MHz are used with a 5 MHz channel spacing. 5800 MHz and 5810 MHz frequencies are used with a 10 MHz channel spacing.

¹⁵ Requires individual licence.

¹⁶ These systems, vehicle-vehicle or road-vehicle, will only be exempt of licensing after the definitions of power limits.

¹⁷ Vehicle and infrastructure radar system.

STATION LICENCE EXEMPTION

SRD - Station characterization (cont.)					
Application	Frequency Band	Maximum power or field strength limits	Antenna type	Channel spacing	Duty Cycle
Alarms in general	868.600 - 868.700 MHz	10 mW e.m.r.p.	Integral or dedicated	25 kHz ¹⁸	< 0.1%
	869.250 - 869.300 MHz				< 10%
	869.650 - 869.700 MHz	25 mW e.m.r.p.			< 10%
	869300 - 869.400 MHz	10 mW e.m.r.p.			< 0.1%
Social alarms	869.200 - 869.250 MHz	10 mW e.m.r.p.		12.5 kHz	< 0.1%
	169.4750 - 169.4875 MHz	10 mW e.m.r.p.	< 0.1%		
Model control	26.995 MHz	100 mW e.m.r.p.	Dedicated	10 kHz	
	27.045 MHz				
	27.095 MHz				
	27.145 MHz				
	27.195 MHz				
	34.995 - 35.225 MHz ¹⁹				
	40.665 MHz				
	40.675 MHz				
	40.685 MHz				
	40.695 MHz				

¹⁸ The 868.6-868.7 MHz frequency band may also be used as one channel for high speed data transmissions.

¹⁹ Frequencies exclusive for flying models.

STATION LICENCE EXEMPTION

SRD - Station characterization (cont.)					
Application	Frequency Band	Maximum power or field strength limits	Antenna type	Channel spacing	Duty Cycle
Inductive systems	9 - 59.750 kHz	72 dB μ A/m a 10 m (at 30 kHz decrease of 3 dB/octave) ²⁰	Integral, dedicated or external	No spacing	
	59.750 - 60.250 kHz	42 dB μ A/m a 10 m			
	60.250 - 70 kHz	69 dB μ A/m a 10 m (at 30 kHz decrease of 3 dB/octave) ¹⁹			
	70 - 119 kHz	42 dB μ A/m a 10 m			
	119 - 135 kHz	66 dB μ A/m a 10 m (at 30 kHz decrease of 3 dB/octave) ¹⁹			
	6.765 - 6.795 MHz	42 dB μ A/m a 10 m See figure 2	Integral or dedicated		
	7.400 - 8.800 MHz	9 dB μ A/m a 10 m			
	13.553 - 13.567 MHz	42 dB μ A/m a 10 m See figure 2			
	13.553 - 13.567 MHz	60 dB μ A/m a 10 m ²¹ See figure 2			
	26.957 - 27.283 MHz	42 dB μ A/m a 10 m			
Wireless systems for medical applications	9-135 kHz	30 dB μ A/m a 10 m	Integral or dedicated	No spacing	<10%
	315 -600 kHz ²²	-5 dB μ A/m a 10 m		25 kHz	
	402 - 405 MHz	25 μ W e.m.r.p.			
Avalanche victim detection	457 kHz	7 dB μ A/m a 10 m	Integral or dedicated	Continuous wave (CW) - no modulation	up to 100%
Radio microphones	173.965 - 174.015 MHz	2 mW e.m.r.p.	Integral	50 kHz	up to 100%
	174 - 216 MHz ²³	10 mW e.m.r.p. ²⁴		200 kHz	
	470 - 862 MHz ²⁴				
	863 - 865 MHz	10 mW e.m.r.p.			
	1785.7 - 1799.4 MHz	10 mW e.m.r.p. ²⁴			

²⁰ In the case of type 1 and 2 loop antennas, within an area between 0.05 m² and 0.16 m², the field intensity is reduced by 10 x log (area/0.16 m²). For an antenna area below m² 0.05 the field intensity is reduced by 10 dB.

²¹ For RFID and EAS (Electronic Article Surveillance) exclusive use.

²² Applications for veterinary implants.

²³ This equipment is exempt from radio licensing, conditioned by the decisions to be made on digital television.

²⁴ The maximum power limit for transmitting body-worn microphones is 50 mW e.m.r.p.

STATION LICENCE EXEMPTION

SRD - Station characterization (cont.)					
Application	Frequency Band	Maximum power or field strength limits	Antenna type	Channel spacing	Duty Cycle
RFID - RF Identification Systems	2446-2454 MHz	500 mW	Integral or dedicated	No spacing	up to 100%
	865 - 868 MHz	100 mW e.m.r.p.		200 kHz	LBT
	865.6 - 867.6 MHz	2 W e.m.r.p.			
	865.6 - 868 MHz	500 mW e.m.r.p.			
Wireless audio systems ²⁵	87.5 - 108 MHz	50 nW e.m.r.p.	Integral	200 kHz	up to 100%
	863 - 865 MHz	10 mW e.m.r.p.		No spacing ²⁶	
	864.8 - 865 MHz	10 mW e.m.r.p.		50 kHz	
Telecommand, telemetry, alarm and data transmission systems	29.980 MHz	100 mW e.m.r.p.	Integral or dedicated	10 kHz	
	29.990 MHz				
	30.000 MHz				
	30.100 MHz				
	150.9375 MHz	500 mW e.m.r.p.		12.5 kHz	
	150.9500 MHz				
	155.5375 MHz				
	155.5500 MHz				
	458.1125 MHz				
	458.1250 MHz				
	458.1375 MHz				
	458.1500 MHz				
	SRR - Automotive short range radar systems				
24.05-24.25 GHz ²⁹		20 dBm e.i.r.p. peak	Integral	No spacing	³⁰
77-81 GHz		55 dBm e.i.r.p. peak ³¹	Integral	No spacing	

²⁵ Narrow band analogue voice equipment is limited to the 864.8-865 MHz band.

²⁶ In analogue systems, the used bandwidth cannot exceed 300 kHz.

²⁷ According to Commission Decision 2005/50/EC of 17 January 2005.

²⁸ The maximum average power density will be -41.3 dBm/MHz e.i.r.p. Peak power density value should not exceed 0dBm/50 MHz e.i.r.p.

²⁹ According to Commission Decision 2004/545/EC of 8 July 2004.

³⁰ For peak powers over -10 dBm e.i.r.p. and duty cycle < 10%.

³¹ Maximum average power density will be -3 dBm/MHz e.i.r.p. Maximum average power density outside a vehicle resulting from the operation of a short range radar should not exceed -9 dBm/MHz e.i.r.p..

STATION LICENCE EXEMPTION

b) Earth stations in the Fixed Satellite Service (SFS)

These stations should operate on a non-interference and non-protection basis regarding licensed radiocommunications stations or networks.

The use of this kind of Earth stations is only allowed at distances beyond 500 metres from airport boundaries.

The use of Earth stations with permanent fixed location is not covered by this exemption regime.

Station characterization			
Earth station	Frequency Band	Maximum power limits	Antenna type
Satellite Interactive Terminal (SIT)	10.70 - 12.75 GHz (space-to-Earth) 29.50 - 30.00 GHz (Earth-to-space)	Transmitter power < 2 W e.i.r.p. < 50 dBW	antenna diameter < 1.2 m
Satellite User Terminal (SUT)	19.70 - 20.20 GHz (space-to-Earth) 29.50 - 30.00 GHz (Earth-to-space)		antenna diameter < 1.8 m
Very Small Aperture Terminal (VSAT)	12.50 - 12.75 GHz (space-to-Earth) 14.00 - 14.25 GHz (Earth-to-space)		antenna diameter < 3.8 m
Arcanet Suitcase Terminal	11.45 - 11.70 GHz (space-to-Earth) 12.50 - 12.75 GHz (space-to-Earth) 14.00 - 14.25 GHz (Earth-to-space)		antenna diameter < 1.2 m

STATION LICENCE EXEMPTION

c) Earth stations in the mobile-satellite service

Station characterization	
Earth station	Frequency Band
Inmarsat-B	1525 - 1544 MHz (space-to-Earth) ³²
Inmarsat-C	
Inmarsat-D	
Inmarsat-M	1545 - 1559 MHz (space-to-Earth) ³³
Inmarsat-M4	
Inmarsat-phone (mini M)	1626.5 - 1645.5 MHz (Earth-to-space) ¹¹
EMS-PRODAT	
EMS-MSSAT	
Thuraya	1646.5 - 1660.5 MHz (Earth-to-space) ^{12, 34}
SpaceCheckers-SMS	
Omnitracs-Eutelsat	10.70 - 11.70 GHz (space-to-Earth) ³⁵
	12.50 - 12.75 GHz (space-to-Earth) ¹⁴
	14.00 - 14.25 GHz (Earth-to-space)
GMPCS ³⁶	1610 - 1626.5 MHz (Earth-to-space)
	1980 - 2010 MHz (Earth-to-space)
	2483.5 - 2500 MHz (space-to-Earth)
	2170 - 2200 MHz (space-to-Earth)
Mobile Earth Stations (MES) ORBCOM ³⁷	137- 138 MHz (space-to-Earth)
	148 - 150.05 MHz (Earth-to-space)

³² In the 1530-1544 MHz and 1626.5-1645.5 MHz frequency bands, priority is given to distress, urgency and safety communications in the scope of the GMDSS (Global Maritime Distress and Safety System) system.

³³ In the 1545 - 1559 MHz and 1646.5-1656.5 MHz frequency bands, priority is given, in the scope of the Aeronautical Mobile-Satellite Service, to distress, urgency and safety communications, as well as to communication regarding flights safety and regularity and meteorology.

³⁴ In the 1660 – 1660.5 MHz frequency band, the operation of these Earth stations cannot cause any harmful interference to the stations of the radio astronomy service.

³⁵ In the 10.70-11.70 GHz and 12.50-12.75 GHz frequency bands, the operation of “Omnitracs-Eutelsat” Earth stations cannot cause any harmful interference to the stations of the fixed service or of the fixed satellite service.

³⁶ These stations must be marked as described in figure 3.

³⁷ These stations should not cause interference or require protection from stations of the fixed, mobile and space operation services in the 148-149.9 MHz frequency band, nor from stations of the radionavigation satellite service in the 149.9-150.05 MHz frequency band.

STATION LICENCE EXEMPTION

d) Land Mobile Service Stations

PMR446 stations

Station characterization			
Frequency Band	Maximum power limits	Antenna type	Channel spacing
446.00625 MHz	500 mW e.m.r.p.	Integral	12.5 kHz
446.01875 MHz			
446.03125 MHz			
446.04375 MHz			
446.05625 MHz			
446.06875 MHz			
446.08125 MHz			
446.09375 MHz			

Talk-Back

Station characterization		
Frequency Band	Maximum radiated power limits	Channel spacing
445.150 MHz	3W e.i.r.p.	25kHz
448.300 MHz		
448.325 MHz		
448.350 MHz		
448.375 MHz		
448.400 MHz		
448.425 MHz		
448.450 MHz		
448.475 MHz		

STATION LICENCE EXEMPTION

e) Receiver-only radiocommunications stations

Station characterization
<p>Encompasses the following receiving stations::</p> <ul style="list-style-type: none">• Sound and television broadcasting• GPS• multiband, not particularly associated to any radiocommunications services (scanners)• satellite radiocommunications in the frequency bands: 3.4-4.2 GHz; 10.7-12.75 GHz; 17.7-20.2 GHz.

STATION LICENCE EXEMPTION

- FIGURES -

a) Euro beacons

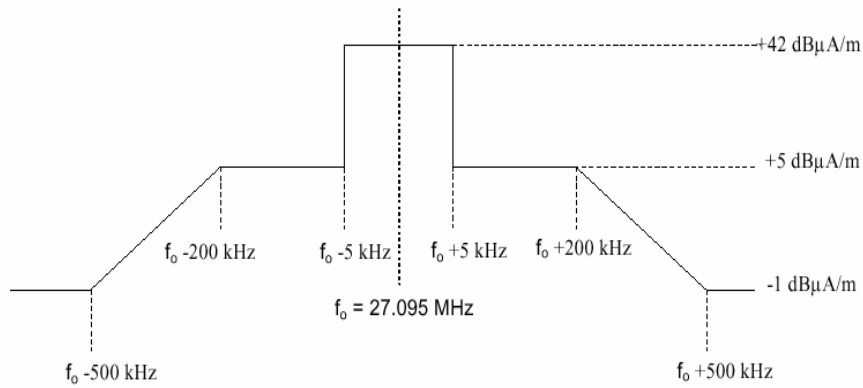


Figure 1 - Field intensity limits at 10 metres around the frequency $f_0 = 27.095$ MHz

b) Inductive systems

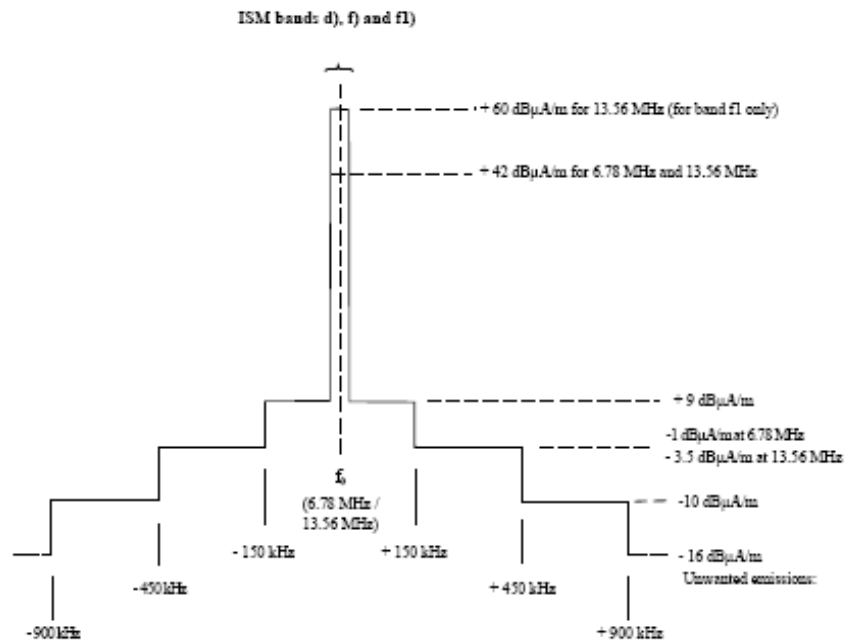


Figure 2 - Field intensity limits 10 metres away for the frequency bands 6.765 - 6.795 MHz and 13.553 - 13.567 MHz

c) GMPCS mobile Earth stations

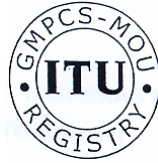


Figure 3 - Marking of GMPCS stations

STATION LICENCE EXEMPTION

- DEFINITIONS -

SRD - Short Range Devices - The term Short Range Devices (SRDs) encompasses radio transmitters that establish either unidirectional or bidirectional communications and with low probability of causing harmful interferences to other radio equipment. SRDs use either integral, dedicated or external antennas, and all modulation types may be permitted, as long as they comply with the relevant standards. Given the wide range of services provided by this kind of equipment, no description can be exhaustive.

Railway applications - Specific applications for railways, including automatic vehicle identification and beacons (train control systems).

Road transport telematics systems - Transport-supporting communication systems (mobile data links between vehicles and between vehicles and the infrastructure).

Movement detection and alert - Equipment for detecting movement and alarm equipment (low power radar systems for radio determination purposes: determination of position, velocity and/or other characteristics of an object, or the acquisition of information on those parameters)

Model control - Equipment for controlling the movement of models in the air, on the ground and on or under water.

Inductive systems - Car immobilizers, animal identification, alarm systems, cable detection, waste management, staff identification, wireless voice links, access control, proximity sensors, anti-theft systems including RF anti-theft induction systems, data transfer for handheld equipment, automatic article identification, wireless control systems and automatic road tolls.

STATION LICENCE EXEMPTION - DEFINITIONS -

RFID - Radio Frequency Identification Systems - automatic article identification, asset tracking, alarm systems, waste management, staff identification, access control, proximity sensors, anti-theft systems, tracking systems, data transfer for handheld equipment, wireless control systems.

Ultra low power active medical implants - Instruments, apparatus, appliance, material or other articles, whether used alone or in combination for: diagnosis, prevention, monitoring, treatment or alleviation of disease or injury, investigation, replacement or modification of anatomy or of a physiological process; control of conception.

LBT - Listen Before Talk. Monitoring of the channel before transmission.

Wireless audio systems - Cordless loudspeakers; cordless headphones; cordless headphones for portable use, such as portable CD readers, cassette or radio players; cordless headphones for use in vehicles, for example for radio or telephone use, etc; earphone monitoring for use in concerts or other type of stage production.

Effective monopole-radiated power (e.m.r.p.) - in a given direction - the power supplied to the antenna multiplied by its gain relative to a half-wave dipole in a given direction .

Equivalent isotropically radiated power (e.i.r.p.) in a given direction - the power supplied to the antenna multiplied by its gain regarding an isotropic antenna in a given direction (isotropic or absolute gain).

Average equivalent isotropically radiated power (e.i.r.p) - equivalent to average e.i.r.p. over a data transmission burst, when power control is set at its maximum.

STATION LICENCE EXEMPTION

- DEFINITIONS -

Integrated antenna - permanent fixed antenna designed to be an indispensable part of the equipment.

Dedicated antenna - movable antenna, indicated by the manufacturer, taking always as reference the maximum e.i.r.p. limit established.

External antenna - antenna not specifically designed for given stations type.

Spectrum spreading - transmission technique in which the signal occupies a much larger bandwidth than the minimum necessary to send data.

Spectrum spreading with frequency hopping - spectrum spreading technique in which data is sent through several channels on a pseudo-random way.

Spectrum spreading with direct spectrum - spectrum spreading technique in which data is combined with a pseudo-random code.

Duty cycle - Ratio of the maximum time during which an equipment is active with one or more carriers, regarding a one-hour period.

Harmful interference - any interference which compromises the operation of a radionavigation service or any other safety services, or which seriously harms, obstructs, or repeatedly interrupts a radiocommunications service that operates according to the applying community or national law.