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## **COMMUNICATIONS ACT 2006**

### **NOTICE CONCERNING EXEMPTIONS FROM REQUIREMENT TO OBTAIN A LICENCE.**

#### **NOTICE No. C04/17.**

In exercise of the powers conferred on it by section 62(1)(d) of the Communications Act 2006 and of all other enabling powers, and after having obtained the consent of the Minister with responsibility for Communications, the Gibraltar Regulatory Authority hereby issues this Notice pursuant to section 12 of the Communications Act 2006. This notice replaces Notice No. 11/08.

#### **1. Title.**

This Notice may be cited as the Communications (Exemptions from the Requirement to obtain a Licence) Notice 2006.

#### **2. Interpretation.**

In this Notice—

"apparatus" means radiocommunications apparatus or apparatus designed or adapted for use in connection with radiocommunications apparatus as described in Part III of the respective Schedules;

"authorised person" means any person authorised by the Authority to carry out inspections of relevant apparatus pursuant to paragraph 5;

"CEPT" means the European Conference of Postal and Telecommunications Administrations;

"eirp" means equivalent isotropically radiated power;

"erp" means effective radiated power;

"ETSI" means the European Telecommunications Standards Institute;

"ISO guides 25 and 58" means the International Organization for Standardization Guides 25 and 58 published by the International Organization for Standardization in 1990 and 1993 respectively;

"the Act" means the Communications Act 2006;

"the Radio Regulations" means the 2016 edition of the Radio Regulations made under Article 13 of the Constitution of the International Telecommunication Union;

"relevant apparatus" means the prescribed apparatus as defined in Schedules 1 to 6 hereto;

"test laboratory" means a test laboratory which has been accredited in accordance with ISO guides 25 and 58 or EN45001 and EN45002 or a national standard conforming to ISO guides 25 and 58 or EN45001 and EN45002.

### **3. Exemption.**

- (1) Subject to paragraph 4, the establishment, installation and use of the relevant apparatus are hereby exempted from the provisions of section 61 of the Act.
- (2) The exemption in sub-paragraph (1) shall not apply to relevant apparatus which is established, installed or used to provide or to be capable of providing a link between -
  - (a) radiocommunications apparatus;
  - (b) electronic communications networks; or
  - (c) between radiocommunications apparatus and electronic communications networks,

by means of which an electronic communications service is provided by way of business to another person.

### **4. Terms, provisions and Limitations.**

- (1) The exemption provided for in this Notice shall be subject to the terms, provisions and limitations that-
  - (a) the relevant apparatus shall not cause or contribute to any harmful interference to any radiocommunications; and
  - (b) frequency bands relating to the relevant apparatus are for terrestrial use only, unless otherwise stated in Schedule 3.
- (2) Such exemption shall also be subject to such additional terms, provisions and limitations as are specified in the Schedules in respect of the relevant apparatus.

## **5. Inspection and restrictions on use.**

- (1) Where an authorised person has reasonable cause to believe that any relevant apparatus is not complying with paragraph 4, any person who is in possession or control of the relevant apparatus shall, on the demand of that authorised person—
  - (a) permit and facilitate its inspection by that authorised person; and
  - (b) cause its use to—
    - (i) cease; or
    - (ii) be restricted in the manner specified by that authorised person,for a period of time ending either on a date or on the occurrence of an event specified by that authorised person.
- (2) Any authorised person exercising powers under sub-paragraph (1) shall produce evidence of his authority, if so required by the person in possession or control of the relevant apparatus.

**Dated this 5<sup>th</sup> day of July, 2017**

**Paul J. Canessa  
Chief Executive Officer  
Gibraltar Regulatory Authority**

**SCHEDULE 1**  
**NETWORK USER STATIONS**

**PART I**

**INTERPRETATION**

In this Schedule-

"BABT" means the British Approvals Board for Telecommunications;

"BTx" means Base Transmit, the frequency on which a base station transmits and a user station receives;

"MTx" means Mobile Transmit, the frequency on which a user station transmits and a base station receives;

"NTR 13" means Designation No. 95/037 NTR 13 given under section 22(6) of the Telecommunications Act 1984 by the Secretary of State on 14th December 1995;

"Part IV" means Part IV of this Schedule;

"prescribed apparatus" means a user station;

"relevant network" means an electronic communications network consisting exclusively of stations established and used under and in accordance with a licence, which has been granted under section 61 of the Communications Act 2006 and is of a type specified in Part III of this Schedule;

"user station" means a mobile station for radiocommunications designed or adapted-

(a) to be connected by radiocommunications to one or more relevant networks; and

(b) to be used solely for the purpose of sending and receiving messages conveyed by a relevant network by means of radiocommunications.

**PART II**

**ADDITIONAL TERMS, PROVISIONS AND LIMITATIONS**

The prescribed apparatus shall be subject to and comply with the Common Technical Regulations referred to in Part IV as appropriate, and in the absence of a Common Technical Regulation applying to such apparatus, the prescribed apparatus must-

(a) be approved by the Authority for the purposes of this Notice;

- (b) be approved to the ETSI standards or the draft ETSI standards referred to in Part IV as appropriate by a national administration following type testing at a test laboratory; or
- (c) comply with the BAPT performance standards referred to in Part IV as appropriate.

**PART III**

**TYPE OF LICENCE GRANTED UNDER SECTION 61 OF THE COMMUNICATIONS ACT 2006 FOR THE ESTABLISHMENT AND USE OF RELEVANT NETWORKS**

**Public Mobile Operator Licences.**

1. Public mobile data systems licensed for use in the following frequency bands–

105–165 MHz

174–208 MHz

420–470 MHz

(for non-voice only operation)

2. Cellular radiotelephone systems licensed for use in the following services on the relevant frequency bands–

- a) digital cellular radiotelephones:

GSM/ terrestrial IMT/ UMTS/ LTE:	880-915 MHz (MTx) 1805-1880 MHz (MTx) 1920 -1980MHz (MTx) 2500-2570 MHz (MTx) 832-862 MHz (MTx)	ETSI
	925-960 MHz (BTx) 1710-1785 MHz (BTx) 2110 - 2170MHz (BTx) 2620-2690 MHz (BTx) 791-821 MHz (BTx)	ETSI

- b) digital cellular radiotelephones capable of transmitting in bands compliant to other regions

3. Public access mobile radio systems licensed for use in the following frequency bands–

174-208 MHz

410-430 MHz

## **Common Base Station Operator Licence.**

Common base station systems licensed for use in the following frequency bands–

81-87 MHz

162-167 MHz

440-449 MHz.

## **SCHEDULE 2**

### **CORDLESS TELEPHONE APPARATUS**

#### **PART I**

#### **INTERPRETATION**

In this Schedule-

"data message" means a non-voice message; and

"prescribed apparatus" means any station or apparatus described in Part III of this Schedule.

#### **PART II**

#### **ADDITIONAL TERMS, PROVISIONS AND LIMITATIONS**

The prescribed apparatus shall be subject to and must comply with the Common Technical Regulation referred to in Part IV of this Schedule, and in the absence of a Common Technical Regulation applying to such apparatus, the prescribed apparatus must-

- (a) be approved by the Authority for the purposes of this Notice; or
- (b) be approved to the ETSI standards referred to in Part IV of this Schedule as appropriate by a national administration following type testing at a test laboratory.

#### **PART III**

#### **DESCRIPTIONS OF THE PRESCRIBED APPARATUS**

#### **Digital European Cordless Telecommunications Apparatus (DECT, also known as Digital Enhanced Telecommunications Apparatus).**

4. Apparatus conforming, at the time it is manufactured, to the ETSI Technical Basis for Regulation TBR 006 and consisting of one or more base stations, repeater stations and portable stations designed or adapted-

- (a) to be used to send and receive voice or data messages or visual images either directly between a base station and a portable station or between a base station and a portable station by relay through a repeater station in digitised packets in time division duplex mode bi-directionally to be conveyed over an electronic communications network to which the base station is connected; and
- (b) so as to operate within the frequency band 1880-1900 MHz.

For the purposes of this paragraph, "repeater station" means a station which relays the voice or data message or visual image between the base station and one or more portable stations.

### **SCHEDULE 3**

#### **LAND MOBILE-SATELLITE SERVICE STATIONS**

##### **PART I**

##### **INTERPRETATION**

In this Schedule-

"Land Mobile-Satellite Service", "Land Earth Station" and "Land Mobile Earth Station" have the meanings given to them in the Radio Regulations;

"prescribed apparatus" means a Land Mobile Earth Station in a Land Mobile-Satellite Service described in Part III of this Schedule.

"ESV" means Earth Stations on board Vessels

"AES" means Aircraft Earth Stations

##### **PART II**

##### **ADDITIONAL TERMS, PROVISIONS AND LIMITATIONS**

The prescribed apparatus shall be subject to and must comply with the Common Technical Regulation referred to in Part IV of this Schedule, and in the absence of a Common Technical Regulation applying to such apparatus, the prescribed apparatus must-

- (a) be approved by the Authority for the purposes of this Notice; or
- (b) be approved to the ETSI standards referred to in Part IV of this Schedule as appropriate by a national administration following type testing at a test laboratory.

##### **PART III**

##### **DESCRIPTIONS OF THE PRESCRIBED APPARATUS**

###### **Inmarsat.**

Land Mobile Earth Stations in the Inmarsat Land Mobile-Satellite Service which are designed or adapted to-

- (a) send and receive messages by radiocommunications via that Service to or from any Land Earth Station in that Service; and
- (b) be capable of transmitting in the frequency bands 1626.5-1645.5 MHz and 1646.5-1660.5 MHz and receiving in the frequency bands 1525.0-1544.0 MHz or 1545.0-



1559.0 MHz and operating at a power level not exceeding the maximum specified in the table set out in Part IV of this Schedule.

**Eutelsat.**

Land Mobile Earth Stations in the Eutelsat Land Mobile-Satellite Service which are designed or adapted to-

- (a) send and receive messages by radiocommunications via that Service to or from any Land Earth Station in that Service; and
- (b) be capable of transmitting in the frequency band 14.00-14.25 GHz and receiving in the frequency bands 10.70-11.70 GHz or 12.50-12.75 GHz and operating at a power level not exceeding the maximum specified in the table set out in Part IV of this Schedule.

**Italsat.**

Land Mobile Earth Stations in the Italsat Land Mobile-Satellite Service which are designed or adapted to-

- (a) send and receive messages by radiocommunications via that Service to or from any Land Earth Station in that Service; and
- (b) be capable of transmitting in the frequency bands 1626.5-1645.5 MHz and 1646.5-1660.5 MHz and receiving in the frequency bands 1525.0-1544.0 MHz or 1545.0-1559.0 MHz and operating at a power level not exceeding the maximum specified in the table set out in Part IV of this Schedule.

**Globalstar.**

Land Mobile Earth Stations in the Globalstar Land Mobile-Satellite Service which are designed or adapted to-

- (a) send and receive messages by radiocommunications via that Service to or from any Land Earth Station in that Service;
- (b) be capable of transmitting and receiving in the frequency bands 1610.0-1621.35 MHz and 2483.5-2500.0 MHz and operating at a power level not exceeding -3 dBW/4 kHz mean power (eirp) density; and
- (c) operate in accordance with the requirements of ECTRA/ERC Decision (97) 05 and ERC Decision ERC/DEC (97) 03.

**ESV.**

Mobile Earth Stations on board vessels which are designed or adapted to-

- (a) send and receive messages by radiocommunications via that Service to or from any Earth Station in that Service; and

- (b) be capable of transmitting in the frequency bands 14.00 GHz-14.50 GHz and receiving in the frequency bands 10.70 GHz -11.70 GHz or 12.50 GHz -12.75 GHz and operating at a power level not exceeding the maximum specified in the table set out in Part IV of this Schedule.

**AES.**

Mobile Earth Stations on board aircraft which are designed or adapted to-

- (a) send and receive messages by radiocommunications via that Service to or from any Earth Station in that Service; and
- (b) be capable of transmitting in the frequency bands 14.00 GHz-14.50 GHz and receiving in the frequency bands 10.70 GHz -11.70 GHz or 12.50 GHz -12.75 GHz and operating at a power level not exceeding the maximum specified in the table set out in Part IV of this Schedule.

**PART IV**

**COMMON TECHNICAL REGULATIONS AND STANDARDS**

**Inmarsat.**

Type of Inmarsat station	Maximum power (eirp)	ETSI standard (unless otherwise stated)
A	+37 dBW	Technical Requirements for Inmarsat Standard - A Ship Earth Stations
		Ship Earth Station Technical Bulletin 26A
		Ship Earth Station Technical Bulletin 27B
B	+34 dBW (+1/-2 dB)	TBR 44
C	+16 dBW	TBR 26
D	+9 dBW	TBR 26
M	+28 dBW (+3/-3 dB)	TBR 44
Mini M (phone)	+2.7 dBW	TBR 44
M4	+26dBW	TBR 44

**Eutelsat**

Type of Eutelsat station	Maximum power (eirp)	ETSI standard
Euteltracs (Omnitracs)	19 dBW	TBR 27

**Italsat.**

Type of Italsat station	Maximum power (eirp)	ETSI standard
EMS-PRODAT	12 dBW	TBR 26 edition 1
EMS-MSSAT	11.5 dBW	TBR 44

**Iridium.**

CTR 41 – Commission Decision of 3rd September 1998 on a common technical regulation for Satellite Personal Communications Networks (S-PCN) Mobile Earth Stations (MESs), including hand held earth stations, for S-PCN operating in the 1.6/2.4 GHz frequency bands under the Mobile Satellite Service (MSS).

**Globalstar** CTR 41.

**ESV.**

Maximum power (eirp)	ETSI standard
50 dBW	EN 301 340

**AES.**

Maximum power (eirp)	ETSI standard
50 dBW	EN 301 186

## **SCHEDULE 4**

### **SHORT RANGE DEVICES**

#### **PART I**

#### **INTERPRETATION**

1. In this Schedule-

"direct sequence spread spectrum modulation" means a form of modulation where a combination of data to be transmitted and a known code sequence (or chip sequence) is used to directly modulate a carrier;

"Fo" means centre frequency;

"frequency hopping spread spectrum modulation" means a technique in which the transmitted signal occupies a number of frequencies in time, each for some period of time;

"non-manufactured apparatus" means apparatus made up from components, but which is not for retail resale;

"prescribed apparatus" means any station or apparatus described in Part III of this Schedule.

"radiated level" means the maximum level permitted, referenced to the erp, eirp or field strength as specified in Part III of this Schedule; and

"Telemetry", "Telecommand", "Television" and "Telephony" have the meanings given to them in the Radio Regulations.

2. Where the channel spacing or channel bandwidth is defined in this Schedule the centre frequency of the first channel is at a distance of half the channel spacing from the lower frequency band edge.

#### **PART II**

#### **ADDITIONAL TERMS, PROVISIONS AND LIMITATIONS**

The prescribed apparatus must –

(a) be approved by the Authority for the purposes of this Notice; or

(b) be approved to the ETSI standards referred to in Part III of this Schedule as appropriate by a national administration following type testing at a test laboratory, or otherwise complies with such standards in the case of non-manufactured apparatus used as model control apparatus or metal detectors referred to in Part III, Annex 7 & 8 below.

**PART III**

**DESCRIPTIONS OF THE PRESCRIBED APPARATUS**

## 1. NON-SPECIFIC SHORT RANGE DEVICES (1 General Purpose Short Range Devices)

Any radiocommunications apparatus, which is not described elsewhere in this Schedule and which is designed or adapted so as to be capable of use within the frequency band, and at a radiated level not exceeding the maximum for such frequency band, specified in the table below-

**Table 1: Regulatory parameters**

	<b>Frequency Band</b>	<b>Power / Magnetic Field</b>	<b>Spectrum access and mitigation requirements</b>	<b>Modulation / maximum occupied bandwidth</b>	<b>ECC/ERC Deliverable</b>	<b>Notes</b>
<b>a</b>	6765-6795 kHz	42 dB $\mu$ A/m at 10m	No requirement	Not specified		The frequency band is also identified in Annex 8
<b>b</b>	13553-13567 kHz	42 dB $\mu$ A/m at 10m	No requirement	Not specified		The frequency band is also identified in Annex 8
<b>c</b>	26957-27283 kHz	42 dB $\mu$ A/m at 10m; 10mW e.r.p	No requirement	Not specified		The frequency band is also identified in Annex 8
<b>c1.1</b>	26990-27000 kHz	100 mW e.r.p	$\leq 0.1$ % duty cycle (note 1)	$\leq 10$ kHz		The frequency band is also identified in Annex 7
<b>c1.2</b>	27040-27050 kHz	100 mW e.r.p	$\leq 0.1$ % duty cycle (note 1)	$\leq 10$ kHz		The frequency band is also identified in Annex 7
<b>c1.3</b>	27090-27100 kHz	100 mW e.r.p	$\leq 0.1$ % duty cycle (note 1)	$\leq 10$ kHz		The frequency band is also identified in Annex 7
<b>c1.4</b>	27140-27150 kHz	100 mW e.r.p	$\leq 0.1$ % duty cycle (note 1)	$\leq 10$ kHz		The frequency band is also identified in Annex 7
<b>c1.5</b>	27190-27200 kHz	100 mW e.r.p	$\leq 0.1$ % duty cycle (note 1)	$\leq 10$ kHz		The frequency band is also identified in Annex 7
<b>d</b>	40.66-40.7 MHz	10 mW e.r.p.	Not specified	Not specified		
<b>e</b>	138.2-138.45 MHz	$\leq 10$ mW e.r.p.	No requirement	Not specified		
<b>f1</b>	169.4-169.475 MHz	500 mW e.r.p.	$\leq 1.0$ % duty cycle (note 1)	$\leq 50$ kHz	ECC/DEC/(05)02	The frequency band is also identified in Annexes 2 and 9

<b>f2</b>	169.4-169.4875 MHz	10 mW e.r.p.	$\leq 0.1$ % duty cycle (note 1)	Not specified	ECC/DEC/(05)02	
<b>f3</b>	169.4875-169.5875 MHz	10 mW e.r.p. where the duty cycle limit is $\leq 0.1$ % duty cycle (note 1)	$\leq 0.001\%$ duty cycle except for 00:00 h to 06:00 h local time	Not specified	ECC/DEC/(05)02	Equipment that concentrates or multiplexes individual equipment is excluded. The frequency band is also identified in Annex 9
<b>f4</b>	169.5875-169.8125 MHz	10 mW e.r.p.	$\leq 0.1$ % duty cycle (note 1)	Not specified	ECC/DEC/(05)02	
<b>g1</b>	433.05-434.79 MHz	10 mW e.r.p.	$\leq 10$ % duty cycle (note 1)	Not specified		
<b>g2</b>	433.05-434.79 MHz	1 mW e.r.p. -13 dBm/10 kHz	No requirement except for (note 11)	Not specified		Power density limited to -13 dBm/10 kHz for wideband modulation with a bandwidth greater than 250 kHz
<b>g3</b>	434.04-434.79 MHz	10 mW e.r.p.	No requirement except for (note 11)	$\leq 25$ kHz		
<b>h1.1</b>	863-870 MHz	25 mW e.r.p.	$\leq 0.1\%$ duty cycle or LBT (notes 1 and 5)	$\leq 100$ kHz for 47 or more channels (note 2)		FHSS
<b>h1.2</b>	863-870 MHz	25 mW e.r.p. Power density: -4.5 dBm/100 kHz (note 7)	$\leq 0.1\%$ duty cycle or LBT+AFA (notes 1, 5 and 6)	Not specified		DSSS and other wideband techniques other than FHSS
<b>h1.3</b>	863-870 MHz	25 mW e.r.p.	$\leq 0.1\%$ duty cycle or LBT + AFA (notes 1 and 5)	$\leq 100$ kHz, for 1 or more channels modulation bandwidth $\leq 300$ kHz (note 2)		Narrow /wide-band modulation
<b>h1.4</b>	868-868.6 MHz	25 mW e.r.p.	$\leq 1\%$ duty cycle or LBT +AFA (note 1)	No spacing, for 1 or more channels (note 2)		Narrow / wide-band modulation. No channel spacing, however the whole stated frequency band may be used
<b>h1.5</b>	868.7-869.2 MHz	25 mW e.r.p.	$\leq 0.1\%$ duty cycle or LBT+AFA (note 1)	No spacing, for 1 or more channels (note 2)		Narrow / wide-band modulation. No channel spacing, however the whole stated frequency band may be used

<b>h1.6</b>	869.4-869.65 MHz	500 mW e.r.p.	≤ 10% duty cycle or LBT+AFA (note 1)	No spacing, for 1 or more channels		Narrow / wide-band modulation The whole stated frequency band may be used as 1 channel for high speed data transmission
<b>h1.7</b>	869.7-870 MHz	5 mW e.r.p.; 25 mW e.r.p.	No requirement for 5 mW e.r.p., ≤ 1% duty cycle or LBT+AFA (note 1) for 25 mW e.r.p.	No spacing for 1 or more channels		Narrow / wide-band modulation. No channel spacing, however the whole stated frequency band may be used
<b>h2</b>	870-876 MHz	25 mW e.r.p.	≤ 0.1% duty cycle. For ER-GSM protection (873-876 MHz, where applicable), the duty cycle is limited to ≤ 0.01% and limited to a maximum transmit ontime of 5ms/1s	≤ 200 kHz		This frequency band is also identified in Annexes 2 and 4
<b>h2.1</b>	870-875.8 MHz	25 mW e.r.p.	≤ 1% duty cycle. For ER-GSM protection (873.0-875.8 MHz, where applicable), the duty cycle is limited to ≤ 0.01% and limited to a maximum transmit on time of 5ms/1s	≤ 600 kHz		The frequency band is also identified in Annexes 2 and 4
<b>i</b>	2400-2483.5 MHz	10 mW e.i.r.p.	No requirement	Not specified		The frequency band is also identified in Annexes 3 and 5
<b>j</b>	5725-5875 MHz	25 mW e.i.r.p.	No requirement	Not specified		
<b>k1</b>	3100-4800 MHz	*	*	*	ECC/DEC/(06)04	Generic UWB regulation * See detailed requirements in the related ECC Decision. Restriction may apply
<b>k2</b>	6000-9000 MHz	*	*	*	ECC/DEC/(06)04	Generic UWB regulation * See detailed requirements in the related ECC Decision. Restriction may apply



<b>l</b>	6000-8500 MHz	*	*	*	ECC/DEC/(12)03	Generic UWB regulation * See detailed requirements in the related ECC Decision. Restriction may apply
<b>m</b>	24-24.25 GHz	100 mW e.i.r.p.	No requirement	Not specified		The frequency band is also identified in Annex 5
<b>n1</b>	57-64 GHz	100 mW e.i.r.p., a max. transmitter output power of 10 mW, and a power density limited to 13 dBm/MHz e.i.r.p. applies	No requirement	Not specified		
<b>n2</b>	61-61.5 GHz	100 mW e.i.r.p.	No requirement	Not specified		
<b>o1</b>	122-122.25 GHz	10 dBm e.i.r.p./250 MHz and -48 dBm/MHz at >30° elevation	Note 8	Not specified		
<b>o2</b>	122.25-123 GHz	100 mW e.i.r.p.	No requirement	Not specified		
<b>p</b>	244-246 GHz	100 mW e.i.r.p.	No requirement	Not specified		

Note 1: Audio and video applications are excluded. Voice applications (analogue or digital) are allowed with a maximum bandwidth of  $\leq 25$  kHz, and with spectrum access technique such as LBT or equivalent and shall include a power output sensor controlling the transmitter to a maximum transmit period of 1 minute for each transmission.

Note 1: When either duty cycle, Listen Before Talk (LBT) or equivalent technique applies then it shall not be user dependent/adjustable and shall be guaranteed by appropriate technical means. For LBT devices without Adaptive Frequency Agility (AFA), or equivalent techniques, the duty cycle limit applies. For any type of frequency agile device the duty cycle limit applies to the total transmission unless LBT or equivalent technique is used.

Note 2: The preferred channel spacing is 100 kHz allowing for a subdivision into 50 kHz or 25 kHz.

Note 3: Sub-bands for alarms are excluded (see ERC/REC 70-03 Annex 7).

Note 4: Audio and video applications are allowed provided that a digital modulation method is used with a max. bandwidth of 300 kHz. Analogue and digital voice applications are allowed with a max. bandwidth = 25 kHz. In sub-band 863-865 MHz voice and audio conditions of Annexes 10 and 13 of ERC/REC 70-03 apply respectively.

Note 5: Duty cycle may be increased to 1% if the band is limited to 865-868 MHz.

Note 6: For wide-band techniques, other than FHSS, operating with a bandwidth of 200 kHz to 3 MHz, the duty cycle can be increased to 1% if the band is limited to 865-868 MHz and power to =10 mW e.r.p.

Note 7: The power density can be increased to +6.2 dBm/100 kHz and -0.8 dBm/100 kHz, if the band of operation is limited to 865-868 MHz and 865-870 MHz respectively.

Note 8: These limits should be measured with an rms detector and an averaging time of 1 ms or less.

Note 9: The available channel centre frequencies are 916.3 MHz, 917.5 MHz, 918.7 MHz and 919.9 MHz. The channel bandwidth is 400 kHz.

Note 10: RFID tag emissions responding to RFID interrogators operating on centre frequencies 916.3 MHz, 917.5 MHz, 918.7 MHz and 919.9 MHz are not duty cycle limited.

Note 11: Audio and video applications are excluded. Voice applications (analogue or digital) are allowed with a maximum bandwidth of  $\leq 25$  kHz, and with spectrum access technique such as LBT or equivalent and shall include a power output sensor controlling the transmitter to a maximum transmit period of 1 minute for each transmission.

## **Additional Information**

### **Harmonised Standards**

EN 300 220 sub-bands c) to h3.1)

EN 300 330 sub-bands a) to c)

EN 300 440 sub-bands i) j) and m)

EN 305 550 sub-bands n1), n2), o1), o2)

and p) EN 302 065 sub-bands k1) and K2)

### **Technical parameters also referred to in the harmonised standard**

Listen before talk (LBT) with Adaptive Frequency Agility (AFA) technique feature may be used instead of duty cycle. LBT is defined in EN 300 220.

Audio and voice are defined in EN 300 220.

### **Frequency issues**

The bands in Annex 1 a), b), c), c1.1) to c1.5), d), g1), g2), g3), i), j), m), n1), n2), o1), o2), p) are also designated for industrial, scientific and medical (ISM) applications as defined in ITU Radio Regulations.

Band h1.1) to h1.3):

Certain channels may be occupied by RFID operating at higher powers (See Annex 11 for further details). To minimise the risk of interference from RFID, SRDs should use LBT with AFA or observe suitable separation distances. (In the high power RFID channels typically these may vary from 918 m (indoor) to 3.6 km (rural outdoor). In the remaining 2.2 MHz, where tags at 20 dBm e.r.p. occupy the spectrum, this may vary from 24 m (indoor) to 58 m (rural outdoor)).

The adjacent frequency bands below 862 MHz and above 870 MHz may be used by high power systems. Manufacturers should take this into account in the design of equipment and choice of power levels.

## 2. TRACKING, TRACING AND DATA AQUISITION (Telemetry and Telecommand: General.)

This paragraph covers frequency bands and regulatory as well as informative parameters recommended for a number of specific devices including: Emergency detection of buried victims and valuable items such as detecting avalanche victims;

Meter Reading;

Sensors (water, gas and electricity; meteorological instruments; pollution measurement; environmental data, such as levels of allergens (pollen, dust), electromagnetic pollution (solar activity), noise) and actuators (controlling devices such as street or traffic lights);

Medical Body Area Network Systems (MBANS), used for medical data acquisition, are intended to be used in healthcare facilities and patients' homes. They are low power area network systems used for the transmission of non-voice data to and from medical devices for the purposes of monitoring, diagnosing and treating patients as prescribed by duly authorised healthcare professionals and are defined in the context of medical applications only;

Wireless Industrial Applications (WIA) to be used for wireless links in industrial environments including monitoring and worker communications, wireless sensors and actuators.

Radiocommunications apparatus designed or adapted for – Tracking, tracing and data acquisition, so as to be capable of use on one or more of the frequencies or within one of the frequency bands, and at a radiated level not exceeding the maximum for such frequencies or frequency bands, for each category of apparatus, specified in the table below. -

**Table 2: Regulatory parameters**

	<b>Frequency Band</b>	<b>Power / Magnetic Field</b>	<b>Spectrum access and mitigation requirements</b>	<b>Modulation / maximum occupied bandwidth</b>	<b>ECC/ERC Deliverable</b>	<b>Notes</b>
<b>a</b>	456.9-457.1 kHz	7 dBµA/m at 10 m	No requirement	Continuous wave (CW) - no modulation		Emergency detection of buried victims and valuable items. Note: Centre frequency is 457 kHz
<b>b</b>	169.4-169.475 MHz	500 mW e.r.p.	≤ 10% duty cycle	≤ 50 kHz	ECC/DEC/(05)02	Meter Reading. The frequency band is also identified in Table 1

<b>c</b>	870-875.6 MHz	500 mW e.r.p.	≤ 2.5% duty cycle and APC required (note 1). For ER-GSM protection (873-875.6 MHz, where applicable), the duty cycle is limited to ≤ 0.01% and limited to a maximum transmit on time of 5ms/1s (note 2)	≤ 200 kHz		Individual license may be required for Metropolitan/Rural Area Networks. Adaptive Power Control (APC) required. The APC Control is able to reduce a link's transmit power from its maximum to ≤ 5 mW. The frequency band is also identified in Tables 1 and 5
<b>d1</b>	2483.5-2500 MHz	1 mW e.i.r.p.	Adequate spectrum sharing mechanisms (e.g. Listen-BeforeTalk and Adaptive Frequency Agility) shall be implemented by the equipment and ≤ 10% duty cycle	≤ 3 MHz		The frequency band is also identified in Annex 12. The application is for MBANS, indoor only within healthcare facilities
<b>d2</b>	2483.5-2500 MHz	10 mW e.i.r.p.	Adequate spectrum sharing mechanisms (e.g. Listen-BeforeTalk and Adaptive Frequency Agility) shall be implemented by the equipment and ≤ 2% duty cycle	≤ 3 MHz		The frequency band is also identified in Table 12. The application is for MBANS, indoor only within the patient's home
<b>e</b>	5725-5875 MHz	≤ 400 mW e.i.r.p.	APC required Adequate spectrum sharing mechanisms (e.g. DFS and DAA) shall be implemented (note 3)	≥ 1 MHz and ≤ 20 MHz		Wireless Industrial Applications (WIA). Registration and/or notification may be required. The Adaptive Power Control is able to reduce the e.i.r.p. to ≤ 25 mW. The frequency band is also identified in Table 1

Note 1: DFS is required in the frequency range 5725-5850 MHz to ensure an appropriate protection to the radiolocation service (including frequency hopping radars), DAA is required in the frequency range 5855-5875 MHz for the protection of ITS, in the frequency range 5725-5875 MHz for the protection of BFWA, and in the frequency range 5795-5815 MHz for the protection of TTT applications.

## **Additional Information**

### **Harmonised Standards**

EN 300 718 sub-band a)

EN 300 220 sub-band b)

EN 303 204 sub-band c)

EN 303 203 sub-bands d1) and d2)

EN 303 258 sub-band e) for WIA systems is under development

### **Technical parameters also referred to in the**

**harmonised standard** No information

### **Frequency issues**

Sub-bands d1) and d2):

MBANS equipment shall implement a spectrum access mechanism as described in the applicable harmonised European standard EN 303 203 or an equivalent spectrum access mechanism. Based on the assumptions used in ECC Report 201, the modulation bandwidth for MBANS shall not exceed 3 MHz.

Sub-band c):

Use of all or part of sub-band d may be denied in some European countries that use all or part of these sub-bands for defence/governmental systems. In other countries that use sub-band 873-876 MHz for GSM for railways, extended band (ER-GSM), access to the part 873-876 MHz by non-specific SRD applications require implementing additional mitigation measures such as transmission timing limitations as set out in ECC Report 200. See Appendix 3 for national implementation concerning ER-GSM and defence/governmental services.

### 3. WIDEBAND DATA TRANSMISSION SYSTEMS

#### Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for Wideband Data Transmission Systems and Wireless Access Systems including Radio Local Area Networks (WAS/RLANs) within the bands 2400-2483.5 MHz, 5150-5350 MHz, 5470-5725 MHz and for Multiple-Gigabit WAS/RLAN Systems within the band 57-66 GHz.

**Table 3: Regulatory parameters**

	<b>Frequency Band</b>	<b>Power / Magnetic Field</b>	<b>Spectrum access and mitigation requirements</b>	<b>Modulation / maximum occupied bandwidth</b>	<b>ECC/ERC Deliverable</b>	<b>Notes</b>
<b>a</b>	2400-2483.5 MHz	100 mW e.i.r.p.	Adequate spectrum sharing mechanism (e.g. Listen-before-Talk, Detect-And-Avoid) shall be implemented by the equipment	Not specified		For wide band modulations other than FHSS, the maximum e.i.r.p. density is limited to 10 mW/MHz
<b>b</b>	5150-5350 MHz	200 mW eirp (with TPC ) 0.25mW/25kHz  100 mW eirp ( no TPC) 10 mW/MHz				Non-commercial Indoor systems only with Dynamic Frequency Selection (DFS) and Transmitter Power Control (TPC)
<b>c</b>	5470-5725 MHz	1W eirp / 50 mW/MHz				Non-commercial Outdoor & Indoor systems with DFS and TPC.
<b>d</b>	57-66 GHz	40 dBm mean e.i.r.p. This refers to the highest power level of the transmitter power control range during the transmission burst if transmitter power control is implemented	Adequate spectrum sharing mechanism (e.g. Listen-before-Talk, Detect-And-Avoid) shall be implemented by the equipment	Not specified		Fixed outdoor installations are not allowed. The maximum mean e.i.r.p density is limited to 13 dBm/MHz. Point-to-point links of the Fixed Service are regulated by ECC/REC/(05)02 and ECC/REC/(09)01

**Additional Information****Harmonised Standards**

EN 300 328 sub-band a)

EN 302 567 sub-band b)

Technical parameters also referred to in the harmonised standard No information

**Frequency issues**

No information

#### 4. TRANSPORT AND TRAFFIC TELEMATICS (TTT)

##### Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for radio systems used in the field of transport and traffic telematics (road, rail and water depending on the relevant technical restrictions), traffic management, navigation and mobility management. Typical applications are used for interfaces between different modes of transport, communication between vehicles (e.g. car-to-car), between vehicles and fixed locations (e.g. car-to-infrastructure), communication from and to users as well as radar system installations. Automotive radar is defined as a moving radar device supporting functions of the vehicle. Entry f2) is limited to obstacle detection radars for rotorcraft use.

**Table 4: Regulatory parameters**

	<b>Frequency Band</b>	<b>Power / Magnetic Field</b>	<b>Spectrum access and mitigation requirements</b>	<b>Modulation / maximum occupied bandwidth</b>	<b>ECC/ERC Deliverable</b>	<b>Notes</b>
<b>a</b>	870-875.8 MHz	500 mW e.r.p. / 100 mW e.r.p.	≤ 0.1% duty cycle. For ER-GSM protection (873-875.8MHz, where applicable), the duty cycle is limited to ≤ 0.01% and limited to a maximum transmit ontime of 5ms/1s	≤ 500 kHz		500 mW restricted to vehicle-to-vehicle applications. 100 mW is restricted to in-vehicle applications. Adaptive Power Control (APC) is required. The APC is able to reduce a link's transmit power from its maximum to ≤ 5 mW. The frequency band is also identified in Annexes 1 and 2
<b>b1</b>	5795-5805 MHz	2 W e.i.r.p. / 8 W e.i.r.p.	No requirement			Individual license may be required for the higher power of 8 W systems
<b>b2</b>	5805-5815 MHz	2 W e.i.r.p. / 8 W e.i.r.p.	No requirement			Individual license may be required
<b>c1</b>	21.65-26.65 GHz	*	*	*	ECC/DEC/(04)10	For automotive Short Range Radars (SRR). * See detailed requirements in related ECC Decision. New SRR equipment shall not be placed onto the market as of 1 July 2013
<b>c2</b>	24.25-26.65 GHz	*	*	*	ECC/DEC/(04)10	For automotive Short Range Radars (SRR). See detailed requirements in related ECC Decision. SRR equipment may only be placed onto the market until 1 January 2018. This date is extended by 4 years for SRR equipment mounted on motor vehicles for which vehicle conformity



						compliance has been granted before 1 January 2018
<b>d1</b>	24.05-24.075 GHz	100 mW e.i.r.p.	No requirement			For automotive radars
<b>d2</b>	24.075-24.15 GHz	0.1 mW e.i.r.p.	No requirement			For automotive radars
<b>d3</b>	24.075-24.15 GHz	100 mW e.i.r.p.	4µs/40 kHz dwell time every 3ms			For automotive radars (road vehicles only). The spectrum access and mitigation requirement is given for devices mounted behind a bumper. If mounted without a bumper, the requirement should be 3µs/40kHz maximum dwell time every 3ms. A requirement for minimum frequency modulation range (applicable to FMCW or step frequency signals) or minimum instantaneous bandwidth (applicable to pulsed signal) of 250 kHz applies in addition to the requirement on maximum dwell time
<b>d4</b>	24.075-24.15 GHz	100 mW e.i.r.p.	1ms/40 kHz dwell time every 40ms			For automotive radars (road vehicles only). The spectrum access and mitigation requirement is given for devices mounted either behind a bumper or mounted without a bumper. A requirement for minimum frequency modulation range (applicable to FMCW or step frequency signals) or minimum instantaneous bandwidth (applicable to pulsed signal) of 250 kHz applies in addition to the requirement on maximum dwell time
<b>d5</b>	24.15-24.25 GHz	100 mW e.i.r.p.	No requirement			For automotive radars (road vehicles only)
<b>e1</b>	24.25-24.495 GHz	-11 dBm e.i.r.p.	≤ 0.25%/s/25 MHz duty cycle			For automotive radars. The activity of the Wideband Low Activity Mode (WLAM) is limited to avoid the risk of interference and this mode is only activated in specific configurations as a

						complementary to designation d1 to d5 as described in ECC Report 164
<b>e2</b>	24.25-24.5 GHz	+20 dBm e.i.r.p. / +16 dBm e.i.r.p.	5.6%/s/25 MHz duty cycle / 2.3%/s/25 MHz duty cycle			For automotive radars. The activity of the Wideband Low Activity Mode (WLAM) is limited to avoid the risk of interference and this mode is only activated in specific configurations as a complementary to designation d1 to d5 as described in ECC Report 164
<b>e3</b>	24.495-24.5 GHz	-8 dBm e.i.r.p.	1.5%/s/5 MHz duty cycle			For automotive radars. The activity of the Wideband Low Activity Mode (WLAM) is limited to avoid the risk of interference and this mode is only activated in specific configurations as a complementary to designation d1 to d5 as described in ECC Report 164
<b>f1</b>	76-77 GHz	55 dBm peak e.i.r.p.	No requirement	Not specified		50 dBm average power or 23.5 dBm average power for pulse radar only. For ground based vehicle and infrastructure systems only. The frequency band is also included in Annex 4
<b>f2</b>	76-77 GHz	*	*	*	ECC/DEC/(16)01	For obstacle detection radars for rotorcraft use. Use is not possible in specific areas of some European countries due to exclusion zones implementation around RAS observatories * See detailed requirements in related ECC Decision
<b>g</b>	77-81 GHz	*	*	*	ECC/DEC/(04)03	For automotive Short Range Radars (SRR). * See detailed requirements in related ECC Decision

## **Additional Information**

### **Harmonised Standards**

EN 300 220 sub-bands a)

EN 300 674 sub-bands b1), b2)

EN 301 091 sub-band f1)

EN 302 288 sub-bands c1), c2)

EN 302 264 sub-band g)

EN 302 858 sub-bands d1) to d5) and e1) to e3)

European Standard ETSI EN 303 360 for sub-band f2) (under development)

**Technical parameters also referred to in the harmonised standard** No information

### **Frequency issues**

Sub-bands d1) to d5) as well as c1), c2):

Note that the regulation in the bands d1) to d5) for the band 24.05-24.25 GHz for automotive radars is without any plans for a time limit within CEPT (see document ECC(15)058). Only the bands c1 and c2 for Short Range Radar (SRR) are time limited.

## 5. RADIODETERMINATION APPLICATIONS

### Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for SRD radiodetermination applications including Equipment for Detecting Movement and Alert. Radiodetermination is defined as the determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to these parameters, by means of the propagation properties of radio waves.

Radiodetermination equipment typically conducts measurements to obtain such characteristics. Any kind of point-to-point or point-to-multipoint radio communications is outside of this definition.

**Table 5: Regulatory parameters**

	<b>Frequency Band</b>	<b>Power / Magnetic Field</b>	<b>Spectrum access and mitigation requirements</b>	<b>Modulation / maximum occupied bandwidth</b>	<b>ECC/ERC Deliverable</b>	<b>Notes</b>
<b>a</b>	30 MHz-12.4 GHz	*	*	*	ECC/DEC/(06)08	For Ground- and Wall- Probing Radar (GPR/WPR) imaging systems, subject to an appropriate licensing regime. * See detailed requirements in related ECC Decision
<b>b</b>	2200-8000 MHz	*	*	*	ECC/DEC/(07)01	For Material Sensing Devices. * See detailed requirements in related ECC Decision
<b>c</b>	2400-2483.5 MHz	25 mW e.i.r.p.	No requirement	Not specified	ERC/DEC/(01)08	
<b>d</b>	3100-4800 MHz	*	*	*	ECC/REC/(11)10	For UWB Location tracking application for emergency and disaster situations (LAES), subject to an appropriate licensing regime. * See detailed requirements in related ECC Recommendation
<b>e</b>	3100-4800 MHz	*	*	*	ECC/REC/(11)09	For UWB Location Tracking Systems Type 2 (LT2), subject to an appropriate licensing regime. * See detailed requirements in related ECC Recommendation

<b>f1</b>	4500-7000 MHz	-41.3 dBm/MHz e.i.r.p. outside the enclosed test tank structure	No requirement	Not specified		For Tank Level Probing Radar (TLPR)
<b>f2</b>	8500 MHz-10.6 GHz	-41.3 dBm/MHz e.i.r.p. outside the enclosed test tank structure	No requirement	Not specified		For Tank Level Probing Radar (TLPR). The radiated unwanted emissions within the frequency band 10.6-10.7 GHz outside the test tank enclosure shall be less than -60 dBm/MHz e.i.r.p.
<b>f3</b>	24.05-27 GHz	-41.3 dBm/MHz e.i.r.p. outside the enclosed test tank structure	No requirement	Not specified		For Tank Level Probing Radar (TLPR)
<b>f4</b>	57-64 GHz	-41.3 dBm/MHz e.i.r.p. outside the enclosed test tank structure	No requirement	Not specified		For Tank Level Probing Radar (TLPR)
<b>f5</b>	75-85 GHz	-41.3 dBm/MHz e.i.r.p. outside the enclosed test tank structure	No requirement	Not specified		For Tank Level Probing Radar (TLPR)
<b>g1</b>	6000-8500 MHz	*	*	Not specified	ECC/DEC/(11)02	For Industrial Level Probing Radar (LPR). *See detailed requirements in related ECC Decision
<b>g2</b>	24.05-26.5 GHz	*	*	Not specified	ECC/DEC/(11)02	For Industrial Level Probing Radar (LPR). *See detailed requirements in related ECC Decision
<b>g3</b>	57-64 GHz	*	*	Not specified	ECC/DEC/(11)02	For Industrial Level Probing Radar (LPR). *See detailed requirements in related ECC Decision
<b>g4</b>	75-85 GHz	*	*	Not specified	ECC/DEC/(11)02	For Industrial Level Probing Radar (LPR). *See detailed requirements in related ECC Decision
<b>h</b>	9200-9500 MHz	25 mW e.i.r.p.	No requirement	Not specified		
<b>i</b>	9500-9975 MHz	25 mW e.i.r.p.	No requirement	Not specified		
<b>j</b>	10.5-10.6 GHz	500 mW e.i.r.p.	No requirement	Not specified		

<b>k</b>	13.4-14 GHz	25 mW e.i.r.p.	No requirement	Not specified		
<b>l</b>	17.1-17.3 GHz	26 dBm e.i.r.p.	DAA	Not specified		For Ground Based Synthetic Aperture Radar (GBSAR). Specific requirements for the radar antenna pattern and for the implementation of Detect And Avoid (DAA) technique apply as described in EN 300 440
<b>m</b>	24.05-24.25 GHz	100 mW e.i.r.p.	No requirement	Not specified		The frequency band 24.0-24.25 GHz is identified with the same emission parameters in Annex 1 band m

### Additional Information

#### Harmonised Standards

EN 300 440 sub-bands c), h), i), j), k), l), m)  
EN 302 372 sub-bands f1), f2), f3), f4), f5)  
EN 302 729 sub-bands g1), g2), g3), g4)  
EN 302 066 sub-band a)  
EN 302 435 sub-band b)  
EN 302 065 sub-bands d), e)

#### Technical parameters also referred to in the harmonised standard

#### Frequency issues

No information

## 6. ALARMS

### Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended exclusively for alarm systems including social alarms and alarms for security and safety.

The sub-bands below are intended for the following applications:

Alarms in sub-bands a), c), d), e); Social Alarms sub-band b).

**Table 6: Regulatory parameters**

	<b>Frequency Band</b>	<b>Power / Magnetic Field</b>	<b>Spectrum access and mitigation requirements</b>	<b>Modulation / maximum occupied bandwidth</b>	<b>ECC/ERC Deliverable</b>	<b>Notes</b>
<b>a</b>	868.6-868.7 MHz	10 mW e.r.p.	≤ 1.0 % duty cycle	25 kHz		The whole frequency band may also be used as 1 channel for high speed data transmissions
<b>b</b>	869.2-869.25 MHz	10 mW e.r.p.	≤ 0.1 % duty cycle	25 kHz		Social Alarms
<b>c</b>	869.25-869.3 MHz	10 mW e.r.p.	≤ 0.1 % duty cycle	25 kHz		
<b>d</b>	869.3-869.4 MHz	10 mW e.r.p.	≤ 1.0 % duty cycle	25 kHz		
<b>e</b>	869.65-869.7 MHz	25 mW e.r.p.	≤ 10 % duty cycle	25 kHz		

### Additional Information

#### Harmonised Standards

EN 300 220 all sub-bands

#### Technical parameters also referred to in the harmonised standard

No information

#### Frequency issues

No information

## 7. MODEL CONTROL

### Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for the application of model control equipment, which is solely for the purpose of controlling the movement of the model, in the air, on land or over or under the water surface. Although the bands are not harmonised, the parameters given in the table are common in a majority of CEPT countries. It should be noted that the bands are not exclusive for this type of application.

**Table 7: Regulatory parameters**

	<b>Frequency Band</b>	<b>Power / Magnetic Field</b>	<b>Spectrum access and mitigation requirements</b>	<b>Modulation / maximum occupied bandwidth</b>	<b>ECC/ERC Deliverable</b>	<b>Notes</b>
<b>a1</b>	26990-27000 kHz	100 mW e.r.p	No requirement	10 kHz		
<b>a2</b>	27040-27050 kHz	100 mW e.r.p	No requirement	10 kHz		
<b>a3</b>	27090-27100 kHz	100 mW e.r.p	No requirement	10 kHz		
<b>a4</b>	27140-27150 kHz	100 mW e.r.p	No requirement	10 kHz		
<b>a5</b>	27190-27200 kHz	100 mW e.r.p	No requirement	10 kHz		
<b>b</b>	34.995-35.225 MHz	100 mW e.r.p	No requirement	10 kHz	ERC/DEC/(01)11	Only for flying models
<b>c1</b>	40.66-40.67 MHz	100 mW e.r.p	No requirement	10 kHz	ERC/DEC/(01)12	
<b>c2</b>	40.67-40.68 MHz	100 mW e.r.p	No requirement	10 kHz	ERC/DEC/(01)12	
<b>c3</b>	40.68-40.69 MHz	100 mW e.r.p	No requirement	10 kHz	ERC/DEC/(01)12	
<b>c4</b>	40.69-40.7 MHz	100 mW e.r.p	No requirement	10 kHz	ERC/DEC/(01)12	

### Additional Information

#### Harmonised Standards

EN 300 220 all sub-bands

#### Technical parameters also referred to in the harmonised standard

No information

#### Frequency issues

No information



## 8. INDUCTIVE APPLICATIONS

### Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for inductive applications including for example car immobilisers, radio frequency identification (RFID) applications including for example automatic article identification, asset tracking, alarm systems, waste management, personal identification, access control, proximity sensors, anti-theft systems, location systems, data transfer to handheld devices (e.g. NFC) and wireless control systems, animal identification, cable detection, wireless voice links, automatic road tolling and anti-theft systems including RF anti-theft induction systems (e.g. EAS). It should be noted that other types of anti-theft systems can be operated in accordance with other relevant annexes.

**Table 8: Regulatory parameters**

	<b>Frequency Band</b>	<b>Power / Magnetic Field</b>	<b>Spectrum access and mitigation requirements</b>	<b>Modulation / maximum occupied bandwidth</b>	<b>ECC/ERC Deliverable</b>	<b>Notes</b>
<b>a1</b>	9-90 kHz	72 dB $\mu$ A/m at 10m (note 1)	No requirement	Not specified		In case of external antennas only loop coil antennas may be employed. Field strength level descending 3 dB/oct at 30 kHz
<b>a2</b>	90-119 kHz	42 dB $\mu$ A/m at 10m	No requirement	Not specified		In case of external antennas only loop coil antennas may be employed
<b>a3</b>	119-135 kHz	66 dB $\mu$ A/m at 10m (note 1)	No requirement	Not specified		In case of external antennas only loop coil antennas may be employed. Field strength level descending 3 dB/oct at 119 kHz
<b>b</b>	135-140 kHz	42 dB $\mu$ A/m at 10m	No requirement	Not specified		In case of external antennas only loop coil antennas may be employed
<b>c</b>	140-148.5 kHz	37.7 dB $\mu$ A/m at 10m	No requirement	Not specified		In case of external antennas only loop coil antennas may be employed
<b>d</b>	400-600 kHz	-8 dB $\mu$ A/m at 10 m	No requirement	Not specified		For RFID only. In case of external antennas only loop coil antennas may be employed. The maximum field strength is specified in a bandwidth of 10 kHz. The maximum allowed total field strength is -5dB $\mu$ A/m at 10 m for systems operating at bandwidths larger than 10 kHz measured at the centre frequency whilst keeping the density limit (-8dB $\mu$ A/m in a bandwidth of 10 kHz.) These systems should operate with a minimum operating bandwidth of 30 kHz

<b>e</b>	3155-3400 kHz	13.5 dB $\mu$ A/m at 10m	No requirement	Not specified		In case of external antennas only loop coil antennas may be employed
<b>f</b>	6765-6795 kHz	42 dB $\mu$ A/m at 10m	No requirement	Not specified		The frequency band is also identified in Annex 1
<b>g</b>	7400-8800 kHz	9 dB $\mu$ A/m at 10m	No requirement	Not specified		
<b>h</b>	10200-11000 kHz	9 dB $\mu$ A/m at 10m	No requirement	Not specified		
<b>i</b>	26957-27283 kHz	42 dB $\mu$ A/m at 10m	No requirement	Not specified		The frequency band is also identified in Annex 1
<b>j</b>	13553-13567 kHz	42 dB $\mu$ A/m at 10m	No requirement	Not specified		
<b>j1.1</b>	11810-12660 kHz	-16 dB $\mu$ A/m at 10m	No requirement	Not specified		For RFID only, Only in connection with band j
<b>j1.2</b>	12660-13110 kHz	-10 dB $\mu$ A/m at 10m	No requirement	Not specified		For RFID only, Only in connection with band j
<b>j1.3</b>	13110-13410 kHz	-3.5 dB $\mu$ A/m at 10m	No requirement	Not specified		For RFID only, Only in connection with band j
<b>j1.4</b>	13410-13553 kHz	9 dB $\mu$ A/m at 10m	No requirement	Not specified		For RFID only, Only in connection with band j
<b>j1.5</b>	13567-13710 kHz	9 dB $\mu$ A/m at 10m	No requirement	Not specified		For RFID only, Only in connection with band j
<b>j1.6</b>	13710-14010 kHz	-3.5 dB $\mu$ A/m at 10m	No requirement	Not specified		For RFID only, Only in connection with band j

<b>j1.7</b>	14010-14460 kHz	-10 dB $\mu$ A/m at 10m	No requirement	Not specified		For RFID only, Only in connection with band j
<b>j1.8</b>	14460-15310 kHz	-16 dB $\mu$ A/m at 10m	No requirement	Not specified		For RFID only, Only in connection with band j
<b>j2</b>	13553-13567 kHz	60 dB $\mu$ A/m at 10m	No requirement	Not specified		For RFID and EAS only
<b>j3.1</b>	12660-13110 kHz	-5 dB $\mu$ A/m at 10m	No requirement	Not specified		For RFID only, Only in connection with band j2
<b>j3.2</b>	13110-13360 kHz	-3.5 dB $\mu$ A/m at 10m	No requirement	Not specified		For RFID only, Only in connection with band j2
<b>j3.3</b>	13360-13460 kHz	Linear transition from 27 to -3.5 dB $\mu$ A/m at 10m	No requirement	Not specified		For RFID only, Only in connection with band j2
<b>j3.4</b>	13460-13553 kHz	27 dB $\mu$ A/m at 10m	No requirement	Not specified		For RFID only, Only in connection with band j2
<b>j3.5</b>	13567-13660 kHz	27 dB $\mu$ A/m at 10m	No requirement	Not specified		For RFID only, Only in connection with band j2
<b>j3.6</b>	13660-13760 kHz	Linear transition from 27 to -3.5 dB $\mu$ A/m at 10m	No requirement	Not specified		For RFID only, Only in connection with band j2
<b>j3.7</b>	13760-14010 kHz	-3.5 dB $\mu$ A/m at 10m	No requirement	Not specified		For RFID only, Only in connection with band j2
<b>j3.8</b>	14010-14460 kHz	-5 dB $\mu$ A/m at 10m	No requirement	Not specified		For RFID only, Only in connection with band j2

<b>k1</b>	148.5-5000 kHz	-15 dB $\mu$ A/m at 10 m	No requirement	Not specified		In case of external antennas only loop coil antennas may be employed. The maximum field strength is specified in a bandwidth of 10 kHz. The maximum allowed total field strength is -5 dB $\mu$ A/m at 10 m for systems operating at bandwidths larger than 10 kHz whilst keeping the density limit (-15 dB $\mu$ A/m in a bandwidth of 10 kHz)
<b>k2</b>	5000 kHz-30 MHz	-20 dB $\mu$ A/m at 10 m	No requirement	Not specified		In case of external antennas only loop coil antennas may be employed. The maximum field strength is specified in a bandwidth of 10 kHz. The maximum allowed total field strength is -5 dB $\mu$ A/m at 10 m for systems operating at bandwidths larger than 10 kHz whilst keeping the density limit (-20 dB $\mu$ A/m in a bandwidth of 10 kHz)

**Table 8bis: Standard frequency and time signals to be protected within 9-90 kHz and 119-135 kHz**

Stations	Frequency	Protection bandwidth	Maximum field strength at 10 m	Location
MSF	60 kHz	+/-250Hz	42 dB $\mu$ A/m	United Kingdom

Note 1: The limit is reduced to 42 dB $\mu$ A/m at 10 m according to Table 9bis.

**Additional Information**

**Harmonised Standards**

EN 300 330 all sub-bands

**Technical parameters also referred to in the harmonised standard** Sub-band a3):

RFIDs operating in the frequency sub-band 119-135 kHz shall meet the spectrum mask given in EN 300 330. This will permit a simultaneous use of the various sub-bands within the range 90-148.5 kHz.

Sub-bands j), j2):

RFIDs operating in the frequency band 13.56 MHz shall meet the spectrum masks given in the EN 300 330. This will permit the simultaneous use of the sub-band j) together with the limits the subbands j1), k1), k2). The same applies for the sub-band j2) in conjunction with the limits in sub-bands j3.1) to j3.8).

**Frequency issues**

Users should be aware that emissions from inductive applications could cause interference to nearby receivers of other radio services.

In case of loop antennas used within bands a1) and a3) integral or dedicated within an area between 0.05 m<sup>2</sup> and 0.16 m<sup>2</sup>, the field strength is reduced by 10 \* log (area/0.16 m<sup>2</sup>); for an antenna area less than 0.05 m<sup>2</sup> the field strength is reduced by 10 dB.

Particular attention should also be paid to the more stringent protection requirements identified by the ITU for global distress and safety communications frequencies in the same or adjacent bands.

## **9. RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS**

### Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for radio microphone applications (also referred to as wireless microphones or cordless microphones) including Assistive Listening Devices (ALD) (also referred to as aids for the hearing impaired). Radio microphones are small, low power (typically 50 mW or less) transmitters designed to be worn on the body, or hand held, for the transmission of sound. The receivers are tailored to specific uses and may range from small and portable to rack mounted modules as part of a multichannel system. This annex covers professional and consumer radio microphones, both hand-held and body-worn, in-ear monitoring, for use with concerts or other stage productions and Assistive Listening Devices (ALD).

It also covers wireless audio and multimedia streaming systems used for audio/video transmissions and audio/video synchronisation signals including the following, cordless loudspeakers; cordless headphones; cordless headphones for portable use, cordless headphones for use in a vehicle, for example for use with a radio or mobile telephone.

Band II Low Power Devices (LPD): short range low power FM transmitters operating in the FM Broadcast band 87.5 MHz to 108 MHz are used for the provision of an RF link between a personal audio device, including mobile phone, and the in-car or home entertainment system etc.

Because of the difficulty in determining harmonised frequency bands for radio microphones, frequency band limits should be regarded as tuning ranges within which a device can be designated to operate. In most cases, Appendix 3 indicates those parts of the range that are not available in individual countries but this does not apply to the broadcasting bands at 174-216 MHz and 470-862 MHz where national geographical and licensing restrictions are likely to exist and the national administration should be contacted.

The sub-bands below are intended for the following applications:

- ALD: sub-bands b), c1), c2), d), e1), e2), e3), e4);
- Radio microphones: sub-bands a), e), d);
- Wireless audio and multimedia streaming systems: sub-bands d);
- Band II LPD: sub-band a1).

ALD are specific radio microphone applications which capture an acoustic signal that is transmitted by radio to the hearing aid receivers.

**Table 9: Regulatory parameters**

	Frequency Band	Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / maximum occupied bandwidth	ECC/ERC Deliverable	Notes
<b>a</b>	29.7-47 MHz	10 mW e.r.p.	No requirement	≤ 50 kHz		Radio microphones. On a tuning range basis. The frequency bands 30.3-30.5 MHz, 32.15-32.45 MHz and 41.015-47.00 MHz are harmonised military bands. Individual licence may be required
<b>a1</b>	87.5-108 MHz	50 nW e.r.p.	No requirement	200 kHz		Band II LPD
<b>b</b>	169.4-174 MHz	10 mW e.r.p.	No requirement	≤ 50 kHz		Assistive Listening Device (ALD). On a tuning range basis
<b>c1</b>	169.4-169.475 MHz	500 mW e.r.p.	No requirement	≤ 50 kHz	ECC/DEC/(05)02	Assistive Listening Device (ALD)
<b>c2</b>	169.4875-169.5875 MHz	500 mW e.r.p.	No requirement	≤ 50 kHz	ECC/DEC/(05)02	Assistive Listening Device (ALD)
<b>d</b>	863-865 MHz	10 mW e.r.p.	No requirement	Not specified		Radio microphones including wireless audio and multimedia streaming devices. The frequency band is also identified in annex 1
<b>e1</b>	916.1-916.5 MHz	10 mW e.r.p.	≤ 25 % duty cycle	≤ 400 kHz		Indoor Digital Assistive Listening Device Systems. The frequency band is also identified in Annexes 1 and 11

<b>e2</b>	917.3-917.7 MHz	10 mW e.r.p.	≤ 25 % duty cycle	≤ 400 kHz		Indoor Digital Assistive Listening Device Systems. The frequency band is also identified in Annexes 1 and 11
<b>e3</b>	918.5-918.9 MHz	10 mW e.r.p.	≤ 25 % duty cycle	≤ 400 kHz		Indoor Digital Assistive Listening Device Systems. The frequency band is also identified in Annexes 1 and 11
<b>e4</b>	919.7-920.1 MHz	10 mW e.r.p.	≤ 25 % duty cycle	≤ 400 kHz		Indoor Digital Assistive Listening Device Systems. The frequency band is also identified in Annexes 1 and 11

Note 1: a threshold of 35 dB $\mu$ V/m is required to ensure the protection of a DAB receiver located at 1.5m from the ALD device, subject to DAB signal strength measurements taken around the ALD operating site.

Note 2: the ALD device should operate under all circumstances at least 300 kHz away from the channel edge of an occupied DAB channel.

### **Additional Information**

#### **Harmonised Standards**

EN 300 422 all sub-bands except a1)

EN 301 357 sub-bands a1) and d)

Systems using ETSI EN 301 357 should be designed so that when not in use there should be no transmission of an RF carrier, where indicated in the frequency issues.

#### **Technical parameters also referred to in the harmonised standard** No information

#### **Frequency issues** Sub-band a1):

The user interface of SRD shall permit as a minimum the selection of any and all possible frequencies within the 88.1 MHz to 107.9 MHz and as a maximum 87.6 MHz to 107.9 MHz. When audio signals are not present, apparatus must employ a transmission time out facility. Pilot tones that ensure continuity of transmission are not permitted.

Sub-bands h1) to h4):

The available channel centre frequencies are 916.3 MHz, 917.5 MHz, 918.7 MHz and 919.9 MHz.

## 10. RADIO FREQUENCY IDENTIFICATION APPLICATIONS

### Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for radio frequency identification (RFID) applications including for example automatic article identification, asset tracking, alarm systems, waste management, personal identification, access control, proximity sensors, anti-theft systems, location systems, data transfer to handheld devices and wireless control systems. It should be noted that other types of RFID systems can be operated in accordance with other relevant annexes.

**Table 10: Regulatory parameters**

	<b>Frequency Band</b>	<b>Power / Magnetic Field</b>	<b>Spectrum access and mitigation requirements</b>	<b>Modulation / maximum occupied bandwidth</b>	<b>ECC/ERC Deliverable</b>	<b>Notes</b>
<b>a</b>	865-868 MHz	2 W e.r.p. (note1)	(note 4)	≤ 200 kHz		Operation only when necessary to perform the intended operation, i.e. when RFID tags are expected to be present
<b>a1</b>	865-865.6 MHz	100 mW e.r.p.	No requirement	≤ 200 kHz		(note 3)
<b>a2</b>	865.6-867.6 MHz	2 W e.r.p.	No requirement	≤ 200 kHz		(note 3)
<b>a3</b>	867.6-868 MHz	500 mW e.r.p.	No requirement	≤ 200 kHz		(note 3)
<b>b</b>	915-921 MHz	4 W e.r.p. (note 2)	For ER-GSM protection (918-921 MHz, where applicable), DAA is required	≤ 400 kHz		The frequency band is also identified in Annexes 1 and 10. Operation only when necessary to perform the intended operation, i.e. when RFID tags are expected to be present
<b>c1</b>	2446-2454 MHz	≤ 500 mW e.i.r.p.	No requirement	Not specified		
<b>c2</b>	2446-2454 MHz	> 500 mW to 4 W e.i.r.p	≤ 15% duty cycle FHSS techniques should be used	Not specified		Power levels above 500 mW are restricted to be used inside the boundaries of a building and the duty cycle of all transmissions shall in this case be ≤ 15 % in any 200 ms period (30 ms on /170 ms off)



- Note 1: Interrogator transmissions in band a at 2 W e.r.p. are only permitted within the four channels centred at 865.7 MHz, 866.3 MHz, 866.9 MHz and 867.5 MHz; each with a maximum bandwidth of 200 kHz.
- Note 2: Interrogator transmissions in band b at 4 W e.r.p., are only permitted within the four channels centred at 916.3 MHz, 917.5 MHz, 918.7 MHz and 919.9 MHz; each with a maximum bandwidth of 400 kHz.
- Note 3: RFID interrogator devices placed on the market before the repeal date of EC Decision 2006/804/EC are 'grandfathered', i.e. they are continuously permitted to be used in line with the provisions set out in EC Decision 2006/804/EC (see sub-bands a1), a2), and a3)) before the repeal date.
- Note 4: The maximum period of continuous interrogator transmission on a channel shall not exceed 4s and the period between consecutive transmissions of an interrogator on the same channel shall be at least 100ms in order to ensure most efficient use of available channels for the general benefit of all users.

## **Additional Information**

### **Harmonised Standards**

EN 300 440 Sub-bands c1) and c2)

EN 302 208 Sub-bands a), a1), a2), a3) and b)

### **Technical parameters also referred to in the harmonised standard** Sub-band a):

In addition, antenna beamwidth limits shall be observed as described in the standard EN 302 208.

Sub-band c2):

In addition, antenna beamwidth limits shall be observed as described in the standard EN 300 440.

In addition, for an RFID device which can exceed 500 mW, the device should be fitted with an automatic power control to reduce the radiated power below 500 mW; this automatic power control shall guarantee the reduction of the power to a maximum of 500 mW in cases where the device is moved and used outside the boundary of the user's building or premises as described above.

### **Frequency issues**

Sub-band c2):

To assist enforcement authorities any emissions from an RFID device when measured outside of the building at a distance of 10 metres shall not exceed the field strength from a 500 mW RFID device mounted outside the building when measured at the same distance. Where a building consists of a number of premises, such as shops within a shopping arcade or Mall then the measurements shall be referenced to the boundary of the user's premises within the building.

Sub-bands a1), a2) and a3):

Channel centre frequencies are  $864.9 \text{ MHz} + (0.2 \text{ MHz} * \text{channel number})$ .

The available channel numbers for each sub-band are:

a1: channel numbers 1 to 3

a2: channel numbers 4 to 13

a3: channel numbers 14 to 15.

Note: The same equipment is allowed to operate in several sub-bands.

Frequency hopping or other spread spectrum techniques shall not be used.

Sub-band b):

Use of all or part of sub-band b) may be denied in some European countries that use all or part of these sub-bands for defence/governmental systems. In other countries that use sub-band 918-921 MHz for GSM for railways, extended band (ER-GSM), access to the part 918-921 MHz by UHF RFID applications requires implementation of additional mitigation measures such as Detect-And-Avoid (DAA) as set out in ECC Report 200. See Appendix 3 for national implementation concerning ER-GSM and defence/governmental services.

## 11. ACTIVE MEDICAL IMPLANTS AND THEIR ASSOCIATED PERIPHERALS

### Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for Active Medical Implants and their associated peripherals.

**Table 11: Regulatory parameters**

	<b>Frequency Band</b>	<b>Power / Magnetic Field</b>	<b>Spectrum access and mitigation requirements</b>	<b>Modulation / maximum occupied bandwidth</b>	<b>ECC/ERC Deliverable</b>	<b>Notes</b>
<b>a</b>	9-315 kHz	30 dB $\mu$ A/m at 10m	$\leq$ 10% duty cycle	Not specified		The application is for Ultra Low Power Active Medical Implant systems using inductive loop techniques for telemetry purposes
<b>b</b>	315-600 kHz	-5 dB $\mu$ A/m at 10m	$\leq$ 10% duty cycle	Not specified		The application is for animal implantable devices. The frequency band is also identified in Annex 9
<b>c</b>	12500-20000 kHz	-7 dB $\mu$ A/m at 10m	$\leq$ 10% duty cycle	Not specified		The application is for ULP active animal implantable devices (ULP-AID), limited to indoor only applications. The maximum field strength is specified in a bandwidth of 10 kHz. The transmission mask of ULP-AID is defined as follows: 3dB bandwidth 300 kHz, 10dB bandwidth 800 kHz, 20dB bandwidth 2 MHz. The frequency band is also identified in Annex 9
<b>d</b>	30-37.5 MHz	1 mW e.r.p.	$\leq$ 10% duty cycle	Not specified		The application is for Ultra Low Power medical membrane implants for blood pressure measurements.

e	2483.5-2500 MHz	10 dBm e.i.r.p.	LBT+AFA and $\leq$ 10% duty cycle. The equipment shall implement a spectrum access mechanism as described in the applicable harmonised standard or an equivalent spectrum access mechanism	1 MHz		For Low Power Active Medical Implants and associated peripherals, covered by the applicable harmonised standard. Individual transmitters may combine adjacent channels on a dynamic basis for increased bandwidth higher than 1 MHz. Peripheral units are for indoor use only. The frequency band is also identified in Annex 2
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### Additional Information

#### Harmonised Standards

- EN 302 195 Sub-band a)
- EN 302 536 Sub-band b)
- EN 300 330 Sub-band c)
- EN 302 510 Sub-band d)
- EN 301 559 Sub-band e)

**Technical parameters also referred to in the harmonised standard** No information

#### Frequency issues

## **SCHEDULE 5**

### **PMR 446**

#### **PART I**

#### **INTERPRETATION**

In this Schedule-

"prescribed apparatus" means the apparatus known as "PMR 446" described in Part III of this Schedule.

#### **PART II**

#### **ADDITIONAL TERMS, PROVISIONS AND LIMITATIONS**

The prescribed apparatus shall be subject to and comply with the Common Technical Regulations in force, and in the absence of a Common Technical Regulation applying to such apparatus, the prescribed apparatus must-

- (a) be approved by the Authority for the purposes of this Notice; or
- (b) be approved to ETS 300 296 by a national administration following type testing at a test laboratory.

#### **PART III**

#### **DESCRIPTION OF THE PRESCRIBED APPARATUS**

Handportable radiocommunications apparatus with an integral antenna to be used solely for speech transmission-

Frequencies	Channel bandwidth	Maximum erp	Standard
446.0 – 446.1 MHz	12.5 kHz	500 mW	ETS 300 296
446.1 – 446.2 MHz	6.25 kHz or 12.5 kHz	500 mW	ETS 300 296

## **SCHEDULE 6**

### **INFRARED DEVICES**

#### **PART I**

#### **INTERPRETATION**

In this Schedule –

“Infrared-communication” means radiocommunications by electromagnetic waves of wavelengths arbitrarily between 0.7  $\mu$ .m. and 1000  $\mu$ .m. propagated in space without artificial guide.

#### **PART II**

#### **ADDITIONAL TERMS, PROVISIONS AND LIMITATIONS**

Unless there is a Common Technical Regulation in force in respect of the prescribed apparatus, such apparatus must be approved for the time being by the Authority for the purposes of this Notice.

#### **PART III**

#### **DESCRIPTION OF THE PRESCRIBED APPARATUS**

Infrared-communication apparatus designed or adapted for–

- (a) Emergency Service use;
- (b) Telemetry and Telecommand;
- (c) Alarms
  - (i) to detect movement;
  - (ii) to generate or indicate an alarm condition;
  - (iii) to arm or disarm the alarm system.
- (d) Measurement;
- (e) Video, Closed Circuit Television;
- (f) Audio applications;
- (g) Short range data links.