

General

Draft interface requirements for new Short Range Devices in Ireland

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Important Note:

This document is for information purposes only and has been notified to the European Commission (EC) under Directive 98/34/EC. There is an initial 3 month standstill period from the time that the notification was made to the EC during which time comments may be made on the draft document. Interested parties can provide comments on the draft interface requirements to either the European Commission or to the relevant national authority responsible for administering Directive 98/34/EC in the field of technical regulations (In Ireland, the National Standards Authority of Ireland).

Although ComReg intends to adopt the interface requirements as per this document, any comments made by other Member States or the European Commission during the standstill period will need to be taken into account and subsequent amendments to the document may therefore be necessary. For this reason ComReg stresses that the information contained in the current document should be treated with caution and to avoid any doubt about the applicability of individual requirements please contact ComReg. Final interface requirements will be published after the standstill period has lapsed. Should detailed opinions be received, the standstill period may be extended.

1 General Information

- 1. The Radio and Telecommunications Terminal Equipment Directive¹ (R&TTE Directive) was transposed into Irish law by Statutory Instrument (S.I.) 240 of 2001 entitled "European Communities (Radio Equipment and Telecommunications Terminal Equipment) Regulations, 2001" (R&TTE Regulations). All radio and telecommunications terminal equipment must comply with the essential requirements and other relevant provisions of the R&TTE Regulations before being placed on the market or put into service in Ireland.
- 2. Regulation 5(6)(a) of the R&TTE Regulations transposes Article 4.1 of the R&TTE Directive and requires the Commission for Communications Regulation (ComReg) to notify the European Commission (EC) of the regulated interfaces for the radio services in Ireland.
- 3. This document contains draft interface requirements for new Short Range Devices (SRDs) proposed to be introduced into Ireland. These new SRD requirements also bring Ireland into line with most of the latest requirements of ERC Recommendation 70-03 "Relating to the use of Short Range Devices". These requirements have been stipulated for the purpose of the efficient and effective use of the radio spectrum.
- 4. The manner in which the radio spectrum is allocated in Ireland is laid down in the Radio Frequency Plan for Ireland (ComReg document 07/81²).
- 5. Under Irish legislation (The Wireless Telegraphy Acts 1926 1988), all apparatus for Wireless Telegraphy requires a licence unless that apparatus has been specifically exempted by means of an Exemption Order. In Ireland, SRDs that operate in accordance with the requirements laid down in ComReg's document 02/71 (and any revisions thereof) and entitled "Permitted Short Range Devices in Ireland" are exempt from licensing by exemption orders S.I. 160 of 2006 and S.I. 405 of 2002. This exemption does not absolve an operator from any requirement in law to obtain additional consents, permissions, authorisations or licences as may be necessary (e.g. for the provision of services to the public). It is intended that, following the completion of the formal notification process with the EC, the interface requirements for the new SRDs presented here would be incorporated into the existing SRD document 02/71R1³, making them exempt from licensing.
- 6. SRDs should operate so as to optimise the effective and appropriate use of the radio spectrum. It should be noted that SRDs operate on a non-interference and non-protected basis in Ireland. SRDs are not permitted to cause harmful interference to, or claim protection from, other authorised radio services.
- 7. The term "reference standards", as used in the tables herein, refers to the standards that currently apply to the particular radio service. In some cases, sub-parts of these standards are harmonised standards under the R&TTE Directive. Harmonised

Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity available at http://europa.eu.int/comm/enterprise/rtte/dir99-5.htm.

http://www.comreg.ie/_fileupload/publications/ComReg0781.pdf

³ http://www.comreg.ie/_fileupload/publications/odtr0271R1.pdf

standards, although not compulsory, give a presumption of conformity to the relevant essential requirements of the R&TTE Directive under the scope of that standard. A list of harmonised standards under the R&TTE Directive is published in the Official Journal of the European Union (OJEU) and is published electronically on the European Commission website⁴. The OJEU maintains the list of harmonised standards and defines which parts and which versions are in force. Conformity with the harmonised standards, which are in force at the time of putting into service of radio equipment, is recommended. Users are advised to refer to the latest publication of the OJEU for information on current harmonised standards.

- 8. Where standards are contained in Irish Regulations, these are the standards in force at the time of writing of those Regulations.
- 9. Commission Decision 2000/299/EC⁵ established classifications for radio and telecommunications terminal equipment. Radio and telecommunications terminal equipment which can be placed on the market and put into service without restrictions has been designated as Class 1. A list of Class 1 radio and telecommunications terminal equipment is maintained at http://www.ero.dk/rtte. Radio equipment which has restrictions placed on it in terms of either placing on the market or putting into service is designated as Class 2 equipment and should accordingly be marked with the alert symbol.
- 10. Radio equipment that uses frequency bands whose use is not harmonised throughout the EU must be notified to ComReg under the Article 6.4 process. Information on this process may be found in ComReg document 00/61R⁶.
- 11. ComReg may from time to time introduce additional requirements for the purposes of ensuring the effective and efficient use of the radio spectrum. Such additional requirements may be necessitated by, inter alia, changes to spectrum allocations and/or technological developments. ComReg reserves the right to amend interface requirements where necessary and this document is therefore subject to revision.
- 12. Web addresses are referenced throughout this document for convenience only. Please note that ComReg is not responsible for the content of external websites.
- 13. The information in this document is made available by ComReg on the understanding that it is for information purposes only. It is not intended to form the basis of any investment decision and should not be considered as a recommendation by ComReg to participate in any tender for the allocation of radio spectrum.
- 14. ComReg makes no representation or warranty nor accepts any responsibility as to the accuracy or completeness of the information contained in this document and any liability in respect of any such information or any inaccuracy in, or omission from, this document is hereby expressly disclaimed.
- 15. Recipients of this document in any format should take their own professional financial, legal or other advice in order to make an independent assessment of the potential value of any allocation of radio spectrum by whatever means applicable.

 $^{{\}color{blue}^{4}} \, \underline{\text{http://europa.eu.int/comm/enterprise/newapproach/standardization/harmstds/reflist/radiotte.html} \\$

⁵ http://europa.eu.int/comm/enterprise/rtte/decision/class-en.pdf

⁶ http://www.comreg.ie/_fileupload/publications/odtr0061R.pdf

2 Introduction

The term "Short Range Device" (SRD) is intended to cover radio transmitters which provide either uni-directional or bi-directional communication and which have low capability of causing interference to other radio equipment. SRDs include devices such as inductive applications, model control, Road Transport and Traffic Telematics (RTTT) systems, cordless telephones, Alarms, Field Disturbance and Doppler Apparatus (FDDA) systems, wireless microphones, wireless audio systems and wideband data transmission systems.

The draft interface requirements for new Short Range Devices to be introduced into Ireland are detailed in Tables 1 - 8 as follows:

- **Table 1:** Draft interface requirements for new non-specific SRDs
- **Table 2:** Draft interface requirements for new tracking, tracing and data acquisition devices
- **Table 3:** Draft interface requirements for new Railway Applications
- **Table 4:** Draft interface requirements for new Equipment for Detecting Movement and Alert
- **Table 5:** Draft interface requirements for new Inductive Applications
- **Table 6:** Draft interface requirements for new Radio Microphones and Assistive Hearing Devices
- **Table 7:** Draft interface requirements for new Wireless Applications in Healthcare
- **Table 8:** Draft interface requirements for Ultra-Wideband Applications

The legislation and documentation relevant to these SRDs is listed in Section 3 of this document.

3 Draft Interface requirements for new Short Range Devices

Table 1: Draft interface requirements for new non-specific SRDs

	Non-specific SRDS				
Mandatory requiren	nents		Information		
Frequency Band	Power Limit	Mitigation requirements	Reference standards	Relevant documents/ Other notes	
138.20 - 138.45 MHz	10 mW e.r.p.	Duty cycle <1.0%	EN 300 220	National Legislation: S.I. 160 of 2006 S.I. 405 of 2002 CEPT references: ERC/REC 70-03	
122 – 123 GHz	100 mW e.i.r.p.	-	-	National Legislation: S.I. 160 of 2006 S.I. 405 of 2002 CEPT references: ERC/REC 70-03	
244 – 246 GHz	100 mW e.i.r.p.	-	-	National Legislation: S.I. 160 of 2006 S.I. 405 of 2002 CEPT references: ERC/REC 70-03	

Table 2: Draft interface requirements for new tracking, tracing and data acquisition devices

	Tracking, Tra	cing and Data Acquis	sition Devices	
Mandatory requiren		<u> </u>	Information	
Frequency Band	Power Limit	Mitigation requirements	Reference standards	Relevant documents/ Other notes
169.4 - 169.475 MHz	500 mW e.r.p.	Duty cycle < 10% Max 50 kHz channel spacing	EN 300 220	Meter Reading National Legislation: S.I. 160 of 2006 S.I. 405 of 2002 European Legislation: Decision 2005/928/EC, incorporating anticipated amendment as per RSCOM08-43. CEPT references: ECC/DEC(05)02, ERC/REC 70-03
169.4 – 169.475 MHz	500 mW e.r.p.	Duty cycle < 1% Max 50 kHz channel spacing	EN 300 220	Asset Tracking and Tracing National Legislation: S.I. 160 of 2006 S.I. 405 of 2002 European Legislation: Decision 2005/928/EC, incorporating anticipated amendment as per RSCOM08-43. CEPT references: ECC/DEC(05)02, ERC/REC 70-03

 Table 3: Draft interface requirements for new Railway Applications

Railway Applications				
Mandatory requiren			Information	
Frequency Band	Power Limit	Mitigation requirements	Reference standards	Relevant documents/Other notes
4234 kHz	9 dBμA/m at 10m	Duty cycle <1%	EN 300 330	Transmitting only on receipt of a Balise/Eurobalise. Telepowering signal from a train. National Legislation: S.I. 160 of 2006 S.I. 405 of 2002 CEPT references: ERC/REC 70-03
11.1 – 16.0 MHz	-7 dBμA/m at 10m	-	-	Maximum field strength specified in a bandwidth of 10 kHz, spatially averaged over any 200m length of the loop. Transmitting only in the presence of trains. Spread Spectrum Signal. Code length: 472 chips. National Legislation: S.I. 160 of 2006 S.I. 405 of 2002 CEPT references: ERC/REC 70-03

 Table 4: Draft interface requirements for new Equipment for Detecting Movement and Alert

		for Detecting Movem		
Mandatory requirer			Information	
Frequency Band	Power Limit	Mitigation requirements	Reference standards	Relevant documents/Other notes
4.5 – 7.0 GHz*	-41.3 dBm/MHz e.i.r.p.*	-	-	Tank Level Probing Radar (TLPR) only National Legislation: S.I. 160 of 2006 S.I. 405 of 2002 CEPT references: ERC/REC 70-03
8.5 – 10.6 GHz*	-41.3 dBm/MHz e.i.r.p.*	-	-	Tank Level Probing Radar only National Legislation: S.I. 160 of 2006 S.I. 405 of 2002 CEPT references: ERC/REC 70-03
24.05 – 27.0 GHz*	-41.3 dBm/MHz e.i.r.p.*	-	-	Tank Level Probing Radar only National Legislation: S.I. 160 of 2006 S.I. 405 of 2002 CEPT references: ERC/REC 70-03
57 – 64 GHz*	-41.3 dBm/MHz e.i.r.p.*	-	-	Tank Level Probing Radar only National Legislation: S.I. 160 of 2006 S.I. 405 of 2002 CEPT references: ERC/REC 70-03
75 – 85 GHz*	-41.3 dBm/MHz e.i.r.p.*	-	-	Tank Level Probing Radar only National

Equipment for Detecting Movement and Alert				
Mandatory requirements	5	Information		
			Legislation: S.I. 160 of 2006 S.I. 405 of 2002 CEPT references: ERC/REC 70-03	

 $^{^{\}star}$ The power limit is the radiated emission outside an enclosed tank structure. The maximum emission inside an enclosed tank structure is limited to +24 dBm e.i.r.p. for the 4.5 – 7.0 GHz band, +30 dBm e.i.r.p. for the 8.5 – 10.6 GHz band, and +43 dBm e.i.r.p. for the 24.05 - 27.0 GHz, 57 - 64 GHz and 75 - 85 GHz bands.

 Table 5: Draft interface requirements for new Inductive Applications

		nductive Applicatio	ns	
Mandatory requiren			Information	
Frequency Band	Power Limit	Mitigation requirements	Reference standards	Relevant documents/Other notes
148.5 kHz – 5 MHz	-15 dBμA/m at 10m		EN 300 330	In the 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 dBµA/m at 10m for systems operating at bandwidths larger than 10 kHz whilst keeping the density limit (-15 dBµA/m at 10m) National Legislation: S.I. 160 of 2006 S.I. 405 of 2002 CEPT references: ERC/REC 70-03
5 - 30 MHz	-20 dBμA/m at 10m	-	EN 300 330	In the 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 dBµA/m at 10m for systems operating at bandwidths larger than 10 kHz whilst keeping the density limit (-20 dBµA/m at 10m)

	Inductive Applications			
Mandatory requiren	nents		Information	
				National Legislation: S.I. 160 of 2006 S.I. 405 of 2002 CEPT references: ERC/REC 70-03
400 – 600 kHz	-8 dBμA/m at 10m	-	EN 300 330	For RFID only. In case of external antennas only loop coil antennas may be employed. National Legislation: S.I. 160 of 2006 S.I. 405 of 2002 CEPT references: ERC/REC 70-03

Table 6: Draft interface requirements for new Radio Microphones and Aids for the Hearing Impaired

	Radio Micro	phones and Assistive F	learing Devices	
Mandatory require			Information	
Frequency Band	Power Limit	Mitigation requirements	Reference standards	Relevant documents/Other notes
29.7 – 47.0 MHz	10 mW e.r.p.	Duty cycle ≤ 100 % Channel Spacing 50 kHz	EN 300 422	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 in Europe.
				National Legislation: S.I. 160 of 2006 S.I. 405 of 2002
				CEPT references: ERC/REC 70-03
169.4000 - 169.4750 MHz	10 mW e.i.r.p	Duty cycle ≤ 100 % Max 50 kHz	EN 300 422	Aids for the heading impaired.
				European Legislation: Commission Decision 2005/928/EC
				National Legislation: S.I. 160 of 2006 S.I. 405 of 2002
				CEPT references: ECC/DEC(05)02, ERC/REC 70-03
169.4875 - 169.5875 MHz	10 mW e.i.r.p	Duty cycle ≤ 100 % Max 50 kHz	EN 300 422	Aids for the heading impaired – exclusive use.
				European Legislation: Commission Decision 2005/928/EC, incorporating anticipated

Radio Micro	Radio Microphones and Assistive Hearing Devices			
Mandatory requirements		Information		
			amendment as per RSCOM08-43.	
			National Legislation: S.I. 160 of 2006 S.I. 405 of 2002 CEPT references: ECC/DEC(05)02, ERC/REC 70-03	

Table 7: Draft interface requirements for new Wireless Applications in Healthcare

	Wireles	s Applications in Hea	althcare	
Mandatory requirer			Information	
Frequency Band	Power Limit	Mitigation requirements	Reference standards	Relevant documents/Other
		requirements	Standards	notes
401 – 402 MHz	25 μW e.r.p.	Duty cycle ≤ 0.1% unless devices use LBT or equally efficient mitigation technique in which case there is no duty cycle restriction (see Note 2). Channel spacing 25kHz	EN 302 537	For Ultra Low Power Active Medical Implants and accessories cover by the applicable harmonised standard. Individual transmitters may combine adjacent 25kHz channels for increased bandwidth up to 100 kHz (see Note 1) National Legislation: S.I. 160 of 2006 S.I. 405 of 2002 CEPT references: ERC/REC 70-03
405 – 406 MHz	25 μW e.r.p.	Duty cycle ≤ 0.1% unless devices use LBT or equally efficient mitigation technique in which case there is no duty cycle restriction (see Note 2). Channel spacing 25kHz	EN 302 537	For Ultra Low Power Active Medical Implants and accessories cover by the applicable harmonised standard. Individual transmitters may combine adjacent 25kHz channels for increased bandwidth up to 100 kHz (see Note 1) National Legislation: S.I. 160 of 2006 S.I. 405 of 2002

	Wireless Applications in Healthcare			
Mandatory requirements		Information		
				CEPT references: ERC/REC 70-03
12.5 – 20 MHz	-7 dBμA/m @ 10m	Duty cycle < 10%	EN 300 330	This application is for ultra low power 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 National Legislation: S.I. 160 of 2006 S.I. 405 of 2002 CEPT references:

Note 1: Due to the limited available spectrum of 1 MHz, a maximum bandwidth of 100 kHz is proposed for these bands to ensure that several users could access the band concurrently. Note 2: Systems not providing frequency agility based on ambient RF field sensing are limited to a maximum permitted e.r.p. of 250 nanowatts with a duty cycle of \leq 0.1%.

Table 8: Draft interface requirements for Ultra-Wideband Applications

Ultra-Wideband Applications			
Mandatory Requirements			Information
Frequency range (GHz)	Maximum mean e.i.r.p. density (dBm/MHz)	Maximum peak e.i.r.p. density (dBm/50 MHz)	Relevant documents/Other notes
Below 1.6	- 90.0	- 50.0	European Legislation:
1.6 to 3.4	– 85.0	– 45.0	Commission Decision 2007/131/EC
3.4 to 3.8 (see ~)	– 80	-40	
3.8 to 4.2	- 70.0	- 30.0	
4.2 to 4.8 (See #)	- 41.3 (until 31 December 2010) - 70.0 (beyond 31 December 2010)	0.0 (until 31 December 2010) - 30.0 (beyond 31 December 2010)	CEPT references: ECC/DEC(06)12 ECC/DEC(06)04
4.8 to 6.0	– 70.0	- 30.0]
6.0 to 8.5 (See #)	- 41.3	0.0	
8.5 to 10.6	– 65.0	– 25.0]
Above 10.6	- 85.0	- 45.0]

Table 8: Maximum e.i.r.p. densities in the absence of appropriate mitigation techniques

In case of devices installed in road and rail vehicles, operation is subject to the implementation of Transmit Power Control (TPC) with a range of 12 dB with respect to the maximum permitted radiated power. If no TPC is implemented, the maximum e.i.r.p. spectral density is -53.3 dBm/MHz.

Appropriate mitigation techniques

A maximum mean e.i.r.p. density of -41.3 dBm/MHz is allowed in the 3.4 to 4.8 GHz bands provided that a low duty cycle restriction is applied in which the sum of all transmitted signals is less than 5 % of the time each second and less than 0.5 % of the time each hour, and provided that each transmitted signal does not exceed 5 milliseconds.

Equipment using ultra-wideband technology may also be allowed to use the radio spectrum with e.i.r.p. limits other than those set out in Table 8 above provided that appropriate mitigation techniques other than those set out in the first sub-paragraph are applied with the result that the equipment achieves at least an equivalent level of protection to that provided by the limits in Table 8 above.

~ Technical requirements for UWB devices implementing LDC Mitigation Technique

UWB devices implementing Low Duty Cycle (LDC) are permitted to operate at a level of -41.3dBm/MHz in the frequency band 3.4 – 4.8 GHz provided they meet the following requirements

Ton max = 5ms Toff mean \geq 38 ms (averaged over 1 second) Σ Toff > 950 ms per second Σ Ton < 5% per second and 0.5% per hour

Table 9: Technical requirements for UWB devices implementing LDC Mitigation Technique

DEFINITIONS FOR TABLE 8 AND TABLE 9

Maximum mean e.i.r.p. spectral density

The highest signal strength measured in any direction at any frequency within the defined range. The mean e.i.r.p. spectral density is measured with a 1MHz resolution bandwidth, an RMS detector and an averaging time of 1ms or less.

Maximum peak e.i.r.p.

The highest signal strength measured in any direction at any frequency within the defined range. The peak e.i.r.p. is measured within a 50MHz bandwidth centred on the frequency at which the highest mean radiated power occurs.

Ton

The duration of a burst irrespective of the number of pulses contained

Toff

The time interval between 2 consecutive bursts when the UWB emission is kept idle.

4 Relevant Documentation

National Legislation

Primary Legislation

Wireless Telegraphy Act 1926, as amended.

Secondary Legislation

S.I. 160 of 2006: Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Short Range Devices) (Amendment) Order, 2006.

S.I. 405 of 2002: Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Short Range Devices) Order, 2002.

S.I. 436 of 1998: Wireless Telegraphy Act, 1926 (Section 3)(Exemption of Citizens' Band (CB) Radios) Order, 1998.

S.I. 410 of 1997: Wireless Telegraphy (Cordless Telephones) Exemption Order, 1997.

S.I. 168 of 1994: European Communities (Digital European Cordless Telecommunications - DECT) Regulations, 1994.

S.I. 93 of 1998: Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Short Range Business Radios) Order, 1998.

ComReg/ODTR Documentation

07/81: Radio Frequency Plan for Ireland.

02/71R1: Permitted Short Range Devices in Ireland.

03/42: Registration of 5.8 GHz Wireless Access Base Stations.

98/62R: TTE 9: Type Approval requirements for analogue cordless telephones for connection to switched public telecommunications networks in Ireland.

ETSI Documentation

EN 300 220: ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Short Range Devices (SRD);Radio equipment to be used in the 25 MHz to 1 000 MHz frequency range with power levels ranging up to 500 mW.

EN 300 330: ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and

inductive loop systems in the frequency range 9 kHz to 30 MHz.

EN 300 422: ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Wireless microphones in the 25 MHz to 3 GHz frequency range.

EN 302 537: Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Ultra Low Power Medical Data Service Systems operating in the frequency range 401 MHz to 402 MHz and 405 MHz to 406 MHz.

CEPT Documentation

ECC/DEC/(05)02: ECC Decision of 18 March 2005 on the use of the frequency band 169.4-169.8125 MHz.

ECC/DEC(06)12: ECC Decision of 1 December 2006 on the harmonised conditions for devices using Ultra-Wideband (UWB) technology with Low Duty Cycle (LDC) in the frequency band 3.4-4.8 GHz.

ECC/DEC(06)04: ECC Decision of 24 March 2006 amended 6 July 2007 on the harmonised conditions for devices using UWB technology in bands below 10.6 GHz.

ERC/REC 70-03: Relating to the use of Short Range Devices (SRD).

European Legislation

Commission Decision 2007/131/EC on allowing the use of the radio spectrum for equipment using ultra-wideband technology in a harmonised manner in the Community.

Commission Decision 2005/928/EC on the harmonisation of the 169.4-169.8125 MHz frequency band in the Community (frequency band originally designated for the ERMES paging system).

Other relevant documentation

Working Document RSCOM08-43, "Results of the RSC Opinion on the amendment of Decision 2005/928/EC"

Please note that all documentation is subject to updates and revision.