Commission for
Communications Regulation

General

Draft Interface Requirements for Radio Services 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 (Notification number: 2006/476/IRL). 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 their 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.

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List of Tables

1 Introduction

This document contains draft interface requirements for the radio services in Ireland. These requirements include the administrative and technical requirements associated with operation of the different radio services in Ireland.

Section 2 contains general information on the background to this document and radio licensing in Ireland. Section 3 contains the individual interface requirements for each of the radio services and is divided into seven subsections as follows:

Section 3.1: Mobile Services
Section 3.2: Fixed Services
Section 3.3: Broadcasting Services
Section 3.4: Satellite Services
Section 3.5: Short-Range Devices
Section 3.6: Aeronautical and Maritime Services
Section 3.7: Spectrum Access in the 1785 - 1805 MHz band

2 General

1. The Radio and Telecommunications Terminal Equipment Directive[1] (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". Regulation 5(6)(a) of S.I. 240 of 2001 transposes Article 4.1 of the R&TTE Directive and requires the Commission for Communications Regulation (ComReg) to notify the European Commission of the regulated interfaces in Ireland. This document sets out the interface requirements for the different radio services in Ireland which have been stipulated for the purpose of the efficient and effective use of the radio spectrum.

2. The manner in which the radio spectrum is allocated in Ireland is laid down in the Table of Frequency Allocations for Ireland (ComReg document 04/77)[2].

3. This document supersedes the following draft notifications made to the European Commission in 2000: 2000/079/IRL, 2000/080/IRL, 2000/081/IRL, 2000/082/IRL and 2000/083/IRL.

4. All radio and telecommunications terminal equipment must comply with the essential requirements and other relevant provisions of the R&TTE Directive[3] before being placed on the market or put into service in Ireland. In terms of the usage of radio equipment in Ireland, radio equipment must operate in accordance with the relevant interface requirements laid down in this document.

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 from licensing under Irish legislation by means of an Exemption Order. A list of Exemption Orders currently in force in Ireland is contained in Annex A.

6. Detailed information on the licensing policies and procedures for specific radio services in Ireland are available on the ComReg website http://www.comreg.ie, generally in the form of guidelines to applicants.

7. All radio equipment should operate so as to optimise the effective and appropriate use of the radio spectrum and so that it does not cause harmful interference to other authorised radio services.

8. Licence conditions attached to Wireless Telegraphy licences, broadcast licences and fixed service licences require that licensees adhere to the International Commission on Non-Ionising Radiation Protection (ICNIRP)[4] Guidelines on non-ionising radiation emissions.

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[1] 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 .

[2] http://www.comreg.ie/_fileupload/publications/ComReg0477.pdf

[3] Where applicable, EC Decisions under the R&TTE Directive must also be complied with. These Decisions are listed at http://europa.eu.int/comm/enterprise/rtte/decision/present.htm and also in Annex B of this document "General References".

[4] www.icnirp.de

9. Throughout this document, the reference standards refer to the harmonised standards under the R&TTE Directive, where available. Although the use of harmonised standards is not compulsory, compliance with a given harmonised standard gives 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 Communities and is published electronically on the European Commission website[5].

10. Commission Decision 2000/299/EC[6] 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 and http://europa.eu.int/comm/enterprise/rtte/equip.htm#list respectively. Class 1 equipment does not need notification under the R&TTE Article 6.4 process. On the other hand, 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. Class 2 equipment requires notification to ComReg under the Article 6.4 process.

11. Please note that the New Regulatory Framework[7] has now been implemented into Irish law[8]. The implementing Regulations for the new Framework and other generally applicable legislation and documentation in Ireland are referenced in Annex B.

12. Wherever possible, CEPT ERC/ECC Decisions and Recommendations apply. A list of these documents and the current status of Ireland's implementation of the CEPT Decisions is available on the ERO website: http://www.ero.dk.

13. ComReg may from time to time introduce additional requirements where necessary 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.

14. Contact details for queries relating to this document are provided in Annex E.

15. Web addresses are referenced throughout this document for convenience only. Please note that ComReg is not responsible for the content of external websites.

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5 http://europa.eu.int/comm/enterprise/newapproach/standardization/harmstds/reflist/radiotte.html

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

7 http://europa.eu.int/information_society/topics/telecoms/regulatory/new_rf/index_en.htm

8 http://www.comreg.ie/about_us/default.asp?s=2&navid=134

3 Interface Requirements

3.1 Mobile Services

This section outlines the interface requirements for the mobile services in Ireland. The mobile services are comprised of private mobile radio (PMR), Trunked Radio, Community Repeaters, Paging, Global System for Mobile Communications (GSM), Universal Mobile Telecommunications System (UMTS) and Wideband Digital Mobile Data Services (WDMDS).

The interface requirements for the mobile services are detailed in Tables 1 - 5 as follows:

Table 1: PMR, Trunked Radio and Community Repeaters
Table 2: Paging services
Table 3: GSM and UMTS services
Table 4: Wideband Digital Mobile Data Services
Table 5: Wireless Public Address Systems (WPAS)

The legislation and documentation relevant to the mobile services is listed at the end of this section.

Table 1: Interface requirements for Private Mobile Radio, Trunked Radio and Community Repeaters

Parameter	Description							
Frequency Band (MHz)	68 - 74.8 MHz 75.2 - 87.5MHz	138 - 156MHz	156 - 174 MHz	380 - 400 MHz	410 - 430 MHz	446 - 446.1 MHz	446.1 – 446.2 MHz	450 – 470 MHz
National Usage	VHF Low band: Land Mobile PMR and Community Repeaters	VHF mid-band: Land Mobile PMR, Paging	VHF high band: Land Mobile PMR (mainly Commercial users and county councils)	Mobile: Trunked Radio. TETRA (Emergency) (380-385MHz / 390-395MHz) TETRA (Civil) (385-390MHz / 395-399.9MHz)	Mobile: Digital and Analogue Trunked Radio	Land Mobile: Short Range Business Radio (PMR 446) (446 - 446.1 MHz). 8 channels: 446.00625 MHz, 446.01875 MHz, 446.03125 MHz, 446.04375 MHz, 446.05625 MHz, 446.06875 MHz, 446.08125 MHz, 446.09375 MHz.	Digital PMR446 handportable	Land mobile: PMR and Community Repeaters 458.5-459.5MHz: on-site paging, telemetry and telecommand
Maximum Permitted radiated power (ERP)	25W	25W	25W	25W	25W	0.5W	0.5W	25W
Channel Spacing	12.5 kHz	12.5 kHz for PMR 25 kHz for paging	12.5 kHz for PMR	25 kHz and 12.5 kHz	25 kHz for TETRA and 12.5 kHz for PMR trunked	12.5 kHz	6.25 kHz or 12.5 kHz channel spacing	12.5 kHz, 25kHz for data services between 458.5 – 459.5 MHz
Transmit/ receive spacing (duplex direction)	Mainly semi Duplex operation with some single frequency channels. Maximum Duplex Separations: 10.225 MHz	Mainly semi Duplex operation with some single frequency channels. Maximum Duplex Separation: 8MHz	Mainly semi Duplex operation with some single frequency channels. Maximum Duplex Separations: 4.8MHz	Full or semi-duplex (10 MHz) with some single frequency operations (direct mode)	Full or semi-duplex (10 MHz)	-	-	Mainly semi Duplex operation with some single frequency channels. Maximum Duplex Separations: 14MHz.
Transmission capacity/duty cycle/channel access protocol	Tone control is required for all repeaters and trunked radio systems	Tone control is required for all repeaters and trunked radio systems	Tone control is required for all repeaters and trunked radio systems	-	-	Tone control is mandatory	-	Tone control is required for all repeaters and trunked radio systems
Licensing Regime	Business Radio Licence, Community Repeater Licence or Third Party Business Radio (TPBR) licence (See ComReg documents 02/02R, 02/03R,	Business Radio Licence (See ComReg documents 02/02R and 00/07R2) Wireless Telegraphy Act 1926 as	Business Radio Licence or Third Party Business Radio (TPBR) licence (See ComReg documents 02/02R, 00/07R2, 05/82R1 and	Wireless Telegraphy Act 1926 as amended, Wireless Telegraphy Licence is required (see S.I. 435 of 2002)	Wireless Telegraphy Act 1926 as amended, Wireless Telegraphy Licence is required (see S.I. 435 of 2002)	Wireless Telegraphy Act 1926 as amended, PMR 446 hand portables are exempt from radio licensing subject to meeting the requirements of	Digital PMR 446 hand portables are exempt from radio licensing (S.I. 160 of 2006).	Business Radio Licence, Community Repeater or Third Party Business Radio (TPBR) licence (See ComReg documents 02/02R, 02/03R,

Parameter	Description							
	00/07R2, 05/82R1 and 05/82aR1.) Wireless Telegraphy Act 1926 as amended, Wireless Telegraphy (Business Radio Licence) Regulations, 1949, as amended.Also S.I. No. 435 of 2002 and S.I. No. 83 of 1988.	amended, Wireless Telegraphy (Business Radio Licence) Regulations, 1949 - 1992.	05/82aR1) Wireless Telegraphy Act 1926 as amended, Wireless Telegraphy (Business Radio Licence) Regulations, 1949 - 1992.			exemption order S.I. 93 of 1998.		00/07R2, 05/82R1 and 05/82aR1) Wireless Telegraphy Act 1926 as amended, Wireless Telegraphy (Business Radio Licence) Regulations, 1949, as amended. S.I. No. 435 of 2002 Wireless Telegraphy (Mobile Radio Systems) Regulations, 2002 S.I. No. 83 of 1988: Wireless Telegraphy (Community Repeater Licence) Regulations, 1988.
Reference Standards	Applicable relevant ETSI standards apply: EN 300 086, EN 300 113, EN 300 219 and EN 300 220.	Applicable relevant standards apply: EN 300 086, EN 300 113, EN 300 219, EN 300 220, EN 300 296, EN 300 341 and EN 300 390.	For PMR, applicable relevant standards apply: EN 300 086, EN 300 113, EN 300 219, EN 300 220, EN 300 296, EN 300 341 and EN 300 390.	Applicable relevant standards apply: EN 300 392, ETS 300 393 EN 300 394, ETS 300 395 and EN 300 396.	Applicable relevant standards apply: For TETRA: EN 300 392, ETS 300 393, EN 300 394, ETS 300 395 and EN 300 396. For PMR: EN 300 086, EN 300 113, EN 300 219 MPT 1327	EN 300 296	EN 300 113 – 2 or EN 301 166 - 2	Applicable relevant standards apply. EN 300 086, EN 300 113, EN 300 219, EN 300 220, EN 300 296, EN 300 341 and EN 300 390.
Further	Good site	For Land mobile	For Land mobile	For Land mobile	Good site	-		Good site

Parameter	Description							
interface characteristics	engineering practice (ETR 053) is advised	systems, good site engineering practice (ETR 053) is advised	systems, good site engineering practice (ETR 053) is advised	systems, good site engineering practice (ETR 053) is advised	engineering practice (ETR 053) is advised			engineering practice (ETR 053) is advised
Notes	Mainly commercial users and local authorities. All relevant CEPT/ERC Decisions apply.	All relevant CEPT/ERC Decisions apply.	All relevant CEPT/ERC Decisions apply.	All relevant CEPT/ERC Decisions apply. ERC/DEC(96)01 ERC/DEC (96)04 ERC/DEC (01)19 and ERC/DEC (01)20	All relevant CEPT/ERC Decisions apply. ERC/DEC(96)04 and ERC/DEC(04)06	S.I. No. 93 of 1998 exempts Short Range Business Radio (PMR446) in this band from requiring a licence. These devices will not be protected and must not cause interference to licensed users. ERC/DEC(98)25RE C. T/R 20-04 All relevant CEPT/ERC Decisions apply.	ECC/DEC(05)12	PMR UHF Band. All relevant CEPT/ERC Decisions apply. TETRA Civil, ERC/DEC(96)04 (not planned at present).

Table 2: Interface requirements for the Paging services

Parameter	Description					
Frequency Band (MHz)	26.175 – 28 MHz	30.01 - 37.5 MHz	153 - 154 MHz	169.4 – 169.8 MHz	Part of band between 458.825 - 459.5 MHz	469.85 – 470MHz
Maximum Transmit Power/ Maximum ERP	0.5 W	10 W	25 W for nationwide systems, 5W for local systems and 2W for on-site systems	N/A	0.5 W	25W
Maximum Channel Spacing	25kHz	25 kHz	25kHz	N/A	25 kHz	25kHz
National Usage	Paging (private, on- site)	Paging (Hospitals)	Paging and alarm systems (National, wide area, local and on-site)	ERMES being phased out	On-site paging and telemetry – ECG monitoring in adjacent bands	Wide-area paging
Licensing Regime	ComReg document 02/12R Wireless Telegraphy Licence is required under Wireless Telegraphy Act 1926 as amended.	ComReg document 02/12R Wireless Telegraphy Licence is required under Wireless Telegraphy Act 1926 as amended.	ComReg document 02/12R Wireless Telegraphy Licence is required under Wireless Telegraphy Act 1926 as amended.	To be developed. See section 3.5 Short Range Devices for information on exemptions in this band.	ComReg document 02/12R Wireless Telegraphy Licence is required under Wireless Telegraphy Act 1926 as amended.	ComReg document 02/12R Wireless Telegraphy Licence is required under Wireless Telegraphy Act 1926 as amended.
Reference standards	EN 300 224, ETS 300 682, EN 301 489-2	EN 300 224, ETS 300 682, EN 301 489-2	EN 300 224, ETS 300 682, EN 301 489-2, ETS 300 719, ETS 300 741,	ETS 300 340 EN 300 133	EN 300 224, ETS 300 682, EN 301 489-2	ETS 300 719, ETS 300 741, EN 301 489-2

Notes:

All channel spacing for private mobile radio is 12.5 kHz with the exception of some Maritime and Aeronautical services which may operate on 25 kHz channels (see Section 3.6) and some digital trunked radio systems, paging, telemetry and telecommand systems in the band 458.5 - 459.5 MHz which may operate on 25 kHz channels.

Table 3: Interface Requirements for GSM & UMTS services

Parameter	Description			
Frequency Band	880-915 / 925-960 MHz	1710–1785 / 1805–1880 MHz	1900–1980 MHz / 2010–2025 MHz / 2110–2170 MHz	1980–2010 MHz
Radio Service	GSM 900	GSM1800 (Also known as DCS 1800)	UMTS terrestrial (3G Mobile)	UMTS/S-PCS
Licensing Regime	Three licensed operators (national licences)	Three licensed operators (national licences)	Three licensed operators (national licences)	No licensed operators at present
Reference Standards	EN 301 489, EN 301 511 EN 300 607-1(GSM 11.10-1) EN 301 419-1 (GSM13.01) EN 300 540(GSM 03.50) EN 300 504 (GSM 02.06)	EN 300 607-1(GSM 11.10-1) EN 301 419-1 (GSM13.01) EN 300 540(GSM 03.50) EN 300 504 (GSM 02.06) EN 301 489, EN 301 511	TS 125 101 TS 125 102 TS 125 104 TS 125 105 EN 301 489, EN 301 511	TS 101 851-1 TS 101 851-2 TS 101 851-3 TS 101 851-4 EN 301 489, EN 301 511
Notes	EC Directive 87/372/EEC. ERC/DEC 94(01) ERC/DEC(97)02 (E-GSM) ERC/DEC(98)20 ERC/DEC(02)09 Regulations under Statutory Instrument S.I. No. 416 of 1994, S.I. No. 123 of 1996, S.I. No. 409 of 1997, S.I. 158 of 2003 S.I. 339 of 2003	ERC/DEC(95)03, 97(11),98(21) ERC/DEC(98)20 Regulations under Statutory Instrument (S.I.) S.I. No. 107 of 1999, S.I. 339 of 2003 S.I. No. 409 of 1997	ERC/DEC(97)07, ERC/DEC(99)25, ERC/DEC(00)01. Regulations under Statutory Instrument S.I No. 158 2002 S.I. 340 of 2003 S.I. No. 409 of 1997	ERC/DEC(97)03 (S-PCS), ERC/DEC(97)07, ERC/DEC(97)04 (S-PCS transition), Regulations under Statutory Instrument S.I. 214 of 1998 S.I No. 158 2002 S.I. 340 of 2003 S.I. No. 409 of 1997

Table 4: Interface Requirements for Wideband Digital Mobile Data Services

Parameter	Description	
Frequency Band	410 – 414 MHz paired with 420 – 424 MHz	872 – 876 MHz paired with 917 – 921 MHz
Radio Service	Wideband Digital Mobile Data Services	Wideband Digital Mobile Data Services
Licensing Regime	2 national licences awarded by auction	1 national licence awarded by auction
Notes	S.I. 642 of 2005 Wireless Telegraphy (Wideband Digital Mobile Data Services) Regulations ComReg documents 05/79, 05/80, 05/31, 04/107	S.I. 642 of 2005 Wireless Telegraphy (Wideband Digital Mobile Data Services) Regulations ComReg documents 05/79, 05/80, 05/31, 04/107

Table 5: Interface requirements for Wireless Public Address Systems (WPAS)

Parameter	Description
Frequency Band (MHz)	27.6 - 27.99 MHz
Radio Service	Mobile Service
Application	Wireless Public Address Systems
Bandwidth	10kHz
Transmit power limit	1W (0dBW) ERP for base station equipment using Amplitude Modulation 4W (6dBW) ERP for base station equipment using Frequency Modulation Ancillary RF equipment shall not be connected to the transmitter e.g. linear power amplifiers.
Additional requirements	Antenna Polarisation must be vertical Antenna height must not exceed 2m above the highest point of the building on which the antenna is mounted Antennas should be non-directional Antennas of low angle of radiation (gain) are favourable
Licensing regime	Wireless Public Address System (WPAS) licence is required - 5 year licence
Reference standards	EN 300 113, EN 300 135, EN 300 433
Relevant documentation	Wireless Telegraphy (Wireless Public Address System Licence) Regulations, 2006 (S.I. 304 of 2006) ComReg Documents: 06/26a and 06/26

Relevant Documentation

National Legislation

Primary Legislation - Acts

Wireless Telegraphy Act 1926, as amended.

Secondary Legislation – Statutory Instruments (S.I.)

Wireless Telegraphy (Business Radio Licence) Regulations, 1949, as amended.

S.I. 304 of 2006: Wireless Telegraphy (Wireless Public Address System Licence) Regulations, 2006.

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

S.I 642 of 2005: Wireless Telegraphy (Wideband Digital Mobile Data Services) Regulations.

S.I. 340 of 2003: Wireless Telegraphy (Third Generation and GSM Mobile Telephony Licence)(Amendment) Regulations, 2003.

S.I. 339 of 2003: Wireless Telegraphy (GSM Mobile Telephony Licence)(Amendment) Regulations, 2003.

S.I. 435 of 2002: Wireless Telegraphy (Mobile Radio Systems) Regulations, 2002.

S.I. 345 of 2002: Wireless Telegraphy (Third Generation and GSM Mobile Telephony Licence) Regulations, 2002.

S.I. 442 of 1999: Wireless Telegraphy (GSM and TACS Mobile Telephony Licence) Regulations, 1999.

S.I. 107 of 1999: Wireless Telegraphy Act, 1926 (section 3) (Exemption of DCS1800 Mobile Terminals) Order, 1999.

S.I. 468 of 1997: Wireless Telegraphy (GSM and TACS Mobile Telephony Licence) Regulations, 1997).

S.I. 409 of 1997: Wireless Telegraphy Act 1926, (section 3) (Exemption of Mobile Telephones) Order.

S.I. 123 of 1996: European Communities (Mobile and Personal Communications) Regulations, 1996.

S.I. 416 of 1994: European Communities (Co-ordinated introduction of Public Pan-European Land Based Mobile Communications – GSM) Regulations, 1994.

S.I. 83 of 1988: Wireless Telegraphy (Community Repeater Licence) Regulations, 1988.

ComReg/ODTR Documentation

06/26a Application Form - Wireless Public Address System (WPAS).

06/26 Guidelines for Applicants - Wireless Public Address System (WPAS).

05/82R1: Guidelines to applicants for Third Party Business Radio (TPBR) Licences.

05/82aR1: Application Form - Third Party Business Radio Licence.

05/79: Information Notice: The Awarding of National Licences for the Provision of Wideband Digital Mobile Data Services.

05/80: Information Memorandum: Process for the Awarding of National Licences for the Provision of Wideband Digital Mobile Data Services.

05/31: Wideband Digital Mobile Data in the 420 MHz and 900 MHz bands.

04/107: Wideband Digital Mobile Data Services in the 420MHz and 900 MHz bands.

02/12R: Application Form for a Paging Permit (Local and On-Site).

02/03R: Community Repeater Licence: Application Form and Guidance Notes.

02/02R: Temporary Business Radio Licence - Application Form.

00/07R2: Business Radio Licence Application Form.

00/07a: Business Radio Licence Guidance Notes.

ETSI Documentation

EN 300 086: Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Land Mobile Service; Radio equipment with an internal or external RF connector intended primarily for analogue speech.

EN 300 113: Electromagnetic compatibility and Radio spectrum Matters (ERM); Land mobile service; Radio equipment intended for the transmission of data (and/or speech) using constant or non-constant envelope modulation and having an antenna connector.

EN 300 219: Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Land Mobile Service; Radio equipment transmitting signals to initiate a specific response in the receiver.

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 300 224: Electromagnetic Compatibility and Radio Spectrum Matters (ERM); On-site paging service.

EN 300 296: Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Land Mobile Service; Radio equipment using integral antennas intended primarily for analogue speech.

EN 300 135: ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM);Angle-modulated Citizens Band radio equipment (CEPT PR 27 Radio Equipment.

EN 300 341: Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Land Mobile Service (RP 02); Radio equipment using an integral antenna transmitting signals to initiate a specific response in the receiver.

EN 300 390: Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Land Mobile Service; Radio equipment intended for the transmission of data (and speech) and using an integral antenna.

EN 300 392: Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D).

ETS 300 393: Terrestrial Trunked Radio (TETRA); Packet Data Optimized (PDO).

EN 300 433: ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM);Land Mobile Service; Double Side Band (DSB) and/or Single Side Band (SSB) amplitude modulated citizen's band radio equipment.

ETR 053: Radio Equipment and Systems (RES);Radio site engineering for radio equipment and systems in the mobile service.

CEPT Documentation

ERC/DEC(96)01: ERC Decision of 7 March 1996 on the harmonised frequency band to be designated for the introduction of the Digital Land Mobile System for the Emergency Services.

ERC/DEC(96)04: ERC Decision of 7 March 1996 on the frequency bands for the introduction of the Trans European Trunked Radio System (TETRA).

ERC/DEC(98)25: ERC Decision of 23 November 1998 on the harmonised frequency band to be designated for PMR 446.

ECC/DEC(05)12 ECC Decision of 28 October 2005 on harmonised frequencies, technical

characteristics, exemption from individual licensing and free carriage and use of digital PMR 446 applications operating in the frequency band 446.1- 446.2 MHz.

Other documentation

MPT 1327: A signalling standard for trunked private land mobile radio systems.

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

3.2 Fixed Services

This section outlines the interface requirements for the fixed services in Ireland. The fixed services are comprised of point-to-point links, point-to-multipoint links and Fixed Wireless Access (FWA) services. The interface requirements for the fixed services are detailed in Tables 6 - 9 as follows:

Table 6: Fixed services in the 450 MHz - Upper 6 GHz bands
Table 7: Fixed services in the 7 - 15 GHz bands
Table 8: Fixed services in the 18 GHz - 86 GHz bands
Table 9: Fixed Wireless Access services

The legislation and documentation relevant to the fixed services is listed at the end of this section.

Table 6: Interface requirements for the Fixed Services (450 MHz – U6 GHz bands)

Parameter	Description						
Frequency Band (MHz)	450 – 470 MHz	1.3 GHz (1350-1375 MHz paired with 1492-1517 MHz)	1.4 GHz (1375-1400 MHz paired with 1427-1452 MHz)	2 GHz (2.025 –2.290 GHz)	4 GHz (3.800 – 4.200 GHz)	L6 GHz (5.925 -6.425 GHz)	U6 GHz (6.425 - 7.125 GHz)
Maximum Transmit Power/ Maximum ERP	Minimum required to obtain adequate receiver input signal	Minimum required to obtain required availability level	Minimum required to obtain required availability level	Minimum required to obtain required availability level	Minimum required to obtain required availability level	Minimum required to obtain required availability level	Minimum required to obtain required availability level
Max Channel Spacing	25kHz	1 MHz	1 MHz	14MHz	29MHz	29.65 MHz	80 MHz
Transmit/receive spacing (duplex direction)	5.5MHz, 6.5MHz, 14 MHz	142MHz	52MHz	175MHz	213MHz	252.04 MHz	340 MHz
Transmission capacity	-	2 Mbit/s ~1MHz	2 Mbit/s ~1MHz	Up to 34 Mbit/s	Minimum capacity 140 Mbit/s	Minimum capacity 140 Mbit/s	Minimum capacity 140 Mbit/s
National Usage	Fixed/Mobile	Fixed	Fixed	Fixed	Fixed/satellite	Fixed	Fixed
Licensing Regime	Wireless Telegraphy Licence required. See ComReg document 02/11R S.I. 319 of 1992 and ComReg Document 03/83	Wireless Telegraphy Licence required. See documents 98/14R3 and 98/15R3 S.I. 319 of 1992 and ComReg Document 03/83	Wireless Telegraphy Licence required. See documents 98/14R3 and 98/15R3 S.I. 319 of 1992 and ComReg Document 03/83	Wireless Telegraphy Licence required. See documents 98/14R3 and 98/15R3 S.I. 319 of 1992 and ComReg Document 03/83	This band is currently under consideration	Wireless Telegraphy Licence required. See documents 98/14R3 and 98/15R3 S.I. 319 of 1992 and ComReg Document 03/83	Wireless Telegraphy Licence required. See documents 98/14R3 and 98/15R3 S.I. 319 of 1992 and ComReg Document 03/83
Reference standard	EN 300 086 EN 300 113	EN 300 630	EN 300 630	EN 300 633	EN 300 234 EN 301 127	EN 300 234 EN 301 127	EN 301 277 EN 301 669 EN 301 461
Comment on standard	-	Classes 1, 2, 3 (EN 300 630)	Classes 1, 2, 3 (EN 300 630)	Classes 2, 3 applicable (EN 300 633)	n/a	n/a	n/a
Minimum antenna requirements	12 element Yagi or equivalent	Class 2 EN 300 631	Class 2 EN 300 631	Class 3 EN 300 631	Class 3 EN 300 833	Class 3 EN 300 833	Class 3 EN 300 833
Minimum Path length (km)	-	-	-	25	25	25	25
Notes Band plan	-	T/R 13-01 E, Annex A	T/R 13-01 E, Annex B	T/R 13-01 E, Annex C	CEPT/ERC/REC 12/08 E, Annex B, Part 1	CEPT/ERC/REC 14-01 E, Annex 1	CEPT/ERC/REC 14-02 E, Annex 1
Notes	The fixed use of the band 450-470MHz is	Wherever possible all relevant CEPT/ERC	Wherever possible all relevant CEPT/ERC	Wherever possible all relevant CEPT/ERC	Wherever possible all relevant CEPT/ERC	Wherever possible all relevant CEPT/ERC	Wherever possible all relevant CEPT/ERC

	for low capacity analogue links.	Decisions apply	Decisions apply	Decisions apply	Decisions apply	Decisions apply	Decisions apply

Table 7: Interface requirements for the Fixed Services (7 GHz – 15 GHz bands)

Parameter	Description							
Frequency Band (MHz)	**L7 Outside Broadcast (7.125- 7156 GHz)**	L7 GHz (7.125 – 7.425 GHz)	7 GHz (7.425 - 7.725 GHz)	L8 GHz (7.725 - 8.275 GHz)	U8 GHz (8.275 - 8.5 GHz)	11 GHz (10.7 - 11.7 GHz)	13 GHz (12.75 - 13.25 GHz)	15 GHz (14.5 - 15.35 GHz)
Maximum Transmit Power/ Maximum ERP	Minimum required to obtain required availability level	Minimum required to obtain required availability level	Minimum required to obtain required availability level	Minimum required to obtain required availability level	Minimum required to obtain required availability level	Minimum required to obtain required availability level	Minimum required to obtain required availability level	Minimum required to obtain required availability level
Channel Spacing	14 MHz	14 MHz, 28 MHz	7MHz, 14MHz, 28MHz	29.65 MHz	3.5MHz,7 MHz, 14 MHz	40 MHz	3.5 MHz, 7 MHz, 14 MHz, 28 MHz	3.5 MHz, 7 MHz, 14 MHz, 28MHz
Transmit/receive spacing (duplex direction)	**-**	154 MHz	14MHz – 154 MHz 28MHz – 154 MHz	311.32MHz	126 MHz for 3.5 MHz and 7MHz channel spacing and 119MHz for 14MHz channel spacing	490MHz	266MHz	420MHz
Transmission capacity	**-**	140 Mbit/s	Minimum capacity 140 Mbit/s	Minimum capacity 140 Mbit/s	≥4 Mbit/s	Minimum capacity 140 Mbit/s	≥ 4 Mbit/s	≥ 4 Mbit/s
Licensing Regime	Wireless Telegraphy Licence required. See documents 98/14R3 and 98/15R3	Licensing regime to be decided.	Wireless Telegraphy Licence required. See documents 98/14R3 and 98/15R3	Wireless Telegraphy Licence required. See documents 98/14R3 and 98/15R3	Wireless Telegraphy Licence required. See documents 98/14R3 and 98/15R3	Wireless Telegraphy Licence required. See documents 98/14R3 and 98/15R3	Wireless Telegraphy Licence required. See documents 98/14R3 and 98/15R3	Wireless Telegraphy Licence required. See documents 98/14R3 and 98/15R3
Reference standards	EN 301 216 EN 301 785	EN 301 216 EN 301 785	EN 300 234 EN 301 127 EN 301 785	EN 300 234 EN 301 127 EN 301 785	EN 301 216 EN 301 785	EN 301 277 EN 301 669 EN 301 461 EN 301 785	EN 301 128, EN 300 639, EN 301 127, EN 301 785 EN 300 786	EN 301 128 EN 301 785 EN 300 786 EN 300 639
Comment on	n/a	n/a	n/a	n/a	Classes 1, 2, 3	n/a	Classes 1, 2	Classes 1, 2

standard					applicable (EN 301 216)		applicable (EN 301 128)	applicable (EN 301 128)
Minimum antenna requirements	Class 3 EN 300 833	Class 3 EN 300 833	Class 3 EN 300 833	Class 3 EN 300 833	Class 3 EN 300 833	Class 3 EN 300 833	Class 3 EN 300 833	Class 3 EN 300 833
Minimum Path length (km)	n/a	25	25	25	25	10	9	9
Band plan	ECC/REC 02-06 Annex 1	ECC/REC 02-06 Annex 1	ECC/REC 02-06 Annex 1	ITU-R F. 386.6, Annex 1	ITU-R F. 386.6, Annex 3	CEPT/ERC/REC 12-06, Annex E	CEPT/ERC/REC 12-02	ITU-R F. 636-3
Notes	Wherever possible all relevant CEPT/ERC Decisions apply	Wherever possible all relevant CEPT/ERC Decisions apply	Wherever possible all relevant CEPT/ERC Decisions apply	Wherever possible all relevant CEPT/ERC Decisions apply	Wherever possible all relevant CEPT/ERC Decisions apply	ITU-R F. 387-6, Annex 2. CEPT/ERC/REC 12 – 06 Annex E. Wherever possible all relevant CEPT/ERC Decisions apply	CEPT/ERC/REC 12 – 02 E. Wherever possible all relevant CEPT/ERC Decisions apply	Wherever possible all relevant CEPT/ERC Decisions apply

Table 8: Interface requirements for the Fixed Services (18 GHz – 86 GHz bands)

Parameter	**Description**							
Frequency Band (MHz)	18 GHz (17.7 -19.7 GHz)	23 GHz (22 -23.6 GHz)	26 GHz (Upper half of band 24.5 – 26.5 GHz)	28 GHz (Part of band 27.5 – 29.5GHz)	31 GHz band (31.0 – 31.3 GHz and 31.8 – 33.4 GHz)	38 GHz (37 – 39.5 Hz)	55 GHz (55.78 - 57 GHz)	71 -76 GHz and 81 – 86 GHz
Maximum Transmit Power/ Maximum ERP	Minimum required to obtain required availability level	Minimum required to obtain required availability level	Minimum required to obtain required availability level	Minimum required to obtain required availability level	Minimum required to obtain required availability level	Minimum required to obtain required availability level	Minimum required to obtain required availability level	Minimum required to obtain required availability level
Channel Spacing	55 MHz, 27.5 MHz	3.5 MHz, 7 MHz, 14 MHz, 28 MHz, 56 MHz	3.5 MHz, 7 MHz, 14 MHz, 28 MHz	3.5 MHz, 7 MHz, 14 MHz, 28 MHz	To be developed	3.5 MHz, 7 MHz, 14 MHz, 28 MHz	3.5MHz, 7MHz, 14 MHz, 28 MH	To be developed z
Transmit/receive spacing (duplex direction)	1010MHz	1008MHz	1008MHz	1008MHz	-	1260MHz	616MHz	To be developed
Transmission capacity/duty cycle/channel	≥ 34 Mbit/s	≥ 4 Mbit/s	≥ 4 Mbit/s	≥ 4 Mbit/s	-	≥ 4 Mbit/s	≥ 4 Mbit/s	-

access protocol								
Licensing Regime	Wireless Telegraphy Licence required. See documents 98/14R3 and 98/15R3	Wireless Telegraphy Licence required. See documents 98/14R3 and 98/15R3	Wireless Telegraphy Licence required. See documents 98/14R3 and 98/15R3 and SI 296 of 2006.	Wireless Telegraphy Licence required. See documents 98/14R3 and 98/15R3	Wireless Telegraphy Licence required. See documents 98/14R3 and 98/15R3	Wireless Telegraphy Licence required. See documents 98/14R3 and 98/15R3	Wireless Telegraphy Licence required. See documents 98/14R3 and 98/15R3	Wireless Telegraphy Licence required. See documents 98/14R3 and 98/15R3
Reference standards	EN 300 430, EN 300 639, EN 301 128, EN 301 785, EN 301 787, EN 302 062,	EN 300 198 EN 301 785 EN 302 062 TS 101 785	For Point to Point equipment : EN 300 431 EN 301 785 TS 101 785 TR 101 854 For Point to Multipoint equipment: EN 301 213	EN 300 431 EN 300 632 EN 301 785 TS 101 785	EN 300 197 TR 101 939 EN 301 785 EN 302 063	EN 300 197 EN 301 785 TS 101 785	EN 300 407 EN 301 785	TS 102 524 EN 301 126
Comment on standard	PDH: Classes 1 & 2 applicable (EN 301 128) SDH Class 4,5 Applicable (EN 300 430)	Class 2 applicable to PDH. Class 3 applicable to SDH.	Class B equipment applicable, (PDH and SDH)	To be agreed	-	Class 2 applicable to PDH. Class 3 applicable to SDH.	To be agreed	To be agreed
Minimum antenna requirements	Class 3 EN 300 833	Class 3 EN 300 833	For Point to Point antennas : EN 302 217-4-2, Class 3 For Point to Multipoint antennas: EN 301 215	Class 3 EN 300 833	Class 3 EN 300 833	Class 3 EN 300 833	Class 3 EN 300 833	TS 102 524
Typical capacity	≥34Mbit/s	≥4Mbit/s	≥4Mbit/s	≥4Mbit/s	-	≥4Mbit/s	-	-
Minimum Path length (km)	6 (for 34Mbit/s capacity) 0 (for > 34Mbit/s capacity or 34Mbit/s in 14MHz channel spacing)	3 (for 2 – 34Mbit/s capacity) 0 (for > 34Mbit/s capacity or 34Mbit/s in 14MHz channel spacing)	n/a	3 (for 2 - 34Mbit/s capacity) 0 (for > 34Mbit/s capacity or 34Mbit/s in 14MHz channel spacing)	-	0	0	0
Band plan	CEPT/ERC/REC 12-03 E, Annex A	CEPT/ERC/REC 13-02 E, Annex A	CEPT/ERC/REC 13-02 E, Annex B	CEPT/ERC/REC 13-02 E, Annex C	To be developed CEPT/ERC/REC (01)02 CEPT/ERC/REC (02)02 CEPT/ERC/REC (04)06	CEPT/ERC/REC 12-01 E, Annex A	CEPT/ERC/REC 12-12 E	CEPT/ECC/REC (05)07

Notes	Wherever possible all relevant CEPT/ERC Decisions apply**.**	Wherever possible all relevant CEPT/ERC Decisions apply.	Wherever possible all relevant CEPT/ERC Decisions apply.	Wherever possible all relevant CEPT/ERC Decisions apply.	Wherever possible all relevant CEPT/ERC Decisions apply.	Wherever possible all relevant CEPT/ERC Decisions apply.	Wherever possible all relevant CEPT/ERC Decisions apply.	Wherever possible all relevant CEPT/ERC Decisions apply.

Table 9: Interface Requirements for Fixed Wireless Access Services in Ireland (FWA)

Parameter	**Description**				
Frequency Band	3.5 GHz	24.5-26.5 GHz	3.5GHz band	10.5 GHz band	26 GHz band
Radio Service	Fixed Wireless Point to Multipoint Access (FWPMA)	Fixed Wireless Point to Multipoint Access (FWPMA)	Local Area Fixed Wireless Access (FWALA)	Local Area Fixed Wireless Access (FWALA)	Local Area Fixed Wireless Access (FWALA)
Licensing Regime	National Licence	National Licences	Local Area Licences issued on a first-come first-served basis or comparative evaluation	Local Area Licences issued on a first-come first-served basis or comparative evaluation	Local Area Licences issued on a first-come first-served basis or comparative evaluation
Reference standards	EN 301 124, EN 301 055, EN 301 213	EN 301 124, EN 301 055, EN 301 213	EN 301 021, EN 301 080, EN 301 124, EN 301 253	EN 301 021, EN 301 080, EN 301 124, EN 301 253	EN 301 213
Antenna Standards	EN 302 085, EN 301 215	EN 302 085, EN 301 215	EN 302 085	EN 302 085	EN 301 215
Notes	National licences issued June 2000 Regulations under Statutory Instrument (S.I.) S.I. 96/1998 S.I. 180/1998 S.I. 287/1999 Information on contest and frequency bands in document 99/07. Licence fees amended by S.I 46 of 2002.	National licences issued June 2000 Regulations under Statutory Instrument (S.I.) S.I. 96/1998 S.I. 180/1998 S.I. 287/1999 Information on contest and frequency bands in document 99/07. Licence fees amended by S.I 46 of 2002.	S.I. 79 of 2003 S.I. 530 of 2003 ComReg Document 06/17, 06/17A, 06/18 http://www.comreg.ie/FWABroadband/FWABroadband.asp	S.I. 79 of 2003 S.I. 530 of 2003 ComReg Documents 06/17, 06/17A, 06/18 http://www.comreg.ie/FWABroadband/FWABroadband.asp	S.I. 79 of 2003 S.I. 530 of 2003 ComReg Documents 06/17, 06/17A, 06/18 http://www.comreg.ie/FWABroadband/FWABroadband.asp

Relevant Documentation

National Legislation

Primary Legislation

Wireless Telegraphy Act 1926, as amended.

Secondary Legislation

S.I. 296 of 2006: Wireless Telegraphy (National Point-to-Point and Point-to-Multipoint Block Licences) Regulations, 2006.

S.I. 530 of 2003: Wireless Telegraphy (Fixed Wireless Access Local Area Licence)(Amendment) Regulations.

S.I. 338 of 2003: Wireless Telegraphy (Fixed Wireless Point to Multipoint Access Licence)(Amendment)(no.2) Regulations, 2003.

S.I. 79 of 2003: Wireless Telegraphy (Fixed Wireless Access Local Area Licence) Regulations, 2003.

S.I. 467 of 2002: Wireless Telegraphy (Fixed Wireless Point to Multi-Point Access Licence)(Amendment) Regulations, 2002.

S.I. 287 of 1999: Wireless Telegraphy (Fixed Wireless Point to Multipoint Access Licence) Regulations, 1999.

S.I. 319 of 1992: Wireless Telegraphy (Radio Link Licence) Regulations 1992.

ComReg/ODTR Documentation

06/18: Information Notice Comparative Evaluation Stage - Revised FWALA Licensing Process.

06/17a: Revised Application Form for Fixed Wireless Access Local Area (FWALA) Licence.

06/17: Revised Guidelines to Applicants to Fixed Wireless Access Local Area (FWALA) Licences.

02/11R: Point to Point Radio Link Licence below 1GHz: Application Form and Guidance Notes.

98/15R3: Point to Point Radio Link Licences above 1 GHz - Application Form.

98/14R3: Guidelines for applicants for Point to Point Radio Link Licences in Spectrum above 1 GHz.

ETSI Documentation

EN 300 086: ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Land Mobile Service; Radio equipment with an internal or external RF connector intended primarily for analogue speech.

EN 300 113: Electromagnetic compatibility and Radio spectrum Matters (ERM); Land mobile service; Radio equipment intended for the transmission of data (and/or speech) using constant or non-constant envelope modulation and having an antenna connector.

EN 300 197: Fixed Radio Systems; Point-to-point equipment; Parameters for radio systems for the transmission of digital signals operating at 32 GHz and 38 GHz.

EN 300 198: Fixed Radio Systems; Point-to-point equipment; Parameters for radio systems for the transmission of digital signals operating at 23 GHz.

EN 300 234: Fixed Radio Systems; Point-to-point equipment; High capacity digital radio systems carrying 1 x STM-1 signals and operating in frequency bands with about 30 MHz channel spacing and alternated arrangements.

EN 300 407: Fixed Radio Systems; Point-to-point equipment; Parameters for digital radio systems for the transmission of digital signals operating at 55 GHz.

EN 300 430: Fixed Radio Systems; Point-to-point equipment; Parameters for radio systems for the transmission of STM-1 digital signals operating in the 18 GHz frequency band with channel spacing of 55 MHz and 27,5 MHz.

EN 300 431: Fixed Radio Systems; Point-to-point equipment; Parameters for radio system for the transmission of digital signals operating in the frequency range 24,50 GHz to 29,50 GHz.

EN 300 630: Fixed Radio Systems; Point-to-point equipment; Low capacity point-to-point digital radio systems operating in the 1,4 GHz frequency band.

EN 300 631: Fixed Radio Systems; Point-to-point Antennas; Antennas for point-to-point fixed radio systems in the 1 GHz to 3 GHz band.

EN 300 632: Transmission and Multiplexing (TM);Fixed radio link equipment for the transmission of analogue video signals operating in the frequency bands 24,25 GHz to 29,50 GHz and 31,0 GHz to 31,8 GHz.

EN 300 633: Fixed Radio Systems; Point-to-point equipment; Low and medium capacity point-to-point digital radio systems operating in the frequency range 2,1 GHz to 2,6 GHz.

EN 300 833: Fixed Radio Systems; Point-to-point antennas; Antennas for point-to-point fixed radio systems operating in the frequency band 3 GHz to 60 GHz.

EN 301 126: Fixed Radio Systems; Conformance testing.

EN 301 127: Fixed Radio Systems; Point-to-point equipment; High capacity digital radio systems carrying SDH signals (up to 2 x STM-1) in frequency bands with about 30 MHz channel spacing and using co-polar arrangements or Co-Channel Dual Polarized (CCDP) operation.

EN 301 128: Fixed Radio Systems; Point-to-point equipment; Plesiochronous Digital Hierarchy (PDH);Low and medium capacity digital radio systems operating in the 13 GHz, 15 GHz and 18 GHz frequency bands.

EN 301 216: Fixed Radio Systems; Point-to-point equipment; Plesiochronous Digital Hierarchy (PDH);Low and medium capacity and STM-0 digital radio system operating in the frequency bands in the range 3 GHz to 11 GHz.

EN 301 277: Fixed Radio Systems; Point-to-point equipment; High capacity digital radio systems transmitting STM-4 or 4 x STM-1 in a 40 MHz radio frequency channel using Co-Channel Dual Polarized (CCDP) operation.

EN 301 461: Fixed Radio Systems; Point-to-point equipment; High capacity fixed radio systems carrying SDH signals (2 x STM-1) in frequency bands with 40 MHz channel spacing and using Co-Channel Dual Polarized (CCDP) operation.

EN 300 639: Fixed Radio Systems; Point-to-point equipment;Sub-STM-1 digital radio systems operating in the 13 GHz, 15 GHz and 18 GHz frequency bands with about 28 MHz co-polar and 14 MHz cross-polar channel spacing.

EN 301 669: Fixed Radio Systems; Point-to-point equipment; High capacity digital radio systems carrying STM-4 in two 40 MHz channels or 2 x STM-1 in a 40 MHz channel with alternate channel arrangement.

EN 301 785: Fixed Radio Systems; Point-to-point packet data equipment; Parameters for radio systems with packet data interfaces for transmission of digital signals operating in the frequency range 7, 8, 13, 15, 18, 23, 26, 28, 32, 38, 52 to 55 GHz.

EN 301 787: Fixed Radio Systems; Point-to-Point equipment; Parameters for radio systems for the transmission of Sub-STM-0 digital signals operating in the 18 GHz frequency band.

EN 302 062: Fixed Radio Systems; Point-to-point equipment; High capacity digital radio relay systems carrying STM-4, 4 x STM-1 or 2 x STM-1 signals in bands with 55/56 MHz channel spacing.

TS 101 785: Fixed Radio Systems; Point-to-point equipment; Parameters for packet data radio systems for transmission of digital signals operating in the frequency range 23, 26, 28 or 38 GHz.

ETSI TS 102 524 Fixed Radio Systems; Point-to-Point equipment; Radio equipment and antennas for use in Point-to-Point Millimetre wave applications in the Fixed Services (mmwFS) frequency bands 71 GHz to 76 GHz and 81 GHz to 86 GHz.

CEPT Documentation

ERC/REC 12-01 E: Harmonised radio frequency channel arrangements for analogue and digital terrestrial fixed systems operating in the band 37-39.5 GHz.

ERC/REC 12-02 E: Harmonised radio frequency channel arrangements for analogue and Digital terrestrial fixed systems operating in the band 12.75 GHz to 13.25 GHz.

ERC/REC 12-03: Harmonised radio frequency channel arrangements for digital terrestrial fixed systems operating in the band 17.7 GHz to 19.7 GHz.

ERC/REC 12-06: Harmonised radio frequency channel arrangements for digital terrestrial fixed systems operating in the band 10.7 GHz to 11.7 GHz.

ERC/REC 12-12: Radio frequency channel arrangement for fixed service systems operating in the band 55.78 - 57.0 GHz.

T/R 13-01 E: Preferred channel arrangements for fixed services in the range 1 - 3 GHz.

ERC/REC 13-02 E: Preferred channel arrangements for fixed services in the range 22.0-29.5 GHz.

ERC/REC 14-01 E: Radio-frequency channel arrangements for high capacity analogue and digital radio-relay systems operating in the band 5925 MHz - 6425 MHz.

ERC/REC 14-02 E: Radio-frequency channel arrangements for medium and high capacity analogue or high capacity digital radio-relay systems operating in the band 6425 MHz - 7125 MHz.

ECC/REC 02-06: Preferred channel arrangements for digital Fixed Service Systems operating in the frequency range 7125-8500 MHz.

ECC/REC (05)07: Radio frequency channel arrangements for Fixed Service Systems operating in the bands 71-76 GHz and 81-86 GHz.

ITU Documentation

Rec. ITU-R F.385-6: Radio-frequency channel arrangements for radio-relay systems operating in the 7 GHz band.

Rec. ITU-R F.386-6: Radio-frequency channel arrangements for medium and high capacity analogue or digital radio-relay systems operating in the 8 GHz band.

Rec. ITU-R F.387-6: Radio-frequency channel arrangements for radio relay systems operating in the 11 GHz band.

Rec. ITU-R F.636-3: Radio-frequency channel arrangements for radio-relay systems operating in the 15 GHz band.

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

3.3 Broadcasting Services

This section outlines the interface requirements for the broadcasting services in Ireland. The broadcasting services include sound and television transmission as well as broadcasting-satellite services. The interface requirements for the broadcasting services are detailed in Tables 10 and 11 as follows:

Table 10: Broadcasting services in the frequency bands up to 223 MHz
Table 11: Broadcasting services in the frequency bands 223 - 2686 MHz

The legislation and documentation relevant to the broadcasting services is listed at the end of this section.

Table 10: Radio Interface for the Broadcasting Service (Bands up to 223 MHz)

Parameter	Description				
Frequency Band (MHz)	148.5 – 255 kHz 255 – 283.5 kHz	526.5 - 1606.5 kHz	5900 - 5950 kHz, 5950 - 6200 kHz, 7100 - 7300 kHz, 7300 - 7350 kHz, 9400 - 9500 kHz, 9500 - 9900 kHz, 11600 - 11650 kHz, 11650 - 12050 kHz, 12050 12100 kHz, 13570 - 13600 kHz, 13600 - 13800 kHz, 15100 - 15600 kHz, 15600 - 15800 kHz, 17480 - 17550kHz, 17550 - 17900 kHz, 18900 - 19020 kHz, 21450 - 21850 kHz, 25670 - 26100 kHz	87.5 - 100 MHz 100 - 108 MHz	174 - 223 MHz
Maximum Transmit Power/ Maximum ERP	No rule (500kW carrier power)	No rule (500kW carrier power)	-	-	No Rule
Channel Spacing	9kHz	9kHz	-	300 kHz	8MHz channel spacing for TV, DAB blocks As per Wiesbaden 95
Occupied bandwidth	9kHz	9kHz	-	270kHz	8MHz TV 1.54 MHz DAB
Type of modulation	A3E (AM)	A3E (AM)	-	F3E (FM)	C9F/F3E/G7E = TV and X7F = DTT, G7E=DAB
National Usage	Broadcasting (AM Sound)	Broadcasting (AM Sound)	Short-wave Broadcasting (Reception)	Broadcasting (FM Sound)	Broadcasting (Television) Broadcasting (T-DAB)
Licensing Regime	Govt. Approval to state broadcaster/ BCI regulates independent sector	Govt. Approval to state broadcaster/ BCI regulates independent sector	-	Govt. Approval to state broadcaster/ BCI regulates independent sector	Govt. Approval to state broadcaster/ BCI regulates independent sector
Reference standards	Specs. To match ITU Radio Regs and requirements of GE75 Agreement	Specs. To match ITU Radio Regs and requirements of GE75 Agreement	-	Specs. To match ITU Radio Regs and requirements of GE84 Agreement. ETS 300 384 recommended Legbac MoU. EN 300 751, ETS 300 447, ETR 132	Specs. To match ITU Radio Regs and requirements of ST61 Agreement, System PAL I, Chester 97 Agreement, EN 300 744, EN 300 743, EN 301 192, TR 101 200, EN 300 468, ETR 211, EN 300 472, TR 101 190, TS 101 191, ETS 300 801, EN 301 193, EN 301 195, ETS 300 802, TR 101 194, ETR 154, ETR 289, TS 101 197, TS 103 197, EN 301 192, TR 101 202,EN 50221, R 206 001, EN 50201 and

					Wiesbaden 1995 Special Arrangement as revised in Maastricht 2002. EN 300 401 (T-DAB), EN 300 797, EN 300 798, ETS 300 799, EN 301 234, EN 50248, EN 50255
Notes	ITU Geneva 1975 Plan (long wave)	ITU Geneva 1975 Plan (medium wave)	Short-wave Reception only - No transmitting stations licensed in Ireland	ITU Geneva 1984 Plan	ITU Stockholm 1961 Plan (CEPT 1995 Wiesbaden Arrangement, CEPT Bonn Meeting 1996, CEPT Maastricht meeting 2002)

Table 11: Interface Requirements for the Broadcasting Service (Bands between 223 MHz and 2686 MHz)

Parameter	**Description**				
Frequency Band (MHz)	223 - 230 MHz	470 - 790 MHz	790 - 862 MHz	1452 - 1492 MHz	2500 – 2686 MHz
Maximum Transmit Power/ Maximum ERP	No rule	No Rule	No Rule	No Rule	32dBW
Channel Spacing	DAB blocks as per Wiesbaden 95	8 MHz channels for TV	8 MHz channels for TV	DAB blocks as per The Maastricht, 2002, Special Arrangement	22 x 8 MHz blocks
Occupied bandwidth	1.54MHz	8MHz	8MHz	1.54MHz	8MHz
Type(s) of modulation	G7E	C9F/F3E/G7E = TV X7F = DTT	C9F/F3E/G7E = TV X7F = DTT	G7E	C9F/F3E/G7E = TV X7F = DTT
National Usage	Broadcasting (Television) Broadcasting (T-DAB)	Broadcasting (Television)	Broadcasting (Television): Broadcasting (STL and OB Links)	Broadcasting (DAB)	Programme Retransmission Systems (2500 - 2686 MHz)
Licensing Regime	Govt. Approval to state broadcaster/ BCI regulates independent sector	Govt. Approval to state broadcaster/ BCI regulates independent sector	Govt. Approval to state broadcaster/ BCI regulates independent sector	Govt. Approval to state broadcaster/ BCI regulates independent sector. Content licensing process not yet in place.	Licences were awarded to operators, following a competition.
Reference standards	Specs. To match ITU Radio Regs, TR 101 200, EN 300 468, ETR 211, EN 300 472, TR 101 190, TS 101 191, ETS 300 801, EN 301 193, EN 301 195, ETS 300 802, TR 101 194, ETR 154, ETR 289, TS 101 197, EN 301 192, TR101 202,	Specs. To match ITU Radio Regs and requirements of ST61 Agreement, System PAL I and Chester 97 Agreement, EN 300 744, EN 300 743, EN 301 192, TS 101 192, TR101 200, EN 300 468, ETR 211, EN300 472, TR 101 190, TS 101 191, ETS 300 801,	Specs. To match ITU Radio Regs and requirements of ST61 Agreement, System PAL I and Chester 97 Agreement, EN 300 744, EN 300 743, EN 301 192, TR101 200, EN 300 468, ETR 211, EN 300 472, TR 101 190, TS 101 191, ETS 300 801,	Specs. To match ITU Radio Regs and the Maastricht, 2002, Special Arrangement EN 300 401 (T-DAB) EN 300 797, EN 300 798, ETS 300 799, EN 301 234, EN 50248, EN 50255	TR 101 200, EN 300 468, ETR 211, ETR 162, EN 300 472, E EN 300 743, EN 300 744, TR 101 190, TS 101 191, EN 300 749, ETS 300 801, EN 301 193, EN 301 199, TR 101 205, EN 301 195, ETS 300 802, TR 101 194, ETR 154, ETR 289, TS 101 197, TS 103 197, EN 301

	EN 50221, R 206 001, EN 50201 and Wiesbaden 1995 Special Arrangement as revised in Maastricht 2002. EN 300 401 (T-DAB), EN 300 797, EN 300 798, ETS 300 799, EN 301 234, EN 50248, EN 50255	EN 301 193, EN 301 195, ETS 300 802, TR 101 194, ETR 154, ETR 289, TS 101 197, TS 103 197, EN 301 192, TR 101 202, EN 50221, R 206 001, EN 50201	EN 301 193, EN 301 195, ETS 300 802, TR 101 194, ETR 154, ETR 289, TS 101 197, TS 103 197, EN 301 192, TR 101 202, EN 50221, R 206 001, EN 50201		192, TR 101 202, EN 50221, R 206 001, EN 50201, TS 102 201
Notes	ITU Stockholm 1961 Plan, Introduction in Ireland (223-230MHz), (CEPT 1995 Wiesbaden Arrangement, CEPT Bonn Meeting 1996, CEPT Maastricht meeting 2002), Digital Broadcasting (T-DAB & DTT) ITU Geneva 2006 Plan.	ITU Stockholm 1961 Plan. Mobile (services ancillary to broadcasting on a case by case basis) Digital Broadcasting (DTT), CEPT Chester Agreement (1997), Digital Broadcasting (T-DAB & DTT) ITU Geneva 2006 Plan.	ITU Stockholm 1961 Plan. Digital Broadcasting (DTT), CEPT Chester Agreement (1997), Broadcasting (STL and OB Links) links to be relocated to 1.3GHz, Digital Broadcasting (T-DAB & DTT) ITU Geneva 2006 Plan.	Digital Audio Broadcasting Resolution 528 (WARC-92) (CEPT Maastricht meeting 2002)	Relevant legislation: S.I. No. 214 of 1998. S.I. 529 of 2003, S.I. 675 of 2003 ComReg documents: 04/42, 04/41, 99/44, 98/68 Channel plan for the fixed service in CEPT/ERC/REC 13 - 01 E, Annex D will not be implemented as the band is used by Programme Retransmission Systems.

Relevant Documentation

National Legislation

Primary Legislation

Broadcasting Act 1990.
Radio and Television Act, 1988.
Broadcasting Act, 1960, as amended.
Wireless Telegraphy Act, 1926 as amended.

Secondary Legislation

S.I. 529 of 2003: Wireless Telegraphy (Multipoint Microwave Distribution System) Regulations 2003

S.I. 675 of 2003: Wireless telegraphy (UHF Television Programme Retransmission) Regulations 2003

S.I. 99 of 2003: Broadcasting (Major Events Television Coverage) Act 1999 (Designation of Major Events) Order 2003.

S.I. 299 of 2002: Broadcasting (Transfer of Departmental Administration and Ministerial Functions) Order 2002.

S.I. 362 of 2001: Broadcasting Act, 2001 (Commencement) Order, 2001.

Broadcasting Authority Act, (Section 31) Orders 1977-1993.

S.I. 506 of 2003: Wireless Telegraphy (Carrigaline UHF Television Programme Retransmission)(Amendment) Regulations 2003.

S.I. 507 of 2003: Wireless Telegraphy (UHF Television Programme Retransmission)(Amendment) Regulations 2003.

S.I. 269 of 1988: Radio and Television Act, 1988 (Establishment Day) Order, 1988.

S.I. 211 of 1972: Wireless Telegraphy Act, 1926 (section 3) (Exemption of Sound Broadcasting Receivers) Order, 1972.

ComReg/ODTR Documentation

05/13b: RTÉ Licence Technical schedule.

05/13a: RTÉ Licence Text.

05/13: Renewal of RTÉ Licence.

04/42: Technical Conditions for the Operation of Digital Programme Services Distribution Systems.

04/41: Technical Conditions for the Operation of Analogue Programme Services Distribution Systems in Frequency Band 2500-2686 MHz.

04/28: Technical Conditions for the operation of Digital Television Delivery Systems between 11.7GHz and 12.5GHz.

04/27: Digital Television Delivery Systems at 12GHz, Guidance Notes for Applicants.

04/26: Application Form for Digital Television Delivery Systems at 12GHz.

01/90: Digital Audio Broadcasting Technical Conditions - Annex to Information Notice.

01/89: Digital Audio Broadcasting Technical Conditions - Information Notice.

00/23R: Television Deflector Licensing May 2000 – Application Form.

00/24R: Television Deflector Licensing Guidance Notes for Applicants – May 2000.

00/39: Licence Details of Television Deflector Licensees.

00/37R: Pro-Forma Television Deflector Licence.

00/25: List of Frequency Channels Used by Licensed Television Deflectors.

99/81: Amended MMDS TV Licences.

99/66R: List of Reserved Frequency Channels - National UHF Television Plan and Draft Digital Terrestrial Television Plan.

99/65: Television Deflector Licensing - Guidance Notes for Applicants.

99/64: Deflector Licensing - Application Form.

99/44: MMDS TV Licences.

99/30: Selection of Appropriate Guard Interval for Irish Digital Terrestrial Television.

98/68: Technical Conditions for the Operation of Conditional Access Systems.

98/66R: Technical Conditions for the Operation of Digital Cable Television Systems.

98/12: Conditions for the operation of Cable Television Systems.

LEGBAC MoU: Limited Exploratory Group on Broadcasting to Aeronautical Compatibility-MoU.

ETSI documentation

ETR 132: Radio broadcasting systems; Code of practice for site engineering Very High Frequency (VHF), frequency modulated, sound broadcasting transmitters.

ETR 154: Digital Video Broadcasting (DVB); DVB implementation guidelines for the use of MPEG-2 Systems, Video and Audio in satellite and cable broadcasting applications.

ETR 162: Digital Video Broadcasting (DVB); Allocation of Service Information (SI) codes for DVB systems.

ETR 211: Digital Video Broadcasting (DVB); Guidelines on implementation and usage of Service Information (SI).

ETR 289: Digital Video Broadcasting (DVB); Support for use of scrambling and Conditional Access (CA) within digital broadcasting systems.

ETR 290: Digital Video Broadcasting (DVB); Measurement guidelines for DVB systems.

TS 101 191: Digital Video Broadcasting (DVB); Mega-frame for Single Frequency Network (SFN) synchronization.

TS 101 197: Digital Video Broadcasting (DVB); DVB SimulCrypt; Head-end architecture and synchronization.

TS 102 201: Digital Video Broadcasting (DVB); Interfaces for DVB Integrated Receiver Decoder (DVB-IRD).

TS 103 197: DVB Headend implementation of DVB SimulCrypt.

TR 100 815: Guidelines for the handling of ATM signals in DVB systems.

TR 101 190: Implementation guidelines for DVB terrestrial services; Transmission aspects.

TR 101 194: Guidelines for implementation and usage of the specification of network independent protocols for DVB interactive services.

TR 101 196: Interaction channel for Cable TV distribution systems (CATV); Guidelines for the use of ETS 300 800.

TR 101 198: Implementation of BPSK modulation in DVB satellite transmission systems.

TR 101 200: Guidelines for the use of DVB specifications and standards.

TR 101 201: Interaction channel for SMATV distribution systems; Guidelines for versions based on satellite and coaxial sections.

TR 101 202: Implementation Guidelines for Data Broadcasting.

TR 101 205: Guidelines for implementation and usage of DVB interaction channel for LMDS distribution systems.

TR 101 221: User guideline for Digital Satellite News Gathering (DSNG) and other contribution applications by satellite.

TR 101 291: Usage of the DVB test and measurement signalling channel (PID 0x001d) embedded in an MPEG-2 Transport Stream (TS).

TR 102 154: Implementation guidelines for the use of Video and Audio Coding in Contribution and Primary Distribution Applications based on the MPEG-2 Transport Stream.

EN 300 421: Framing structure, channel coding and modulation for 11/12 GHz satellite services.

EN 300 429: Framing structure, channel coding and modulation for cable systems.

EN 300 468: Digital Video Broadcasting (DVB); Specification for Service information (SI) in DVB systems.

EN 300 472: Digital Video Broadcasting (DVB); Specification for conveying ITU-R System B Teletext in DVB bitstreams.

EN 300 473: DVB Satellite Master Antenna Television (SMATV) distribution.

EN 300 744: Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation for digital terrestrial television.

EN 300 748: Multipoint Video Distribution Systems (MVDS) at 10 GHz and above.

EN 300 749: Digital Video Broadcasting (DVB); Microwave Multipoint Distribution Systems (MMDS) below 10 GHz.

EN 300 797: Digital Audio Broadcasting (DAB); Distribution interfaces; Service Transport Interface (STI).

EN 300 798: Digital Audio Broadcasting (DAB); Distribution interfaces; Digital baseband In-phase and Quadrature (DIQ) interface.

EN 301 192: Digital Video Broadcasting (DVB); DVB specification for data broadcasting.

EN 301 193: Digital Video Broadcasting (DVB); Interaction channel through the

Digital Enhanced Cordless Telecommunications (DECT).

EN 301 195: Digital Video Broadcasting (DVB); Interaction channel through the Global System for Mobile communications (GSM).

EN 301 199: Digital Video Broadcasting (DVB); Interaction channel for Local Multi-point Distribution Systems (LMDS).
EN 301 210: Framing structure, channel coding and modulation for Digital Satellite News Gathering (DSNG) and other contribution applications by satellite.

EN 301 222: Co-ordination channels associated with Digital Satellite News Gathering (DSNG).

EN 301 234: Digital Audio Broadcasting (DAB); Multimedia Object Transfer (MOT) protocol.

ETS 300 384: Radio broadcasting systems; Very High Frequency (VHF), frequency modulated, sound broadcasting transmitters.

EN 300 401: Digital Audio Broadcasting (DAB); DAB to mobile, portable and fixed receivers.

ETS 300 447: Radio Equipment and Systems (RES);ElectroMagnetic Compatibility (EMC) standard for VHF FM broadcasting transmitters.

EN 300 743: Digital Video Broadcasting (DVB); subtitling systems.

EN 300 751: Radio broadcasting systems;DAta Radio Channel (DARC);System for wireless infotainment forwarding and teledistribution.

ETS 300 799: Digital Audio Broadcasting (DAB); Distribution interfaces; Ensemble Transport Interface (ETI).

ETS 300 801: Digital Video Broadcasting (DVB); Interaction channel through Public Switched Telecommunications Network (PSTN)/ Integrated Services Digital Networks (ISDN).

ETS 300 802: Digital Video Broadcasting (DVB); Network-independent protocols for DVB interactive services.

ETS 300 813: DVB interfaces to Plesiochronous Digital Hierarchy (PDH) networks.

ETS 300 814: DVB interfaces to Synchronous Digital Hierarchy (SDH) networks.

CEPT Documentation

T/R 13-01: Preferred channel arrangements for fixed services in the range 1-3 GHz.

“The Chester 1997 Multilateral Coordination Agreement relating to Technical Criteria,

Coordination Principles and Procedures for the introduction of Terrestrial Digital Video Broadcasting (DVB-T) Chester, 25 July 1997."

"Final Acts of the CEPT T-DAB Planning Meeting Wiesbaden, 1995"

"Final Acts of the CEPT T-DAB Planning Meeting (2) Bonn, 1996."

"Final Acts of the CEPT T-DAB Planning Meeting (3) Maastricht, 2002."

"Final Acts of the CEPT T-DAB Planning Meeting (4) Maastricht, 2002."

CENELEC Documentation

EN 50201: Interfaces for DVB-IRDs.

EN 50248: DAB Receiver Characteristics.

EN 50255: Digital Audio Broadcasting system - Specification of the Receiver Data Interface (RDI).

EN 50221: Common Interface Specification for Conditional Access and other Digital Video Broadcasting Decoder Applications.

EN 50083: Cabled distribution systems for television, sound and interactive multimedia signals.

R 206 001: Guidelines for implementation & use of the Common Interface for DVB Decoder Applications.

ITU Documentation

"Regional agreement for the European broadcasting area concerning the use of frequencies by the Broadcasting Service in the VHF and UHF bands Stockholm 1961."

"Final Acts of the Regional Administrative LF/MF Broadcasting Conference (Regions 1 and 3) Geneva, 1975."

"Final Acts of the Regional Administrative Conference for the planning of VHF Sound Broadcasting, Geneva, 1984."

"Final Acts of the Regional Radiocommunication Conference for planning of the digital terrestrial broadcasting service in parts of Regions 1 and 3, in the frequency bands 174-230 MHz and 470-862 MHz (RRC-06)"

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

3.4 Satellite Services

This section outlines the interface requirements for the satellite services in Ireland. The satellite services include meteorological satellites, radionavigation satellites, mobile satellites and fixed satellites. The interface requirements for the satellite services are detailed in Tables 12 - 15 as follows:

Table 12: Satellite services in the bands 137.175 - 1300 MHz
Table 13: Satellite services in the bands 1525 - 2200 MHz
Table 14: Satellite services in the bands 1626.5 - 2690 MHz
Table 15: Satellite services in the bands from 7900MHz

The legislation and documentation relevant to the satellite services is listed at the end of this section.

Table 12: Interface requirements for the Satellite Service (137.175 - 1300 MHz)

Parameter	Description					
Frequency Band (MHz)	137.175 - 137.85 MHz	149.9 - 150.05 MHz	399.9 - 400.05 MHz	400.15 - 401.00 MHz	401 - 406 MHz	1215 - 1300 MHz
National Usage	Meteorological-Satellite (space – Earth), Satellite Personal Communication Service	Satellite Personal Communication Service	Radionavigation satellite, Satellite Personal Communication Service (SPCS)	Meteorological Aids, (Radiosondes), Satellite Personal Communication Service	Meteorological Aids, (Radiosondes)	Radionavigation : Radar, Navigation Systems and Active Sensors, GPS, Galileo and Glonass
Licensing Regime	n/a Licence exemption S.I. 197 of 2005	Licence Exemption S.I. No.173 of 2000	n/a Licence exemption S.I. 173 of 2000	n/a Licence exemption S.I. 173 of 2000	n/a Licence exemption S.I. 173 of 2000	Wireless Telegraphy licence is required unless covered by licence exemptions S.I. 273 of 2000, S.I. 505 of 2003 and S.I. 197 of 2005
Reference standards		Qualify for licence exemption if in compliance with the following standards: ETS 300 721 and operate as part of the ITU named LEOTELCOM-1 satellite system.				

Table 13: Interface requirements for the Satellite Service (1525– 2200 MHz)

Parameter	Description					
Frequency Band (MHz)	1525 - 1559MHz	1559- 1626.5 MHz	1626.5 - 1660 MHz	1675 - 1710 MHz	1980 - 2010 MHz	2170 - 2200 MHz
National Usage	Maritime Mobile – Satellite (space – Earth) Inmarsat M (receive) Search and Rescue (SAR) Satellite systems including GMDSS Licence Exemptions for following systems Inmarsat D, Inmarsat C, Inmarsat M, EMS-PRODAT, EMS-MSSAT, Inmarsat Mini M	GPS & Glonass	Maritime Mobile – Satellite (Earth – space): Inmarsat – M (transmit) Search and Rescue (SAR) Satellite Systems including GMDSS) Licence Exemptions for following systems Inmarsat D, Inmarsat C, Inmarsat M, EMS-PRODAT, EMS-MSSAT, Inmarsat Mini M	Meteorological-Satellites	Mobile –IMT 2000	Mobile - IMT 2000
Licensing Regime	Wireless Telegraphy licence is required unless covered by licence	Wireless Telegraphy licence is required unless covered by licence	Wireless Telegraphy licence is required unless covered by licence	Wireless Telegraphy licence is required unless covered by licence	See Section 3.1 on Mobile Services Licence exemption S.I. 505 of 2003	See Section 3.1 on Mobile Services Licence exemption S.I. 505 of 2003

	exemption. Licence exemptions: S.I. No. 398 of 2001 S.I. No. 007 of 2004	exemption. Licence exemptions: S.I. 214 of 1998	exemption. Licence exemptions: S.I. No. 398 of 2001	exemption. Licence exemptions S.I. 505 of 2003		
Reference standards	Qualify for licence exemption if in compliance with following standards ETS 300 254 or TBR 0263, ETS 300 423 or TBR 0443 as applicable	Qualify for licence exemption if in compliance with following standards TBR 413	Qualify for licence exemption if in compliance with following standards: ETS 300 254 or TBR 0263, ETS 300 423 or TBR 0443 as applicable			
Notes	CEPT ERC/DEC/(98)01, 02, 03, 04, CEPT ERC/DEC/(98)12, CEPT ERC/DEC/(98)13, CEPT ERC/DEC/(98)14, CEPT ERC/DEC/(98)18, CEPT ERC/DEC/(98)19, CEPT ERC/DEC/(98)29	Satellite Personal Communications Service S-PCS (planned) CEPT/ ERC/DEC /(97)03	CEPT ERC/DEC/(98)01, 02, 03, 04, CEPT ERC/DEC/(98)12, CEPT ERC/DEC/(98)13, CEPT ERC/DEC/(98)14, CEPT ERC/DEC/(98)18, CEPT ERC/DEC/(98)19, CEPT ERC/DEC/(98)29	Weather satellite reception (HRPT) 1690 – 1710 MHz Future plan: Metsat reception (HRPT) 1698-1710 MHz	UMTS/S-PCS (satellite, Earth-space) (1980-2010 MHz) CEPT ERC/DEC/(97)03 (S-PCS) CEPT ERC/DEC/(97)07 (UMTS) CEPT ERC/DEC/(97)04 (Transition) S.I. 214 of 1998	UMTS/S-PCS (satellite, space-Earth) (2170-2200 MHz.) CEPT ERC/DEC/(97)03 (S-PCS) CEPT ERC/DEC/(97)07 (UMTS) CEPT ERC/DEC/(97)04 (Transition) S.I. 214 of 1998

Table 14: Interface requirements for the Satellite Service (2483.5 - 7750 MHz)

Parameter	**Description**							
Frequency Band (MHz)	2483.50 - 2500 MHz	2500.00 - 2520.00 MHz	2670 - 2690 MHz	3400 - 4200 MHz	4500 - 4800 MHz	5150 - 6700 MHz	6700 - 7075 MHz	7250 - 7750 MHz
National Usage	Satellite Personal Communication System (e.g. IRIDIUM)	See Section 3.3	See Section 3.3	Fixed - Satellite (space - Earth) Licence Exempt VSAT receivers	Fixed - Satellite (space - Earth)	Fixed - Satellite (Earth - space)	Fixed -Satellite (Earth - space) (space - Earth)	Fixed - Satellite (space - Earth) Meteorological - Satellite (space - Earth)
Licensing Regime	Wireless Telegraphy licence is required unless covered by licence exemption. Licence exemptions: S.I. No. 214 of 1998, S.I. 505 of 2003			Satellite Regulations: S.I. No. 261 of 2000, Teleport Facility Regulations: S.I. No. 18 of 2001 Licence Exemption S.I. No. 273 of 2000	Satellite Regulations: S.I. No. 261 of 2000, Teleport Facility Regulations: S.I. No. 18 of 2001	Satellite Regulations: S.I. No. 261 of 2000, Teleport Facility Regulations: S.I. No. 18 of 2001	Wireless Telegraphy licence is required unless covered by licence exemption. Licence exemptions: S.I. No. 261 of 2000, Teleport Facility Regulations: S.I. No. 18 of 2001	Wireless Telegraphy licence is required unless covered by licence exemption. Licence exemptions: S.I. No. 261 of 2000, Teleport Facility Regulations: S.I. No. 18 of 2001

Reference standards	Qualify for licence exemption if in compliance with following standard: TBR 413			Qualify for licence exemption if in compliance with following standards TBR 433: ETS 300 332 ETS 300 333 ETS 300 160 ETS 300 456	Wireless Telegraphy licence is required unless covered by licence exemption.	Wireless Telegraphy licence is required unless covered by licence exemption. Licence exemptions: S.I. No. 273 of 2000 - VSAT receiver exemption	National Allotment for Fixed-Satellite Up Link (6725-7025MHz) Appendix S30B, Radio Regulations	
Notes	Satellite Personal Communications Service (S-PCS) CEPT ERC/DEC (97)03 S.I. 214 of 1998			Mobile Satellite allocation (2670 - 2690 MHz) S.I. No. 273 of 2000 - VSAT receiver exemption See ComReg Document 00/64R "Guidelines for Satellite Services above 3GHz" for list of standards	National Allotment for Fixed-Satellite Down Link (4500-4800MHz) Appendix 30B, Radio Regulations See ComReg Document 00/64R "Guidelines for Satellite Services above 3GHz" for list of standards	See ComReg Document 00/64R "Guidelines for Satellite Services above 3GHz" for list of standards	See ComReg Document 00/64R "Guidelines for Satellite Services above 3GHz" for list of standards	See ComReg Document 00/64R "Guidelines for Satellite Services above 3GHz" for list of standards

Table 15: Interface requirements for the Satellite Service from 7900 MHz)

Parameter	**Description**	
Frequency Band (MHz)	7900 - 8400 MHz	>8 GHz
National Usage	Fixed -Satellite (Earth - space) Meteorological - Satellite (Earth - space) Earth exploration - Satellite (space - Earth) Mobile	See Table of Frequency Allocations 04/77
Licensing Regime	Wireless Telegraphy licence is required unless covered by licence exemption. Licence exemptions: S.I. No. 261 of 2000, Teleport Facility Regulations: S.I. No. 18 of 2001	Wireless Telegraphy licence is required unless covered by licence exemption.
Reference stahndards	See ComReg Document 00/64R "Guidelines for Satellite Services above 3GHz" for list of standards	See ComReg Document 00/64R "Guidelines for Satellite Services above 3GHz" for list of standards

Relevant Documentation

National Legislation

Primary Legislation

Wireless Telegraphy Act 1926, as amended.

Secondary Legislation

S.I. 197 of 2005: Wireless Telegraphy Act 1926 (section 3)(Exemption of Receive Only Apparatus For Wireless Telegraphy) Order 2005.

S.I. 128 of 2005: Wireless Telegraphy Act 1926 (Section 3)(Exemption of certain classes of Land Mobile Earth Stations) Order, 2005.

S.I. 007 of 2004: Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Low Power Aircraft Earth Stations) Order, 2004.

S.I. 505 of 2003: Wireless Telegraphy Act, 1926 (section 3) (Exemption of Certain Classes of Fixed Satellite Earth Stations) Order, 2003.

S.I. 398 of 2001: Wireless Telegraphy Act, 1926 (section 3) (Exemption of certain classes of Land Mobile Earth Stations) Order, 2001 (revoked S.I. 100 of 1999, S.I. 101 of 1999, S.I. 102 of 1999, S.I. 103 of 1999, S.I. 104 of 1999, S.I. 105 of 1999, S.I. 106 of 1999, S.I. 109 of 1999, S.I. 110 of 1999).

S.I. 18 of 2001: Wireless Telegraphy (Teleport Facilities) Regulations, 2001.

S.I. 273 of 2000: Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Certain Fixed Satellite Receiving Earth Stations) Order, 2000.

S.I. 261 of 2000: Wireless Telegraphy (Fixed Satellite Earth Stations) Regulations, 2000.

S.I. 173 of 2000: Wireless Telegraphy Act, 1926 (section 3) (Exemption of Mobile Earth Stations for Satellite Personal Communication Systems operating in bands below 1 GHz (S-PCS<1GHz)) Order, 2000.

S.I. 214 of 1998: Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Satellite Earth Stations for Satellite Personal Communications Services (S-PCS)) Order, 1998.

S.I. 179 of 1998: European Communities (Satellite Earth Station Equipment) Regulations, 1998.

S.I. 372 of 1997: European Communities (Satellite Telecommunications Services) Regulations, 1997.

ComReg/ODTR Documentation

01/32R: Guidelines for applications for a teleport facility licence in the fixed satellite service in spectrum above 3GHz.

01/33R: Application form for teleport facility licence in the fixed satellite service in spectrum above 3GHz.

00/68: Licence Exempt Satellite Earth Stations.

00/67R2: Application form for fixed satellite earth station licences in the fixed satellite service in spectrum above 3GHz: Transportable Earth Stations.

00/66R: Application form for fixed satellite earth station licences in the fixed satellite service in spectrum above 3GHz: VSATs.

00/65R: Application form for fixed satellite earth station licences in the fixed satellite service in spectrum above 3GHz: Non-Transportable Earth Stations.

00/64R: Guidelines for applicants for satellite earth station licences in the fixed satellite service in spectrum above 3GHz.

ETSI Documentation

ETS 300 157: Satellite Earth Stations and Systems (SES); Receive-only Very Small Aperture Terminals (VSATs) operating in the 11/12 GHz frequency bands.

ETS 300 159: Satellite Earth Stations and Systems (SES); Transmit-only or transmit-and-receive Very Small Aperture Terminals (VSATs) used for communications operating in the Fixed Satellite Service (FSS) 11/12/14 GHz frequency bands.

ETS 300 160: Satellite Earth Stations and Systems (SES); Control and monitoring functions at a Very Small Aperture Terminal (VSAT).

ETS 300 254: Satellite Earth Stations and Systems (SES); Land Mobile Earth Stations LMES) operating in the 1,5/1,6 GHz bands providing Low Bit Rate Data Communications (LBRDC).

ETS 300 255: Satellite Earth Stations and Systems (SES); Land Mobile Earth Stations (LMESs) operating in the 11/12/14 GHz bands providing Low Bit Rate Data Communications (LBRDC).

ETS 300 327: Satellite Earth Stations and Systems (SES); Satellite News Gathering (SNG) Transportable Earth Stations (TES) (13-14/11-12 GHz).

ETS 300 332: Satellite Earth Stations and Systems (SES); Transmit-only or transmit-and-

receive Very Small Aperture Terminals (VSATs) used for communications operating in the Fixed Satellite Service (FSS) 6 GHz and 4 GHz frequency bands.

ETS 300 333: Satellite Earth Stations and Systems (SES); Receive-only Very Small Aperture Terminals (VSATs) operating in the 4 GHz frequency band.

ETS 300 372: Radio Equipment and Systems (RES); Technical characteristics and methods of measurement for maritime float-free satellite Emergency Position Indicating Radio Beacon (EPIRB) operating in the 1,6 GHz band through geostationary satellites.

ETS 300 423: Satellite Earth Stations and Systems (SES); Land Mobile Earth Stations (LMES) operating in the 1,5/1,6 GHz bands providing voice and/or data communications.

ETS 300 456: Satellite Earth Stations and Systems (SES); Test methods for Very Small Aperture Terminals (VSATs) operating in the 11/12/14 GHz frequency bands.

ETS 300 460: Satellite Earth Stations and Systems (SES); Maritime Mobile Earth Stations (MMES) operating in the 1,5/1,6 GHz bands providing Low Bit Rate Data Communications (LBRDC) for the Global Maritime Distress and Safety System (GMDSS); Technical characteristics and methods of measurement.

EN 300 721: Satellite Earth Stations and Systems (SES); Mobile Earth Stations (MES) providing Low Bit Rate Data Communications (LBRDC) using LEO satellites operating below 1 GHz.

EN 300 829: Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) for Maritime Mobile Earth Stations (MMES) operating in the 1,5/1,6 GHz bands providing Low Bit Rate Data Communications (LBRDC) for the Global Maritime Distress and Safety System (GMDSS).

TBR 026: Satellite Earth Stations and Systems (SES); Low data rate Land Mobile satellite Earth Stations (LMES) operating in the 1,5/1,6 GHz frequency bands.

TBR 027: Satellite Earth Stations and Systems (SES); Low data rate Land Mobile satellite Earth Stations (LMES) operating in the 11/12/14 GHz frequency bands.

TBR 028: Satellite Earth Stations and Systems (SES); Very Small Aperture Terminal (VSAT); Transmit-only, transmit/receive or receive-only satellite earth stations operating in the 11/12/14 GHz frequency bands.

TBR 030: Satellite Earth Stations and Systems (SES); Satellite News Gathering (SNG) Transportable Earth Stations (TES) operating in the 11-12/13-14 GHz frequency bands.

TBR 041: Satellite Personal Communications Networks (S-PCN); Mobile Earth Stations (MES), including handheld earth stations, for S-PCN in the 1,6/2,4 GHz bands under the Mobile Satellite Service (MSS); Terminal essential requirements.

TBR 043: Satellite Earth Stations and Systems (SES); Very Small Aperture Terminal (VSAT) transmit-only, transmit-and-receive, receive-only satellite earth stations operating in the 4 GHz and 6 GHz frequency bands.

TBR 044: Satellite Earth Stations and Systems (SES); Land Mobile Earth Stations (LMES) operating in the 1,5 GHz and 1,6 GHz bands providing voice and/or data communications.

CEPT Documentation

ERC/DEC/(97)03: On the Harmonised Use of Spectrum for Satellite Personal Communication Services (S-PCS) operating within the bands 1610 - 1626.5 MHz, 2483.5 - 2500 MHz, 1980 - 2010 MHz and 2170 - 2200 MHz.

ERC/DEC(97)04: On transitional arrangements for the Fixed Service and the Mobile-Satellite Service in the bands 1980 - 2010 MHz and 2170 - 2200 MHz in order to facilitate the harmonised introduction and development of Satellite Personal Communications Services.

ERC/DEC/(97)07: ERC Decision of 30 June 1997 on the frequency bands for the introduction of the Universal Mobile Telecommunications System (UMTS).

ERC/DEC/(98)12: ERC Decision of 23 November 1998 on Exemption from Individual Licensing of Inmarsat-D terminals for land mobile applications.

ERC/DEC/(98)13: ERC Decision of 23 November 1998 on Exemption from Individual Licensing of Inmarsat-C terminals for land mobile applications.

ERC/DEC/(98)14: ERC Decision of 23 November 1998 on Exemption from Individual Licensing of Inmarsat-M terminals for land mobile applications.

ERC/DEC/(98)18: ERC Decision of 23 November 1998 on Exemption from Individual Licensing of EMS-PRODAT terminals for land mobile applications.

ERC/DEC/(98)19: ERC Decision of 23 November 1998 on Exemption from Individual Licensing of EMS-MSSAT terminals for land mobile applications.

ERC/DEC/(98)29: ERC Decision of 23 November 1998 on Exemption from Individual Licensing of Inmarsat-phone terminals (also known as Inmarsat mini-M) for land mobile applications.

ERC/DEC/(99)06: ERC Decision of 10 March 1999 on the harmonised introduction of satellite personal communication systems operating in the bands below 1 GHz (S-PCS<1GHz).

ITU Documentation

Radio Regulations Appendix S30: Provisions for all services and associated Plans for the

broadcasting-satellite service in the frequency bands 11.7-12.2 GHz (in Region 3), 11.7-12.5 GHz (in Region 1) and 12.2-12.7 GHz (in Region 2).

Radio Regulations Appendix S30A: Provisions and associated Plans for feeder-links for the broadcasting-satellite service (11.7-12.5 GHz in Region 1, 12.2-12.7 GHz in Region 2 and 11.7-12.2 GHz in Region 3) in the frequency bands 14.5-14.8 GHz1 and 17.3-18.1 GHz in Regions 1 and 3, and 17.3-17.8 GHz in Region 2.

Radio Regulations Appendix S30B: Provisions and associated Plan for the fixed-satellite service in the frequency bands 4 500-4 800 MHz, 6 725-7 025 MHz, 10.70-10.95 GHz, 11.20-11.45 GHz and 12.75-13.25 GHz.

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

3.5 Short Range Devices

This section outlines the interface requirements for Short Range Devices (SRDs) in Ireland. SRDs are low power radio transmitters which provide either uni-directional or bi-directional communication. They have a low capability of interfering with other radio services. SRDs operate on a non-interference and non-protected basis i.e. they are not permitted to cause harmful interference to other users of the band and cannot claim protection from interference received. Due to the growing interest in the use of SRDs throughout Europe for a wide range of applications, it is necessary to harmonise frequencies and regulations for these devices and to distinguish between different applications.

SRDs include inductive applications, non-specific SRDs, 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 interface requirements for SRDs are detailed in Tables 16 - 28 as follows:

Table16: Non-Specific Short Range Devices

Table 17: Wideband Data Transmission Systems (incl. WAS/RLANs)

Table18: Road Transport and Traffic Telematics (RTTT)

Table 19: Equipment for Detecting Movement and Alert

Table 20: Alarms

Table 21: Model Control

Table 22: Inductive Applications

Table 23: Radio Microphones

Table 24: Radio Frequency Identification Applications (RFID)

Table 25: Wireless Applications in Healthcare

Table 26: Wireless Audio Applications

Table 27: Automotive Applications

Table 28: Miscellaneous Applications

The legislation and documentation relevant to SRDs is listed at the end of this section.

Table 16: Non-Specific Short Range Devices

Frequency Band	Maximum Permitted Radiated Power/Field Strength	Mitigation Requirements	Reference Standards	Notes
6765 – 6795 kHz	42 dBµA/m @ 10m	-	EN 300 330	ERC/DEC/(01)01, S.I. 405 of 2002, S.I. 160 of 2006
13.553 – 13.567 MHz	42 dBµA/m @ 10m	-	EN 300 330	ERC/DEC/(01)01, S.I. 405 of 2002, S.I. 160 of 2006
26.957 – 27.283 MHz	42 dBµA/m @ 10m or 10 mW ERP	-	EN 300 220, EN 300 330	ERC/DEC/(01)02, S.I. 405 of 2002, S.I. 160 of 2006
40.660 – 40.700 MHz	10 mW ERP	-	EN 300 220	ERC/DEC/(01)03, S.I. 405 of 2002, S.I. 160 of 2006
49.82 – 49.98 MHz*	10 mW ERP	-	EN 300 220	S.I. 405 of 2002, S.I. 160 of 2006
173.2125 – 173.2375 MHz*	10 mW ERP	Channel Spacing ≤ 25kHz	EN 300 220	Telecommand only S.I. 405 of 2002, S.I. 160 of 2006
173.2375 – 173.275 MHz*	100 mW ERP	Channel Spacing ≤ 25kHz	EN 300 220	S.I. 405 of 2002, S.I. 160 of 2006
433.050 – 434.790 MHz	10 mW ERP	Duty Cycle <10 %	EN 300 220	ECC/DEC(04)02, S.I. 405 of 2002, S.I. 160 of 2006
433.050 – 434.790 MHz	1 mW ERP (-13 dBm/10 kHz for bandwidths greater than 250 kHz)	Duty Cycle ≤ 100 %	EN 300 220	S.I. 405 of 2002, S.I. 160 of 2006
434.040 – 434.790 MHz	10 mW ERP	Duty Cycle ≤ 100 % Channel Spacing ≤ 25 kHz	EN 300 220	S.I. 405 of 2002, S.I. 160 of 2006
458.4875 – 458.6375 MHz*	500 mW ERP	Channel Spacing ≤ 25 kHz	EN 300 220	On site telemetry/telecommand only. **Please note adjacent band use for ECG monitoring in hospitals (see Table 25)** S.I. 405 of 2002, S.I. 160 of 2006

* Not included in ERC/REC/70-03 – National SRD solution only

Frequency Band	Maximum Permitted Radiated Power/Field Strength	Mitigation Requirements	Reference Standards	Notes
458.8375 – 458.9875 MHz*	500 mW ERP	Channel Spacing ≤ 25 kHz	EN 300 220	On site telemetry/telecommand only. **Please note adjacent band use for ECG monitoring in hospitals (see Table 25)** S.I. 405 of 2002, S.I. 160 of 2006
863 - 870 MHz (note 3, 4 and 6)	25 mW ERP	Duty Cycle ≤ 0.1 % (note 1 and 5). Channel Spacing ≤ 100 kHz for 47 or more channels (note 2)	EN 300 220	FHSS Modulation only S.I. 405 of 2002, S.I. 160 of 2006
	25 mW ERP (note 6) Power density : -4.5 dBm/100 kHz (note 8)	Duty Cycle ≤ 0.1 % (note 1, 5 and 6)	EN 300 220	DSSS and other wideband modulations S.I. 405 of 2002, S.I. 160 of 2006
	25 mW ERP	Duty Cycle ≤ 0.1 % (note 1 and 5) Channel Spacing ≤ 100 kHz (note 2 and 7)	EN 300 220	Narrowband/wide-band Modulation S.I. 405 of 2002, S.I. 160 of 2006
868.000 - 868.600 MHz (note 4)	25 mW ERP	Duty Cycle ≤ 1 %. (note 1)	EN 300 220	ERC/DEC/(01)04, S.I. 405 of 2002, S.I. 160 of 2006
868.700 - 869.200 MHz (note 4)	25 mW ERP	Duty Cycle ≤ 0.1 %. (note 1)	EN 300 220	ERC/DEC/(01)04, S.I. 405 of 2002, S.I. 160 of 2006
869.400 - 869.650 MHz (note 4)	500 mW ERP	Duty Cycle ≤ 10 % . (note 1) 25 kHz for one or more channels	EN 300 220	ERC/DEC/(01)04, S.I. 405 of 2002, S.I. 160 of 2006
869.700 - 870.000 MHz	5 mW ERP	Up to 100% duty cycle (see ERC/REC 70-03)	EN 300 220	ERC/DEC/(01)04, S.I. 405 of 2002, S.I. 160 of 2006
2400 - 2483.5 MHz	10 mW EIRP	-	EN 300 440	ERC/DEC/(01)05, S.I. 405 of 2002, S.I. 160 of 2006

Frequency Band	Maximum Permitted Radiated Power/Field Strength	Mitigation Requirements	Reference Standards	Notes
5725 - 5875 MHz	25 mW EIRP	-	EN 300 440	ERC/DEC/(01)06, S.I. 405 of 2002, S.I. 160 of 2006
24.00 - 24.25 GHz	100 mW EIRP	-	EN 300 440	S.I. 405 of 2002, S.I. 160 of 2006
61.0 - 61.5 GHz	100 mW EIRP	-	TBA	S.I. 405 of 2002, S.I. 160 of 2006

* Not included in ERC/REC/70-03 – National SRD solution only

Note 1: For single frequency devices the duty cycle limit applies, unless LBT is used.
For FHSS, DSSS or AFA devices, the duty cycle applies to the total transmission unless LBT 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 Table 20)

Note 4: Audio and voice applications are excluded.

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

Note 6: For other wide-band modulation than FHSS and DSSS with a bandwidth of 200 kHz to 3 MHz, 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: For other narrow-band modulation with a bandwidth of 50 kHz to 200 kHz, the band is limited to 865.5 – 867.5 MHz.

Note 8: 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.

Table 17: Wideband Data Transmission Systems (incl. WAS/RLANs)

Frequency Band	Maximum Permitted Radiated Power/Field Strength	Mitigation Requirements	Reference Standards	Additional Information/References
2400 – 2483.5 MHz	100 mW EIRP	-	EN 300 328	ERC/DEC/(01)07 S.I. 405 of 2002, S.I. 160 of 2006
5150 – 5250 MHz	200 mW EIRP (Max mean) Power Density (Max mean EIRP): 0.25 mW/25 kHz in any 25 kHz band	Indoor use only	EN 301 893	ECC/DEC/(04)08 Commission Decision 2005/513/EC S.I. 405 of 2002, S.I. 160 of 2006
5250 – 5350 MHz	200 mW EIRP (Max mean) Power Density (Max mean EIRP): 10 mW/MHz in any 1 MHz band	Indoor use only DFS/TPC per ERC/DEC/(04)08 and EN 301 893	EN 301 893	ECC/DEC/(04)08 Commission Decision 2005/513/EC S.I. 405 of 2002, S.I. 160 of 2006
5470 – 5725 MHz	1 W EIRP (Max mean) Power Density (Max mean EIRP): 50 mW/MHz in any 1 MHz band	DFS/TPC per ERC/DEC/(04)08 and EN 301 893	EN 301 893	ECC/DEC/(04)08 Commission Decision 2005/513/EC S.I. 405 of 2002, S.I. 160 of 2006
5725 – 5875 MHz*	2 W EIRP (Max mean) Power Density (Max mean EIRP): 100mW/MHz	-	EN 301 489-4 EN 301 753	Registration Required+ S.I. 405 of 2002, S.I. 160 of 2006
17.1 – 17.3 GHz	100 mW EIRP	-	TBA	S.I. 405 of 2002, S.I. 160 of 2006

* Not included in ERC/REC/70-03 – National SRD solution only

+ See document 03/42 or www.comreg.ie/5_8GHzRegistration.asp

Table 18: Road Transport and Traffic Telematics (RTTT)

Frequency Band	Maximum Permitted Radiated Power/Field Strength	Reference Standards	Additional Information/References
5795 – 5805 MHz	2 W EIRP	EN 300 674 ES 200 674	ECC/DEC/(02)01, S.I. 405 of 2002, S.I. 160 of 2006
5805 – 5815 MHz	2 W EIRP	EN 300 674 ES 200 674	ECC/DEC/(02)01 Expansion spectrum only S.I. 405 of 2002, S.I. 160 of 2006
63 – 64 GHz	TBA	TBA	ECC/DEC/(02)01
76 – 77 GHz	55 dBm EIRP (peak)	EN 301 091	ECC/DEC/(02)01 Power level 55 dBm peak power e.i.r.p. - 50 dBm average power - 23.5 dBm average power for pulse radar only. Vehicle and infrastructure radar systems S.I. 405 of 2002, S.I. 160 of 2006

Table 19: Equipment for Detecting Movement and Alert

Frequency Band	Maximum Permitted Radiated Power/Field Strength	Reference Standards	Additional Information/References
2400 – 2483.5 MHz	25 mW EIRP	EN 300 440	ERC/DEC/(01)08 S.I. 405 of 2002, S.I. 160 of 2006
9200 – 9500 MHz	25 mW EIRP	EN 300 440	S.I. 405 of 2002, S.I. 160 of 2006
9500 – 9975 MHz	25 mW EIRP	EN 300 440	S.I. 405 of 2002, S.I. 160 of 2006
10.5 – 10.6 GHz	25 mW EIRP	EN 300 440	S.I. 405 of 2002, S.I. 160 of 2006
13.4 – 14 GHz	25 mW EIRP	EN 300 440	S.I. 405 of 2002, S.I. 160 of 2006
24.05 – 24.25 GHz	100 mW EIRP	EN 300 440	S.I. 405 of 2002, S.I. 160 of 2006

Table 20: Alarms

Frequency Band	Maximum Permitted Radiated Power/Field Strength	Mitigation Requirements	Reference Standards	Additional Information/References
169.4750 – 169.4875 MHz	10 mW ERP	Duty Cycle < 0.1 % Channel Spacing: 12.5 kHz	EN 300 220	Social Alarms - exclusive ECC/DEC/(05)02 S.I. 405 of 2002, S.I. 160 of 2006
169.5875 – 169.6000 MHz	10 mW ERP	Duty Cycle < 0.1 % Channel Spacing: 12.5 kHz	EN 300 220	Social Alarms - exclusive ECC/DEC/(05)02 S.I. 405 of 2002, S.I. 160 of 2006
868.6 – 868.7 MHz	10 mW ERP	Duty Cycle < 1 % Channel Spacing: 25 kHz	EN 300 220	ERC/DEC/(01)09 S.I. 405 of 2002, S.I. 160 of 2006
869.200 – 869.250 MHz	10 mW ERP	Duty Cycle < 0.1 % Channel Spacing: 25 kHz	EN 300 220	Social Alarms ERC/DEC/(97)06 S.I. 405 of 2002, S.I. 160 of 2006
869.250 – 869.300 MHz	10 mW ERP	Duty Cycle < 0.1 % Channel Spacing: 25 kHz	EN 300 220	ERC/DEC/(01)09 S.I. 405 of 2002, S.I. 160 of 2006
869.3 – 869.4 MHz	10 mW ERP	Duty Cycle < 1 % Channel Spacing: 25 kHz	EN 300 220	S.I. 405 of 2002, S.I. 160 of 2006
869.650 – 869.700 MHz	25 mW ERP	Duty Cycle < 10 % Channel Spacing: 25 kHz	EN 300 220	ERC/DEC/(01)09 S.I. 405 of 2002, S.I. 160 of 2006

Table 21: Model Control

Frequency Band	Maximum Permitted Radiated Power/Field Strength	Mitigation Requirements	Reference Standards	Additional Information/References
26.99 – 27.20 MHz	100 mW ERP	Channel Spacing: 10 kHz	EN 300 220	ERC/DEC/(01)10 S.I. 405 of 2002, S.I. 160 of 2006
34.945 – 35.305 MHz	100 mW ERP	Channel Spacing: 10 kHz	EN 300 220	Flying Models only ERC/DEC/(01)11 S.I. 405 of 2002, S.I. 160 of 2006
40.660 – 40.700 MHz	100 mW ERP	Channel Spacing: 10 kHz	EN 300 220	ERC/DEC/(01)12 S.I. 405 of 2002, S.I. 160 of 2006

Table 22: Inductive Applications

Frequency Band	Maximum Permitted Radiated Power/Field Strength	Reference Standards	Additional Information/References
9 – 59.75 kHz	72 dBµA/m @ 10 m *(Field Strength level descending 3dB/Octave at 30kHz)*	EN 300 330	ERC/DEC/(01)13 In case of external antennas only loop coil antennas may be employed S.I. 405 of 2002, S.I. 160 of 2006
59.75 – 60.25 kHz	42 dBµA/m @ 10 m	EN 300 330	ERC/DEC/(01)13 In case of external antennas only loop coil antennas may be employed S.I. 405 of 2002, S.I. 160 of 2006
60.25 – 70.00 kHz	69 dBµA/m @ 10 m *(Field Strength level descending 3dB/Octave at 30kHz)*	EN 300 330	ERC/DEC/(01)13 In case of external antennas only loop coil antennas may be employed S.I. 405 of 2002, S.I. 160 of 2006

Frequency Band	Maximum Permitted Radiated Power/Field Strength	Reference Standards	Additional Information/References
70 – 119 kHz	42 dBµA/m @ 10 m	EN 300 330	ERC/DEC/(01)13 In case of external antennas only loop coil antennas may be employed S.I. 405 of 2002, S.I. 160 of 2006
119 – 135 kHz	66 dBµA/m @ 10 m *(Field Strength level descending 3dB/Octave at 30kHz)*	EN 300 330	ERC/DEC/(01)13 In case of external antennas only loop coil antennas may be employed S.I. 405 of 2002, S.I. 160 of 2006
135 – 140 kHz	42 dBµA/m @ 10 m	EN 300 330	In case of external antennas only loop coil antennas may be employed S.I. 405 of 2002, S.I. 160 of 2006
140 – 148.5 kHz	37.7 dBµA/m @ 10 m	EN 300 330	In case of external antennas only loop coil antennas may be employed S.I. 405 of 2002, S.I. 160 of 2006
148.5 – 1600 kHz	-5 dBµA/m @ 10 m	EN 300 330	In case of external antennas only loop coil antennas may be employed S.I. 405 of 2002, S.I. 160 of 2006
285 – 400 kHz*	38 dBµA/m @ 10 m	EN 300 330	S.I. 405 of 2002, S.I. 160 of 2006
1650 – 1950 kHz*	8 dBµA/m @ 10 m	EN 300 330	S.I. 405 of 2002, S.I. 160 of 2006
1800 – 2200 kHz*	-8 dBµA/m @ 10 m	EN 300 330	S.I. 405 of 2002, S.I. 160 of 2006
2540 – 3560 kHz*	-8 dBµA/m @ 10 m	EN 300 330	S.I. 405 of 2002, S.I. 160 of 2006
3155 – 3400 kHz	13.5 dBµA/m @ 10 m	EN 300 330	In case of external antennas only loop coil antennas may be employed S.I. 405 of 2002, S.I. 160 of 2006
6765 – 6795 kHz	42 dBµA/m @ 10 m	EN 300 330	ERC/DEC/(01)14 S.I. 405 of 2002, S.I. 160 of 2006
7400 – 8800 kHz	9 dBµA/m @ 10 m	EN 300 330	ERC/DEC/(01)15 S.I. 405 of 2002, S.I. 160 of 2006

* Not included in ERC/REC/70-03 – National SRD solution only

Frequency Band	Maximum Permitted Radiated Power/Field Strength	Reference Standards	Additional Information/References
10.2 – 11 MHz	9 dBμA/m @ 10 m	EN 300 330	S.I. 405 of 2002, S.I. 160 of 2006
13.553 – 13.567 MHz	42 dBμA/m @ 10 m	EN 300 330	ERC/DEC/(01)14 S.I. 405 of 2002, S.I. 160 of 2006
13.553 – 13.567 MHz	60 dBμA/m @ 10 m	EN 300 330	For RFID and EAS only S.I. 405 of 2002, S.I. 160 of 2006
26.957 – 27.283 MHz	42 dBμA/m @ 10 m	EN 300 330	ERC/DEC/(01)16 S.I. 405 of 2002, S.I. 160 of 2006

Table 23: Radio Microphones

Frequency Band	Maximum Permitted Radiated Power/Field Strength	Mitigation Requirements	Reference Standards	Additional Information/References
173.7 – 175.1 MHz	10 mW ERP	Channel Spacing: 50 kHz	EN 300 422	S.I. 405 of 2002, S.I. 160 of 2006
863 – 865 MHz	10 mW ERP	Channel Spacing: 200 kHz	EN 301 357	S.I. 405 of 2002, S.I. 160 of 2006
1785.7 – 1799.4 MHz	10 mW EIRP	Channel Spacing: 200 kHz	EN 301 840	Under review – Subject to Consultation S.I. 405 of 2002, S.I. 160 of 2006

Table 24: Radio Frequency Identification Applications (RFID)

Frequency Band	Maximum Permitted Radiated Power/Field Strength	Mitigation Requirements	Reference Standards	Additional Information/References
865 – 868 MHz	100 mW ERP	LBT Channel Spacing: 200 kHz	EN 302 208	S.I. 405 of 2002, S.I. 160 of 2006
865.6 – 867.6 MHz	2 W ERP	LBT Channel Spacing: 200 kHz	EN 302 208	S.I. 405 of 2002, S.I. 160 of 2006
865.6 – 868 MHz	500 mW ERP	LBT Channel Spacing: 200 kHz	EN 302 208	S.I. 405 of 2002, S.I. 160 of 2006
2446 – 2454 MHz	500 mW EIRP	-	EN 300 440	S.I. 405 of 2002, S.I. 160 of 2006

Frequency Band	Maximum Permitted Radiated Power/Field Strength	Mitigation Requirements	Reference Standards	Additional Information/References
2446 – 2454 MHz	4 W EIRP	Duty Cycle ≤ 15 % Indoor Use only	EN 300 440	Duty cycle ≤ 15 % in any 200 ms period (i.e. 30 ms on/170 ms off) S.I. 405 of 2002, S.I. 160 of 2006

Table 25: Wireless Applications in Healthcare

Frequency Band	Maximum Permitted Radiated Power/Field Strength	Mitigation Requirements	Reference Standards	Additional Information/References
9 – 315 kHz	30 dBµA/m @ 10 m	Duty Cycle < 10 %	EN 300 330	The application is for ultra low power active medical implant systems using inductive loop techniques for telemetry purposes S.I. 405 of 2002, S.I. 160 of 2006
315 – 600 kHz	-5 dBµA/m @ 10 m	Duty Cycle < 10 %	EN 300 330	Animal implantable devices S.I. 405 of 2002, S.I. 160 of 2006
30 – 37.5 MHz	1 mW ERP	Duty Cycle < 10 %	EN 300 220	The application is for Ultra Low Power medical membrane implants for blood pressure measurements S.I. 405 of 2002, S.I. 160 of 2006
402 – 405 MHz	25 µW ERP	Channel Spacing: 25kHz	EN 301 839	ERC/DEC/(01)17 Ultra low power active medical implants. Individual transmitters may combine adjacent channels up to 300 kHz S.I. 405 of 2002, S.I. 160 of 2006
458.6375 – 458.8375 MHz	10 mW ERP	Channel Spacing: 25 kHz	EN 300 220	**ECG monitoring only** S.I. 405 of 2002, S.I. 160 of 2006

Table 26: Wireless Audio Applications

Frequency Band	Maximum Permitted Radiated Power/Field Strength	Mitigation Requirements	Reference Standards	Additional Information/References
31.025 – 31.325 MHz*	10 mW ERP	-	Ref to TTE 9 (see document odtr98/62R)	Analogue cordless phones only S.I. 405 of 2002, S.I. 160 of 2006
39.925 – 40.225 MHz*	10 mW ERP	-	Ref to TTE 9 (see document odtr 98/62R)	Analogue cordless phones only S.I. 405 of 2002, S.I. 160 of 2006
49.82 – 49.98 MHz*	10 mW ERP	-	EN 300 220	Baby Monitors S.I. 405 of 2002, S.I. 160 of 2006
87.5 – 108 MHz	50 nW ERP	Channel Spacing: 200 kHz	EN 301 357	S.I. 405 of 2002, S.I. 160 of 2006
446.0 – 446.1 MHz	500 mW ERP	8 channels specified in S.I. 93 of 1998. Channel Spacing: 12.5 kHz CTCSS or DCS tone control	EN 300 296	PMR446 hand portable with integral antennas for speech communications. Licence exemption covered by S.I. 93 of 1998. S.I. 405 of 2002, S.I. 160 of 2006
446.1 – 446.2 MHz	500 mW ERP	6.25 kHz or 12.5 kHz channel spacing	EN 300 113 - 2 or EN 301 166 - 2	Digital PMR 446 handportable ECC/DEC(05)12 S.I. 405 of 2002, S.I. 160 of 2006
863 – 865 MHz	10 mW ERP	-	EN 301 357	ERC/DEC/(01)18 S.I. 405 of 2002, S.I. 160 of 2006

* Not included in ERC/REC/70-03 – National SRD solution only

Frequency Band	Maximum Permitted Radiated Power/Field Strength	Mitigation Requirements	Reference Standards	Additional Information/References
864.1 – 868.1 MHz	10 mW ERP	-	ETS 300 131	CT2 Cordless Phones ECC Decision (01)02. To be withdrawn at end of 2008. S.I. 405 of 2002, S.I. 160 of 2006
864.8 – 865 MHz	10 mW ERP	Channel Spacing: 50 kHz	EN 300 220	Narrow band analogue voice devices S.I. 405 of 2002, S.I. 160 of 2006
1795 – 1800 MHz	20 mW EIRP	-	EN 301 357	Under Review – Subject to Consultation S.I. 405 of 2002, S.I. 160 of 2006
1880 – 1900 MHz[+]	250 mW ERP (Peak)	-	EN 301 406	DECT Cordless Phones S.I. 405 of 2002, S.I. 160 of 2006

[+] Not included in ERC/REC/70-03 – Directive 91/287/EEC & S.I. No 168 of 1994

Table 27: Automotive Applications

Frequency Band	Maximum Permitted Radiated Power/Field Strength	Mitigation Requirements	Reference Standards	Additional Information/References
21.65 – 26.65 GHz	Max Mean Power Density: -41.3 dBm/MHz EIRP; Peak Power Density: 0 dBm/50 MHz EIRP	Emissions within the 23.6-24 GHz band that appear 30° or greater above the horizontal plane shall be attenuated by at least 25 dB up to 2010 and thereafter by at least 30 dB up to 1 July 2013 for SRR systems operating in the 24 GHz range	EN 302 288	ECC/DEC/(04)10 Commission Decision 2005/50/EC Temporary designation for automotive SRR for collision mitigation and traffic safety applications only. S.I. 405 of 2002, S.I. 160 of 2006
24.05 – 24.25 GHz	20 dBm EIRP	Duty Cycle ≤ 10 % (for peak emissions > -10 dBm EIRP)	EN 302 288	ECC/DEC/(04)10 Commission Decision 2005/50/EC Temporary designation for automotive SRR for collision mitigation and traffic safety applications only. S.I. 405 of 2002, S.I. 160 of 2006
77– 81 GHz	Max Mean Power Density: -3 dBm/MHz EIRP; Peak Limit: 55 dBm EIRP; Max Mean Power Density (measured outside the vehicle): -9 dBm/MHz EIRP	TBD	TBD	ECC/DEC/(04)03 Commission Decision 2004/545/EC Automotive Short Range Radar (SRR) for collision mitigation and traffic safety only S.I. 405 of 2002, S.I. 160 of 2006

Table 28: Miscellaneous Applications

Frequency Band	Application	Maximum Permitted Radiated Power/Field Strength	Mitigation Requirements	Reference Standards	Additional Information/References
457 kHz	Devices for detecting Avalanche Victims	7 dBμA/m @ 10 m	Continuous Wave operation	EN 300 718	ECC/DEC/(04)01 S.I. 405 of 2002, S.I. 160 of 2006
4515 kHz	Railway Applications (Euroloop)	7 dBμA/m @ 10 m	-	EN 300 330	Transmitting only on receipt of a Eurobalise signal from a train S.I. 405 of 2002, S.I. 160 of 2006
27.095 MHz	Railway Application (Eurobalise)	42 dBμA/m @ 10 m	-	EN 300 330	S.I. 405 of 2002, S.I. 160 of 2006
1349 MHz	Video senders	500mW ERP	-	EN 300 440	S.I. 405 of 2002, S.I. 160 of 2006
2446 – 2454 MHz	AVI for Railways	500 mW EIRP	-	EN 300 761	Transmitting only in the presence of trains S.I. 405 of 2002, S.I. 160 of 2006
2400 – 2483.5 MHz	Video Surveillance	25 mW EIRP	-	EN 300 440	S.I. 405 of 2002, S.I. 160 of 2006

Notes

When selecting parameters for new SRDs, which may have inherent safety of human life implications, manufacturers and users should pay particular attention to the potential for interference from other systems operating in the same or adjacent bands. Manufacturers should advice users on the risks of potential interference and its consequences.

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

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

02/71: Permitted Short Range Devices in Ireland.

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 300 328: ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Wideband Transmission systems;Data transmission equipment operating in the 2,4 GHz ISM band and using spread spectrum modulation techniques.

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 300 440: ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Short range devices;Radio equipment to be used in the 1 GHz to 40 GHz frequency range.

EN 300 674: ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM);Road Transport and Traffic Telematics (RTTT);Technical characteristics and test methods for Dedicated Short Range Communication (DSRC) transmission equipment (500 kbit/s / 250 kbit/s) operating in the 5,8 GHz Industrial, Scientific and Medical (ISM) band.

EN 300 761: ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Short Range Devices (SRD);Automatic Vehicle Identification (AVI) for railways operating in the 2,45 GHz frequency range.

EN 301 091: Electromagnetic compatibility and Radio spectrum Matters (ERM); Road Transport and Traffic Telematics (RTTT); Technical characteristics and test methods for radar equipment operating in the 76 GHz to 77 GHz band.

EN 301 357: Electromagnetic compatibility and Radio spectrum Matters (ERM); Technical characteristics and test methods for analogue cordless wideband audio devices using integral antennas operating in the CEPT recommended 863 MHz to 865 MHz frequency range.

ES 200 674: Electromagnetic compatibility and Radio spectrum Matters (ERM); Road Transport and Traffic Telematics (RTTT); Part 1: Technical characteristics and test methods for High Data Rate (HDR) data transmission equipment operating in the 5,8 GHz Industrial, Scientific and Medical (ISM) band.

EN 301 357: ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM);Cordless audio devices in the range 25 MHz to 2 000 MHz;Consumer radio microphones and in-ear monitoring systems operating in the CEPT harmonized band 863 MHz to 865 MHz.

EN 301 893: Broadband Radio Access Networks (BRAN);5 GHz high performance RLAN;Harmonized EN covering essential requirements of article 3.2 of the R&TTE

Directive.

ETS 300 131: Radio Equipment and Systems (RES);Common air interface specification to be used for the interworking between cordless telephone apparatus in the frequency band 864,1 MHz to 868,1 MHz, including public access services.

CEPT Documentation

ECC/DEC(05)12 ECC Decision of 28 October 2005 on harmonised frequencies, technical characteristics, exemption from individual licensing and free carriage and use of digital PMR 446 applications operating in the frequency band 446.1- 446.2 MHz.

ERC/DEC/(04)02: ECC Decision of 19 March 2004 on harmonised frequencies, technical characteristics and exemption from individual licensing of Non-Specific Short Range Devices operating in the frequency band 433.050-434.790 MHz excluding audio and voice applications.

ERC/DEC/(02)01: ECC Decision of 15 March 2002 on the frequency bands to be designated for the coordinated introduction of Road Transport and Traffic Telematic Systems.

ERC/DEC/(01)17: ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for Ultra Low Power Active Medical Implants operating in the frequency band 402 - 405 MHz.

ERC/DEC/(01)16: ERC Decision on 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for inductive applications operating in the frequency band 26.957 - 27.283 MHz.

ERC/DEC/(01)15: ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for inductive applications operating in the frequency band 7400 - 8800 kHz.

ERC/DEC/(01)14: ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for inductive applications operating in the frequency bands 6765 - 6795 kHz, 13.553 - 13.567 MHz.

ERC/DEC(01)13 ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for inductive applications operating in the frequency bands 9 - 59.750 kHz, 59.750 - 60.250 kHz, 60.250 - 70 kHz, 70 - 119 kHz, 119 - 135 kHz.

ERC/DEC/(01)12: ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range

Devices used for Model control operating in the frequencies 40.665, 40.675, 40.685 and 40.695 MHz.

ERC/DEC/(01)11: ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for Flying Model control operating in the frequency band 34.995 - 35.225 MHz.

ERC/DEC/(01)10: ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for Model control operating in the frequencies 26.995, 27.045, 27.095, 27.145 and 27.195 MHz.

ERC/DEC/(01)09: ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for Alarms operating in the frequency bands 868.60 - 868.7 MHz, 869.25 - 869.3 MHz, 869.65 - 869.7 MHz.

ERC/DEC/(01)08: ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for Movement Detection and Alert operating in the frequency band 2400 - 2483.5 MHz.

ERC/DEC/(01)07: ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices used for Radio Local Area Networks (RLANs) operating in the frequency band 2400 - 2483.5 MHz.

ERC/DEC/(97)06: ERC Decision of 30 June 1997 on the harmonised frequency band to be designated for Social Alarm Systems.

ERC/DEC(01)06 ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Non-specific Short Range Devices operating in the frequency band 5725 - 5875 MHz.

ERC/DEC/(01)05: ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Non-specific Short Range Devices operating in the frequency band 2400 - 2483.5 MHz.

ERC/DEC/(01)04: ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Non-specific Short Range Devices operating in the frequency bands 868.0 - 868.6 MHz, 868.7 - 869.2 MHz, 869.4 - 869.65 MHz, 869.7 - 870.0 MHz.

ERC/DEC/(01)03: ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Non-specific Short Range Devices operating in the frequency band 40.660 - 40.700 MHz.

ERC/DEC/(01)02: ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Non-specific Short Range Devices operating in the frequency band 26.957 - 27.283 MHz.

ERC/DEC/(01)01: ERC Decision of 12 March 2001 on harmonised frequencies, technical characteristics and exemption from individual licensing of Non-specific Short Range Devices operating in the frequency bands 6765 - 6795 kHz and 13.553 - 13.567 MHz.

ERC/DEC (97)06: ERC Decision of 30 June 1997 on the harmonised frequency band to be designated for Social Alarm Systems.

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

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

3.6 Aeronautical and Maritime Services

This section outlines the interface requirements for the Aeronautical and Maritime services in Ireland. The interface requirements for these services are detailed in Tables 29 - 39 as follows:

Table 29: Aeronautical Services

Table 30: VHF portable radiotelephone equipment in the maritime mobile service (non-GMDSS applications).

Table 31: VHF radiotelephone equipment for general communications and associated equipment for class "D" Digital Selective Calling.

Table 32: Maritime Emergency Position indicating Radio Beacons (EPIRBs) intended for use on the frequency 121.5 MHz or the frequencies 121.5 MHz and 243 MHz for homing purposes only.

Table 33: Maritime Personal Locator Beacons intended for use with the COSPAS-SARSAT Distress Alert System in the 406 – 406.1 MHz frequency band, with an auxiliary 121.5 MHz transmitter for homing purposes only and optional navigational interface (either internal of external).

Table 34: 9GHz (Non-SOLAS) radar systems in the maritime radionavigation service.

Table 35: Radar Beacons (RACONs) in the maritime mobile service in the 3 GHz and 9 GHz bands.

Table 36: Transmission of differential correction signals of global navigation satellite systems (DGNSS) from maritime radio stations in the frequency bands 162.4375-162.4625 MHz and 163.0125 - 163.03125 MHz.

Table 37: Universal ship borne Automatic Identification System (AIS) using time division multiple access in the VHF band of the maritime mobile service for use at coast station and unmanned maritime buoys.

Table 38: Radio beacons of the maritime radiodetermination service in the frequency band 283.5 – 315 kHz.

Table 39: UHF on-board communications.

The legislation and documentation relevant to these services is listed at the end of this section.

Table 29: Interface Requirements for Aeronautical Services

Parameter	Description											
Frequency Band	315 – 415 kHz	2850 – 3025 kHz 3400 – 3500 kHz 4650 –4700 kHz 5480 – 5680 kHz 6525 – 6685 kHz 8815 – 8965 kHz 8965 – 9040 kHz 10005 – 10100 kHz 11175 – 11400 kHz 13200 – 13360 kHz 17900 – 17970 kHz 21924 - 22000 kHz	74800 – 75200 kHz	108 – 112 MHz	112 – 118 MHz	118 – 137 MHz	243MHz, 369.20 MHz and 276.275 MHz	328.6 – 335.4 MHz	960 – 1215 MHz	960 – 1215 MHz	2700 – 2900 MHz	15700 – 16600 MHz
National Usage	Non-Directional Beacons	Fixed HF stations	Navigation (Fan) Markers	Instrument Landing Systems (ILS), Localisers	VHF Omnidirectional Omnirange (VOR) navigation	Air-ground communications Ground –air communications	UHF Communications	ILS Glide Path (GP)	Distance Measuring Equipment (DME)	Secondary surveillance radar (SSR)	Primary Radar	Surface Movement Radar (SMR)
Licensing Regime *	Wireless Telegraphy Licence is required	Wireless Telegraphy Licence is required	Wireless Telegraphy Licence is required	Wireless Telegraphy Licence is required	Wireless Telegraphy Licence is required	Wireless Telegraphy Licence is required	Wireless Telegraphy Licence is required	Wireless Telegraphy Licence is required	Wireless Telegraphy Licence is required	Wireless Telegraphy Licence is required	Wireless Telegraphy Licence is required	Wireless Telegraphy Licence is required
Reference standards	ICAO Annex 10	ICAO Annex 10	ICAO Annex 10	ICAO Annex 10	ICAO Annex 10	ICAO Annex 10	NATO Spec	ICAO Annex 10	ICAO Annex 10	ICAO Annex 10	ITU	
Channel spacing	separation condition applies	ICAO Annex 10	ICAO Annex 10	ICAO Annex 10 50 kHz	ICAO Annex 10 50 kHz	ICAO Annex 8.33 / 25 KHz	25KHz	ICAO Annex 10 50 kHz	ICAO Annex 10	ICAO Annex 10	ITU	
Maximum Transmit Power/Maximum ERP	As per ICAO Annex 10	As per ICAO Annex 10	As per ICAO Annex 10	As per ICAO Annex 10	As per ICAO Annex 10	As per ICAO Annex 10	50W	As per ICAO Annex 10	As per ICAO Annex 10	As per ICAO Annex 10	As per operational requirement	As per operational requirement

References	Article S3 of ITU Radio Regulations		Article S3 of ITU Radio Regulations				AM	Gaussian	Gaussian	Gaussian	Gaussian	
Notes (existing limits in usage)	EIRP < 100W	EIRP Data < 1 kW EIRP Voice <5 kW	EIRP < 5W	Paired with ILS GP Frequencies EIRP < 25W	EIRP<100W	EIRP<100W	EIRP= <100W	EIRP<3W Freq paired with localiser	Frequencies can be paired with either VOR or ILS. 2 types, 1kW en-route, 100W terminal; typical 12μs pulse pairs into 8dB (vertical) gain antenna	0.8μs 5kW peak pulse, average 5W, antenna beam 2 degr ees	< 700kW peak power, pulse width 1μs	Full duplexity 15.9 / 16.5 GHz; < 23kW peak pulse of 40n

* Equipment used or intended to be used in connection with the provision of air traffic services is subject to approval by the IAA in accordance with the IAA (Air Traffic Service Systems) Order, S.I. 855 of 2004

Table 30: Minimum interface requirements for VHF portable radiotelephone equipment in the maritime mobile service (non-GMDSS applications).

Parameter	Description
Frequency	156 - 163MHz
Radio Service	Maritime Mobile Service
Application	Portable Ships Radio
Licensing requirements	Wireless Telegraphy Licence is required Ships Radio Licence, see ComReg document 02/13R1 or Business Radio Licence, See ComReg document 00/07R
Maximum EIRP (peak)	6W
Channelling modulation	G3E, 25 kHz
Additional essential requirements	Operator must hold a ships radio operators certificate (see http://www.transport.gov.ie/Maritime+Safety+Directorate/Maritime+Radio) Channel plan and parameters must be in accordance with the relevant sections of the ITU Radio Regulations (Articles 5, 19, 30-33, 50-54, 57-58, Appendices 13-16 and Appendix 18)
Reference standards	EN 301 178

Table 31: Minimum interface requirements for VHF radiotelephone equipment for general communications and associated equipment for class "D" Digital Selective Calling.

Parameter	Description
Frequency	156 – 163 MHz
Radio Service	Maritime Mobile Service
Application	VHF radiotelephone equipment for general communications and associated equipment for class "D" Digital Selective Calling
Licensing requirements	Wireless Telegraphy Licence is required Ships Radio Licence, see ComReg document 02/13R1 or Business Radio Licence, See ComReg document 00/07R
Maximum EIRP (peak)	25W
Channel spacing and class of emission	25kHz, G3E, G2B (DSC)
Additional essential requirements	Operator must hold a ships radio operators certificate (see http://www.transport.gov.ie/Maritime+Safety+Directorate/Maritime+Radio) Channel plan, parameters, classes of emission and operation must be in accordance with the relevant sections of the ITU Radio Regulations (Articles 5, 19, 30-33, 50-54, 57-58, Appendices 13-16 and Appendix 18).
Reference standards	EN 301 025
Additional performance parameters	The additional performance parameters and limits in EN 301 025 must be met.

Table 32: Minimum interface requirements for Maritime Emergency Position indicating Radio Beacons (EPIRBs) intended for use on the frequency 121.5 MHz or the frequencies 121.5 MHz and 243 MHz for homing purposes only.

Parameter	Description
Frequency	121.5 MHz or 121.5MHz and 243 MHz
Radio Service	Maritime Mobile Service
Application	EPIRBs
Licensing requirements	Ships Radio Licence, see ComReg document 02/13R1
Maximum EIRP (peak)	200mW or 70mW for man overboard devices only.
Class of emission	A3X
Minimum Duty Cycle	33% with a minimum depth of modulation of 0.85 at an Effective Radiated Peak Envelope Power (ERPEP) of not less than 75mW for an uninterrupted period of at least 24 hours or an ERPEP of not less than 25mW for an uninterrupted period of at least 6 hours for man overboard devices only.
Additional essential requirements	Operator must hold a ships radio operators certificate (see http://www.transport.gov.ie/Maritime+Safety+Directorate/Maritime+Radio) Equipment shall be operated in accordance with the relevant sections of the ITU Radio Regulations Article 32, Appendices 13 and 15. Other parameters shall be operated in accordance with ITU-R M.690-1.
Reference standards	EN 300 152
Additional Performance Parameters	The additional performance parameters and limits in EN 300 152 must be met.

Table 33: Minimum interface requirements for Maritime Personal Locator Beacons intended for use with the COSPAS-SARSAT Distress Alert System in the 406 – 406.1 MHz frequency band, with an auxiliary 121.5 MHz transmitter for homing purposes only and optional navigational interface (either internal of external).

Parameter	Description
Frequency	406.0 - 406.1 MHz and 121.5 MHz
Radio Service	Maritime Mobile/Maritime Mobile Satellite
Application	Maritime Personal Locator Beacons (PLBs)
Licensing requirements	Ships Radio Licence, see ComReg document 02/13R1. The PLB will only be licensed for use on a vessel.
Maximum EIRP (peak)	Between 406.0 – 406.1 MHz, maximum EIRP is 5W ± 2dB (35-39 dBm). At 121.5MHz maximum EIRP is 100mW
Channelling Modulation	Requirements laid down in COSPAS-SARSAT documents C/S T.001 for 406.0 – 406.1MHz and ITU-R M.690-1 for 121.5 MHz.
Additional essential requirements	The equipment shall meet the relevant sections of C/S G.005 and C/S T.001 and equipment and operation shall be in accordance with the relevant sections of the ITU Radio Regulations (Articles 5, 30, 32, Appendices 13 and 15 and C/S T.007
Frequency planning assumptions	Equipment parameters are in accordance with EN 300 152-1.
References	EN 300 152-1, EN 300 152-2, EN 300 152-3, C/S T.001, C/S G.005, C/S T.007

Table 34: Minimum interface requirements for 9GHz (Non-SOLAS) radar systems in the maritime radionavigation service

Parameter	Description
Frequency	9320 – 9500 MHz
Radio Service	Maritime radionavigation service
Application	Non-SOLAS radar
Licensing requirements	Wireless Telegraphy Licence is required Ships Radio Licence, see ComReg document 02/13R1 or

Parameter	Description
	Business Radio Licence, See ComReg document 00/07R
Maximum EIRP (peak)	10MW (70dBW)
Class of emission	PON
Frequency tolerance	1250 in 1E6
Additional essential requirements	The bandwidth occupied by the emissions must be completely maintained in the band allocated to the service.
Frequency planning assumptions	Performance parameters and limits in IEC 60936 are met.
Reference standards	IEC 60936

Table 35: Minimum interface requirements for Radar Beacons (RACONs) in the maritime mobile service in the 3 GHz and 9 GHz bands.

Parameter	Description
Frequency	2900 – 3100 MHz or 9300 – 9500 MHz
Radio Service	Maritime radionavigation service
Application	Radar Beacons (RACONs)
Licensing requirements	Wireless Telegraphy Licence is required Ships Radio Licence (see ComReg document 02/13R1) Business Radio Licence (see ComReg document 00/07R2)
Maximum EIRP (peak)	50W (17dBW)
Channelling Modulation	Q0N
Additional essential requirements	The bandwidth occupied by the emissions must be maintained entirely in the band allocated to the service.
Reference	ITU-R M.824
Additional Performance Parameters	IALA Recommendation R-101 on Marine Radar Beacons (RACONs)

Table 36: Minimum interface requirements for the transmission of differential correction signals of global navigation satellite systems (DGNSS) for maritime use in the frequency bands 162.4375-162.4625 MHz and 163.0125-163.03125 MHz

Parameter	Description
Frequency	162.4375-162.4625 MHz and 163.0125-163.03125 MHz
Radio Service	Maritime Radionavigation
Application	Maritime Navigational Aids
Licensing requirements	Wireless Telegraphy Licence is required Ships Radio Licence (see ComReg document 02/13R1) Business Radio Licence (see ComReg document 00/07R2)
Maximum EIRP (peak)	25W
Channelling Modulation	12.5 kHz, F1D, G1D
Additional essential requirements	N/A
Reference standards	N/A

Table 37: Minimum interface requirements for universal ship borne Automatic Identification System (AIS), Navigational Aids and Radars for maritime use in the VHF band.

Parameter	Description
Frequency	156.525 MHz, 161.975 MHz, 162.025 MHz
Radio Service	Maritime mobile
Application	Maritime navigational aids, AIS and radars
Licensing requirements	Wireless Telegraphy Licence is required Ships Radio Licence (see ComReg document 02/13R1) Business Radio Licence (see ComReg document 00/07R2)
Maximum EIRP (peak)	12.5W
Channelling Modulation	GMSK/FM, G2B (DSC) on 156.525 MHz, 25 kHz
Additional essential requirements	Channels, parameters, class of emission and operation must be in accordance with the relevant sections of the ITU Radio Regulations (Articles 5, 19, 30-33, 50-54, 57-58, Appendices 13-16 and 18).
Reference	ITU-R M.1371
Frequency planning assumptions	Equipment parameters are assumed to meet ITU-R M.1371
Additional Performance Parameters	IEC 61993 and IEC 62287

Table 38: Minimum interface requirements for radio beacons of the maritime radiodetermination service in the frequency band 283.5 – 315 kHz

Parameter	Description
Frequency	283.5 – 315.0 kHz
Radio Service	Maritime Radiodetermination Service
Application	Maritime navigational aids, AIS and radars
Licensing requirements	Wireless Telegraphy Licence is required Ships Radio Licence (see ComReg document 02/13R1) Business Radio Licence (see ComReg document 00/07R2)
Maximum EIRP (peak)	Minimum necessary to achieve the desired field strength at the service range. It shall not exceed 50μV/m.
Channelling Modulation	A1A, A2A, G1D. Integer multiple of 500 Hz if transmitting GNSS differential correction signals
Additional essential requirements	Assignments shall take account of the Master List of DGNSS Reference and Transmitting Stations in the Maritime Radionavigation (Radiobeacon) Band (283.5 – 315 kHz Region 1, 285 – 325 kHz Regions 2 and 3) published by the International Association of Marine Aids to navigation and Lighthouse Authorities.
Reference standards	ITU-R M.823 and ITU-R M.588-1

Table 39: Minimum interface requirements for UHF on-board communications

Parameter	Description
Frequency	Single frequency simplex channels: 467.525 MHz, 467.550 MHz, 467.575 MHz, 457.525 MHz, 457.550 MHz, 457.575 MHz Two-frequency simplex channels for use with repeater only: 467.525 MHz (transmit) paired with 457.525 MHz (receive), 467.550 MHz (transmit) paired with 457.550 MHz (receive), 467.575 MHz (transmit) paired with 457.575 MHz (receive)
Radio Service	UHF on-board communications
Application	As per radio service
Licensing requirements	Wireless Telegraphy Licence is required Ships Radio Licence (see ComReg document 02/13R1)

Parameter	Description
	Business Radio Licence (see ComReg document 00/07R2)
Maximum EIRP (peak)	Carrier power shall not exceed 4 W
Channelling Modulation	Phase modulation, G3E
Additional essential requirements	25 kHz channel spacing
Reference standards	EN 300 720-1

Notes

Under Irish national legislation (The Wireless Telegraphy Acts (1926-1988), all apparatus for wireless telegraphy requires a licence unless that apparatus has been exempted from licensing under legislation.

All equipment installed on Irish registered vessels is required to comply with the requirements of the European Communities (Radio Equipment and Telecommunications Terminal Equipment) Regulations, 2001 (S.I.240 of 2001) or the European Communities (Marine Equipment) Regulations 2003 (S.I. No. 38 of 2003), whichever is applicable to a particular Irish vessel.

Relevant Documentation

National Legislation

Primary Legislation

Wireless Telegraphy Act 1926, as amended.

Secondary Legislation

S.I. 414 of 2006: Wireless Telegraphy (Ship Station Radio Licence) Regulations, 2006

EC Directives, Decisions and Recommendations

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.

Commission Decision of 25 January 2005 on the application of Article 3(3)(e) of Directive 1999/5/EC of the European Parliament and of the Council to radio equipment intended to participate in the Automatic Identification System (AIS).

Commission Decision of 4 September 2003 on essential requirements relating to marine radio communication equipment which is intended to be used on non-SOLAS vessels and to participate in the Global Maritime Distress and Safety System (GMDSS).

Commission Decision of 22 September 2000 on the application of Article 3(3)(e) of Directive 1999/5/EC to radio equipment covered by the regional arrangements concerning

the radiotelephone service on inland waterways.

ComReg/ODTR Documentation

02/13R1: Maritime Mobile Radio Station Licence: Application Form and Guidance Notes.

02/01R: Aircraft Radio Licence - Application Form.

Other Documentation

IEC 60936: Maritime navigation and radio communications equipment and systems (radar).

IEC 60945: Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results.

IEC 61993: Maritime navigation and radiocommunication equipment and systems.

IEC 62287: Maritime navigation and radiocommunication equipment and systems - Class B shipborne installation of the universal automatic identification system (AIS) using VHF TDMA techniques.

EN 301 929: Electromagnetic compatibility and Radio spectrum Matters (ERM);VHF transmitters and receivers as Coast Stations for GMDSS and other applications in the maritime mobile service.

EN 300 338: ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Technical characteristics and methods of measurement for equipment for generation, transmission and reception of Digital Selective Calling (DSC) in the maritime MF, MF/HF and/or VHF mobile service.

EN 300 152: Electromagnetic compatibility and Radio spectrum Matters (ERM);Maritime Emergency Position Indicating Radio Beacons (EPIRBs) intended for use on the frequency 121,5 MHz or the frequencies 121,5 MHz and 243 MHz for homing purposes only.

EN 300 373: Radio Equipment and Systems (RES);Technical characteristics and methods of measurements for maritime mobile transmitters and receivers for use in the MF and HF bands.

EN 300 720-1: ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Ultra-High Frequency (UHF) on-board communications systems and equipment; Part 1: Technical characteristics and methods of measurement.

EN 300 720-2: Electromagnetic compatibility and Radio Spectrum Matters (ERM) Ultra-High Frequency (UHF) on-board communications systems and equipment; Part 2: Harmonised EN under article 3.2 of the R&TTE Directive.

EN 301 025: Electromagnetic compatibility and Radio spectrum Matters (ERM); VHF

radiotelephone equipment for general communications and associated equipment for Class "D" Digital Selective Calling (DSC).

EN 301 178: Electromagnetic compatibility and Radio spectrum Matters (ERM); Portable Very High Frequency (VHF) radiotelephone equipment for the maritime mobile service operating in the VHF bands (for non-GMDSS applications only).

Recommendation ITU-R M.493: Digital selective-calling system for use in the maritime mobile service.

Recommendation ITU-R M.690-1: Technical characteristics of emergency position-indicating radio beacons (EPIRBs) operating on the carrier frequencies of 121.5 MHz and 243 MHz.

Recommendation ITU-R M.588-1: Black and white facsimile transmissions over combined metallic and radio circuits in the maritime mobile service and in the maritime mobile-satellite service.

Recommendation ITU-R M.823: Technical characteristics of differential transmissions for Global Navigation Satellite Systems (GNSS) from maritime radio beacons in the frequency band 285-315 kHz (Region 1) and 283.5-325 kHz (Region 2 and 3).

Recommendation ITU-R M.824: Technical parameters of radar beacons (RACONS).

Recommendation ITU-R M.1174: Characteristics of equipment used for on-board communications in the bands between 450 and 470 MHz.

C/S G.005: Cospas-Sarsat Guidelines on 406 MHz Beacon Coding, Registration and Type Approval.

C/S T.001: Specification for Cospas-Sarsat 406 MHz Distress Beacons.

C/S T.007: Cospas-Sarsat 406 MHz Distress Beacon Type Approval Standard.

International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) Guidelines on the Universal Automatic Identification System.

IALA Recommendation R101 on Maritime Radar Beacons (RACONS).

ITU Radio Regulations

ERC/DEC/(00)01: ERC Decision of 28 March 2000 extending ERC/DEC/(97)07 on the frequency bands for the introduction of terrestrial Universal Mobile Telecommunications System (UMTS).

ERC/DEC/(99)01: Harmonised examination syllabi for the General Operator’s Certificate (GOC) and the Restricted Operator’s Certificate (ROC).

ERC/REC/T/R 20-04 E: Low-power Narrow-Band Telecommand and Telemetry equipment for use outside the ISM frequency bands.

ERC/REC/T/R 31-05: Harmonised examination procedures for maritime radio operators' certificates.

ERC/REC/T/R 61-01 E: CEPT Radio Amateur Licence.

ERC/REC/T/R 61-02: Harmonised amateur radio examination certificates.

Radio Regulations Appendix S16: Documents with which stations on board ships and aircraft shall be provided.

Radio Regulations Appendix S18: Table of transmitting frequencies in the VHF maritime mobile band.

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

3.7 Spectrum Access in the 1785 – 1805 MHz band

This section details the interface requirements for spectrum access in the 1785 – 1805 MHz band on a service and technology neutral basis.

Table 40: Interface requirements for Spectrum Access in the 1785 - 1805 MHz band

Parameter	Description
Frequency Band (MHz)	1785 – 1805 MHz
Radio Service	Terrestrial Service
Application	Any
Channelling/Modulation	Any
Transmit power limit	Dictated by the device
Duplex type/separation	TDD/FDD
Licensing regime	Spectrum block on a national basis.
Frequency planning assumptions	In-band EIRP of an individual system shall be 56 dBm/MHz.

ComReg Documentation

05/93a Annexes to 05/93: Award of available spectrum: 1785 - 1805MHz (ComReg and Ofcom)

05/93 Award of available spectrum: 1785 - 1805 MHz (ComReg and Ofcom)

Annex A - Exemption Orders

A list of Exemption Orders for certain types of apparatus for wireless telegraphy is presented below. Note that these Orders are subject to revisions and updates.

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

S.I. 292 of 2005: Wireless Telegraphy Act, 1926 (section 3) (Exemption of Receive Only Apparatus for Wireless Telegraphy) (Amendment) Order, 2005.

S.I. 197 of 2005: Wireless Telegraphy Act 1926 (section 3)(Exemption of Receive Only Apparatus For Wireless Telegraphy) Order 2005.

S.I. 128 of 2005: Wireless Telegraphy Act 1926 (Section 3) (Exemption of certain classes of Land Mobile Earth Stations) Order, 2005.

S.I. 007 of 2004: Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Low Power Aircraft Earth Stations) Order, 2004.

S.I. 158 of 2003: Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Mobile Telephones) (Amendment) Order, 2003.

S.I. 409 of 1997: Wireless Telegraphy (Mobile Telephones) Exemption Order, 1997.

S.I. 505 of 2003: Wireless Telegraphy Act, 1926 (section 3) (Exemption of Certain Classes of Fixed Satellite Earth Stations) Order, 2003.

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

S.I. 398 of 2001: Wireless Telegraphy Act, 1926 (section 3) (Exemption of certain classes of Land Mobile Earth Stations) Order, 2001 (revoked S.I. 100 of 1999, S.I. 101 of 1999, S.I. 102 of 1999, S.I. 103 of 1999, S.I. 104 of 1999, S.I. 105 of 1999, S.I. 106 of 1999, S.I. 109 of 1999, S.I. 110 of 1999).

S.I. 273 of 2000: Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Certain Fixed Satellite Receiving Earth Stations) Order, 2000.

S.I. 173 of 2000: Wireless Telegraphy Act, 1926 (section 3) (Exemption of Mobile Earth Stations for Satellite Personal Communication Systems operating in bands below 1 GHz (S-PCS<1GHz)) Order, 2000.

S.I. 108 of 1999: Wireless Telegraphy Act, 1999 (section 3) (Exemption of ERMES Paging Receivers) Order, 1999.

S.I. 107 of 1999: Wireless Telegraphy Act, 1999 (section 3) (Exemption of DCS1800

Mobile Terminals) Order, 1999.

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

S.I. 214 of 1998: Wireless Telegraphy Act, 1926 (Section 3) (Exemption of Satellite Earth Stations for Satellite Personal Communications Services (S-PCS)) Order, 1998.

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

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

S.I. 211 of 1972: Wireless Telegraphy Act, 1926 (section 3) (Exemption of Sound Broadcasting Receivers) Order, 1972.

Annex B – General References

The following references are generally applicable across the radio services includes regulations transposing the new Regulatory Framework Directives and relevant national documentation.

National Legislation

Wireless Telegraphy Acts 1926 - 1988.

S.I. 114 of 2005: Wireless Telegraphy (Third Party Trial Licence) Regulations, 2005.

S.I. 113 of 2005: Wireless Telegraphy (Research and Development Licence) Regulations, 2005.

S.I. 305 of 2003: European Communities (Electronic Communications Networks and Services)(Access) Regulations 2003.

S.I. 306 of 2003: European Communities (Electronic Communications Networks and Services)(Authorisation) Regulations 2003.

S.I. 307 of 2003: European Communities (Electronic Communications Networks and Services)(Framework) Regulations 2003.

S.I. 308 of 2003: European Communities (Electronic Communications Networks and Services)(Universal Service And Users' Rights) Regulations 2003.

S.I. 240 of 2001: European Communities (Radio Equipment and Telecommunications Terminal Equipment) Regulations, 2001, S.I. No: 240 of 2001.

ComReg/ODTR Documentation

05/89: Review of fees applicable to rights of use for radio frequencies.

05/72: Spectrum Management Strategy Statement 2005 -2007.

05/35: Opportunities for Testing & Trialling Wireless Services and Technologies in Ireland - Application Guidance Notes.

05/35b: Wireless Trial Licence - Application Form.

05/35a: Wireless Test Licence - Application Form.

04/77: Table of Frequency Allocations of Ireland, July 2004.

03/102R: Guidance on completion of notification form relation to a General Authorisation.

03/90: Exempted Networks and Services under the Authorisations Regulations.

03/88: Communications Act 2002 Levy Order – Compliance Guidelines.

03/84: Wireless Telegraphy Licences - Future Applicability of Licence Conditions.

03/83: Guidelines relating to General Authorisations.

03/82R2: Notification Form for a General Authorisation Revised.

03/81: Conditions of General Authorisation.

EC Directives, Decisions and Recommendations

Directive 2002/19/EC of the European Parliament and of the Council of 7 March 2002 on access to, and interconnection of electronic communications networks and associated facilities (Access Directive).

Directive 2002/20/EC of the European Parliament and of the Council of 7 March 2002 on the authorisation of electronic communications networks and services (Authorisation Directive).

Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive).

Directive 2002/22/EC of the European Parliament and of the Council of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive).

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.

Decision No. 676/2002/EC of the European Parliament and of the Council of 7 March 2002 on a regulatory framework for radio spectrum policy in the European Community (Radio Spectrum Decision).

Commission Decision of 4 September 2003 on essential requirements relating to marine radio communication equipment which is intended to be used on non-SOLAS vessels and to participate in the Global Maritime Distress and Safety System (GMDSS).

Commission Decision of 25 March 2003 on the application of Article 3(3)(e) of Directive 1999/5/EC to radio equipment intended to be used on non-SOLAS vessels and which is intended to participate in the Automatic Identification System (AIS).

Commission Decision of February 2001 on the application of Article 3(3)(e) of Directive 1999/5/EC to avalanche beacons.

Commission Decision of 22 September 2000 on the application of Article 3(3)(e) of Directive 1999/5/EC to radio equipment covered by the regional arrangements concerning the radiotelephone service on inland waterways.

Commission Decision of 22 September 2000 on the application of Article 3(3)(e) of Directive 1999/5/EC to marine radio communication equipment intended to be fitted to seagoing non-SOLAS vessels and which is intended to participate in the global maritime distress and safety system (GMDSS) and not covered by Council Directive 96/98/EC on marine equipment.

Commission Decision of 6 April 2000 establishing the initial classification of Radio Equipment and Telecommunications Terminal Equipment and associated identifiers.

Annex C – Acronyms and Abbreviations

AM	Amplitude Modulation
AVI	Automatic Vehicle Identification
BRAN	Broadband Radio Access Networks
CEPT	European Conference of Postal and Telecommunications Administrations
ComReg	Commission for Communications Regulation
CT2	European Analogue cordless telephone system (second generation)
DAB	Digital Audio Broadcasting
DCS1800	Digital Communications System, 1800 MHz band
DECT	Digital European Cordless Telecommunications
DTT	Digital Terrestrial Television
DVB	Digital Video Broadcasting
Earth – space	Earth to space direction of transmission
ECC	Electronic Communications Committee (of CEPT) – formally known as ERC
ECC/DEC	ECC Decision
ECC/REC	ECC Recommendation
E-GSM	Extended GSM
EIRP	Equivalent isotropically radiated power
EN	European Norm
EPIRB	Emergency Position-Indicating Radio Beacon
ERC	European Radiocommunications Committee
ERC/DEC/	ERC Decision
ERC/REC/	ERC Recommendation
EMC	ElectroMagnetic Compatibility
ERM	Electromagnetic compatibility and Radio spectrum Matters
ERO	European Radiocommunications Office
ERP	Effective Radiated Power
ETR	ETSI Technical Report
ETS	European Telecommunication Standard
ETSI	European Telecommunication Standards Institute
FDDA	Field Disturbance and Doppler Apparatus (Motion Detectors)
FM	Frequency Modulation
FSS	Fixed Satellite Service
FWA	Fixed Wireless Access
GHz	Gigahertz - 1,000,000,000 Hertz
GLONASS	Global Satellite Navigation System (Russian Federation)
GMDSS	Global Maritime Distress and Safety System
GPS	Global Positioning System
GSM	Global System for Mobile Communications
Hz	Hertz, unit of frequency measurement (1 kHz = 1000 Hz, 1 MHz = 1000,000 Hz, 1GHz = 1000,000,000 Hertz)
HRPT	High Resolution Picture Transmission
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IMT-2000	International Mobile Telecommunications – 3rd generation Mobile

	Systems
INMARSAT	International Maritime Satellite Organisation
ISM	Industrial, Scientific and Medical applications
ITU	International Telecommunications Union
ITU-R	Radiocommunication Sector of the ITU
ITU Geneva 1975 Plan	Plan for the assignment of frequencies to broadcasting stationsin the medium frequency bands in Regions 1 and 3 and in the low frequency bands in Region 1
ITU Geneva 1984 Plan	Frequency assignment plan for FM sound broadcasting stations in Region 1 and part of Region 3 in the band 87 5-108 MHz
ITU Stockholm 1961 Plan	Plans annexed to the Regional agreement for the European Broadcasting Area concerning the use of frequencies by the broadcasting services in the VHF and UHF bands
kHz	Kilohertz - 1000 Hertz
LBRDC	Low Bit Rate Data Communications
LAN	Local Area Network
LEO	Low Earth Orbit
LMES	Land Mobile Earth Stations
Mb/s or Mbps	Megabits per second
MES	Mobile Earth Stations
MHz	Megahertz - 1,000,000 Hertz
MoU	Memorandum of Understanding
MMDS	Multichannel Multipoint Distribution Service
MSS	Mobile Satellite Service
MVDS	Microwave (or Multi-point) Video Distribution System
OB	Outside Broadcasting
ODTR	Office of the Director of Telecommunications Regulation (now ComReg)
PDH	Plesiosynchronous Digital Hierarchy
PAMR	Public Access Mobile Radio
PMR	Private Mobile Radio
PSTN	Public Switched Telecommunications Network
RACON	Radar Beacon
RES	Radio Equipment and Systems
RLAN	Radio Local Area Network
R&TTE	Radio and Telecommunications Terminal Equipment
RTTT	Road Transport & Traffic Telematics
SAR	Search and Rescue
SDH	Synchronous Digital Hierarchy
SES	Satellite Earth Stations and Systems
S.I.	Statutory Instrument
SNG	Satellite News Gathering
S-PCN	Satellite Personal Communications Networks
S-PCS	Satellite Personal Communications System
space - Earth	space to Earth direction of transmission
SMATV	Satellite Master Antenna Television
SOLAS	Safety Of Life At Sea

SRD	Short Range Device
STL	Studio to Transmitter Link
STM	Synchronous Transfer Mode
T-DAB	Terrestrial Digital Audio Broadcasting
TACS	Total Access Communications System (Analogue)
TETRA	TErrestrial Trunked RAdio (Digital)
UMTS	Universal Mobile Telecommunications Systems
ULP	Ultra Low Power
VHF	Very High Frequency
VSAT	Very Small Aperture Terminal
WARC	World Administrative Radio Conference
WPAS	Wireless Public Address System
WT	Wireless Telegraphy

Annex D - Terms and Definitions

Allocation:
Entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space radiocommunication services or the radio astronomy service under specified conditions. This term shall also be applied to the frequency band concerned.

Aeronautical Mobile Service:
A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radiobeacon stations may also participate in this service on designated distress and emergency frequencies.

Aeronautical Fixed Service:
A radiocommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular efficient and economical operation of air transport.

Aeronautical Mobile - Satellite Service:
A mobile satellite service in which mobile earth stations are located on board aircraft; survival craft stations and emergency position indicating radiobeacon stations may also participate in this service.

Amateur Service:
A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Amateur - Satellite Service:
A radiocommunication service using space stations on earth satellites for the same purposes as those of the amateur service reception by the general public. This service may include sound transmissions, television transmissions or other types of transmission.

AVI for Railways:
Automatic Vehicle Identification for railways and is used to track and identify railway rolling stock.

Baby Monitors:
Devices commonly used to monitor the sound or movement of infants and is used to transmit sound to a remote receiver.

Broadcasting - Satellite Service:
A radiocommunication service in which signals transmitted or retransmitted by space stations are intended for direct reception by the general public. In the broadcasting satellite service the term “direct reception” shall encompass both individual reception and community reception.

Earth Exploration - Satellite Service:
A radiocommunication service between earth stations and one or more space stations, which may include links between, space stations, in which:
– Information relating to the characteristics of the earth and its natural phenomena is obtained from active sensors or passive sensors on earth satellites;
– Similar information is collected from airborne or earth based platforms;
– Such information may be distributed to earth stations within the system concerned;
– Platform interrogation may be included

This service may also include feeder links necessary for its operation.

Emergency Position - Indicating Radiobeacon Station:
A station in the mobile service the emissions of which are intended to facilitate search and rescue operations.

Field Disturbance and Doppler Apparatus (FDDA):
Apparatus which operates by producing a radiated field and responding to any disturbance of that field caused by an intrusion or movement within the field by other devices, objects or persons. In this way it can detect or monitor the movement of objects or persons. Alarm systems sometimes use this type of equipment for intruder detection.

Fixed Service:
A radiocommunication service between specified fixed points.

Fixed - Satellite Service:
A radiocommunication service between earth stations at specified fixed points when one or more satellites are used; in some cases this service includes satellite-to-satellite links, which may also be effected in the inter-satellite service; the fixed-satellite service may also include feeder links for other space radiocommunication services.

Galileo:
A proposed European global satellite navigation system.

Inductive Loop Systems:
Systems which operate by producing a controlled magnetic field within which a

predetermined recognisable signal is formed. Examples include shop anti-theft tagging systems, car immobiliser keys and door access tokens.

Industrial, Scientific and Medical (ISM):
Operation of equipment or appliances designed to generate and use locally, radio frequency energy for industrial, scientific, medical, domestic or similar purposes, excluding applications in the field of telecommunications.

Instrument Landing System (ILS):
A radionavigation system which provides aircraft with horizontal and vertical guidance just before and during landing and, at certain fixed points, indicates the distance to the reference point of landing.

Low Power Radio Transmitters:
Radios used for short range two-way voice communications e.g. toy walkie talkies.

Meteorological Aids Service:
A radiocommunication service used for meteorological, including hydrological, observations and exploration.

Meteorological - Satellite Service:
An earth exploration satellite service for meteorological purposes.

Model Control:
Apparatus used to control the movement of the model in the air, on land or over or under the water surface.

Land Mobile Service:
A mobile radiocommunications service between base stations and land mobile stations or between land mobile stations.

Mobile - Satellite Service:
A radiocommunication service between mobile earth stations and one or more space stations, or between space stations used by this service or between mobile earth stations by means of one or more space stations. This service may also include feeder links necessary for its operation.

Maritime Mobile Service:
A mobile service between coast stations and ship stations, or between ship stations, or between associated on board communication stations; survival craft stations and emergency

position-indicating radiobeacon stations may also participate in this service.

Maritime Mobile - Satellite Service:
A mobile satellite service in which mobile earth stations are located on board ships; survival craft stations and emergency position-indicating radiobeacon stations may also participate in this service.

Non specific Short Range Devices (SRDs):
Short range devices used for general telemetry, telecommand, alarms and data with a low duty cycle. Telemetry means the transmission of remotely measured data. Telecommand means remote control. Video applications only above 2.4 GHz.

Radar:
A radiodetermination system based on the comparison of reference signals with radio signals reflected, or retransmitted, from the position to be determined.

Radar Beacon (Racon):
A transmitter-receiver associated with a fixed navigational mark which when triggered by a radar, automatically returns a distinctive signal which can appear on the display of the triggering radar, providing range, bearing and identification information.

Radio Astronomy:
Astronomy based on the reception of radio waves of cosmic origin.

Radio Astronomy Service:
A service involving the use of radio astronomy.

Radiocommunications Service:
A service involving the transmission, emission and/or reception of radio waves for specific telecommunications purposes.

Radiodetermination:
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.

Radionavigation:
Radiodetermination used for the purposes of radionavigation, including obstruction warning.

Radiolocation:
Radiodetermination used for purposes other than radionavigation.

Radiosonde:
An automatic radio transmitter in the meteorological aids service usually carried on an aircraft, free balloon, kite or parachute, and which transmits meteorological data.

Road Transport and Traffic Telematics (RTTT):
Apparatus used for traffic management. Applications include automatic road toll collection, route guidance systems, vehicle or container identification, instant traffic information, parking management, advance incident warning and on-vehicle anti-collision radar.

Safety Service:
Any radiocommunication service used permanently or temporarily for the safeguarding of human life and property.

Secondary:
Where a band is indicated as allocated to more than one service and the name of the service is printed in normal characters (e.g. Mobile) these are called secondary services Stations of a secondary service:

- Shall not cause harmful interference to stations of primary services to which the frequencies are already assigned or to which stations may be assigned at a later date
- Cannot claim protection from harmful interference from stations of a primary service to which frequencies are already assigned or may be assigned at a later date;
- Can claim protection, however, from harmful interference from stations of the same or other secondary service(s) to which frequencies may be assigned at a later date.

Space Research Service:
A radiocommunication service in which spacecraft or other objects in space are used for scientific or technological research purposes.

Video Surveillance Equipment:
Apparatus typically used for security camera purposes to replace the cable between a camera and a monitor.

Wireless Audio Systems:
Apparatus typically used to replace the wired headphones or speakers in domestic hi-fi systems.

Wireless Microphones:
Apparatus used to transmit speech or music over short distances to a remote receiver in studios, theatres etc.

Wideband Wireless Systems:
General purpose high bit rate spread spectrum radio systems.

Annex E - Contact Details

Comments and queries relating to this document should be directed to:

Ms. Karen Dunne, Market Framework, Commission for Communications Regulation, Block DEF, Lower Abbey Street, Irish Life Centre, Dublin 1, Ireland
Tel: +353 1 804 9741, Fax: +353 1 804 9665, email: karen.dunne@comreg.ie.

Other sources of information relating to the Licensing of Radio systems in Ireland

General queries regarding radio or licensing matters can be directed to:
Commission for Communications Regulation, Licensing Section, Block DEF, Abbey Court, Irish Life Centre, Lower Abbey Street, Dublin 1, Ireland.
Tel: +353 1 804 9600, Fax: +353 1 804 9680, website: www.comreg.ie.

Irish Government Publications, including Statutory Instruments, can be purchased from: Government Publications Sales Office, Sun Alliance House, Molesworth Street, Dublin 2, Ireland.
Tel: +353 1 647 6879, website: http://www.revenue.ie/links/govpubl.htm.

CEPT Documentation, including ERC Decisions and Recommendations, and Publications of the European Radiocommunications Office (ERO) can be obtained from: ERO, Peblingehus, Nansensgade 19, DK 1366 Copenhagen.
Tel: +45 338 963 00, Fax: +45 338 963 30, website: www.ero.dk.

Publications of the European Telecommunications Standards Institute (ETSI) are available from ETSI Secretariat, 650, route des Lucioles, 06921 Sophia-Antipolis Cedex, France
Tel.: +33 (0)4 92 94 42 00, Fax: +33 (0)4 93 65 47 16, website: www.etsi.org.

Irish Equipment Standards (including transposed ETSI standards) can be purchased from the National Standards Authority of Ireland at the address below:
Sales Office, NSAI, Glasnevin, Dublin 9, Ireland.
Tel: +353 1 807 3800, Fax: +353 1 807 3838, website: www.nsai.ie.

EC Directives can be obtained from The European Commission Representation in Ireland, European House, Dawson Street, Dublin 2.
Tel: +353 1 634 1111, Fax: +353 1 634 1112, website:
http://ec.europa.eu/ireland/welcome/index_en.htm.