Commission for
Communications Regulation

Permitted Short Range Devices in Ireland

This document has been superseded by a more recent version of ComReg 02/71 which can be found on https://www.comreg.ie/publications/

General Document

Reference: ComReg 02/71 R11

Date: 02/02/2018

Additional Information

Document Version	Date	Nature of Update
02/71R11	31 January 2018	Update of Requirements for SRDs in Ireland
02/71R10	09 May 2016	Update of Requirements for SRDs in Ireland
02/71R9	07 March 2014	Implementation of Commission Decision 2013/752/EU
02/71R8	10 October 2013	Reinstated 17.1 - 17.3 GHz under Table 3: Wideband Data Transmission Systems (including WAS/RLANs)
02/71R7	03 September 2013	Update of Requirements for SRDs in Ireland
02/71R6	19 December 2011	Update of Requirements for SRDs in Ireland
02/71R5	23 December 2010	Update of Requirements for SRDs in Ireland
02/71R4	22 December 2009	Update of Requirements for SRDs in Ireland
02/71R3	21 July 2009	Update of Requirements for SRDs in Ireland
02/71R2	21 January 2009	Update of Requirements for SRDs in Ireland
02/71R1	23 November 2007	Inclusion of equipment for movement detection and alert in 10.4 - 10.42 GHz band and General Information section
02/71R	22 December 2006	Update of Requirements for SRDs in Ireland
02/71	30 July 2002	Original Document

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1 General Information

1. The Radio Equipment Directive[1] (RED) ensures a Single Market for radio equipment by setting essential requirements for safety and health, electromagnetic compatibility, and the efficient use of the radio spectrum. It applies to all products using the radio frequency spectrum.

2. The RE Directive has been applicable since 13 June 2016. A 1-year transitional period between this Directive and the now-repealed Radio and Telecommunication Terminal Equipment (R&TTE) Directive (1999/5/EC) ended on 12 June 2017. As of 13 June 2017 only the new RED is applicable.

3. This document contains interface requirements for the operation of Short Range Devices (SRDs) in Ireland. These requirements have been stipulated for the purpose of the efficient and effective use of the radio spectrum.

4. The manner in which the radio spectrum is allocated in Ireland is laid down in the *"Radio Frequency Plan for Ireland"* (ComReg document 13/118[2], as revised).

5. All radio and telecommunications terminal equipment must comply with the essential requirements and other relevant provisions of the R&TTE Directive or the RED before being placed on the market or put into service in Ireland. In terms of the usage of Short Range Devices in Ireland, such radio equipment must operate in accordance with the relevant interface requirements laid down in these documents.

6. Under Irish legislation (the Wireless Telegraphy Acts 1926 - 2009), 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. In Ireland, Short Range Devices that operate in accordance with the requirements laid down in this document (and any revisions thereof) are exempt from licensing by exemption orders S.I. 160 of 2006 and S.I. 405 of 2002.

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.

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[1] http://ec.europa.eu/growth/sectors/electrical-engineering/red-directive_en
[2] http://www.comreg.ie/publications/radio_frequency_plan_for_ireland_revised_june_2014.583.104654.p.html

8. The term "reference standards" refers to the standards currently applicable to the particular radio service in question. In some cases sub-parts of these standards are harmonised standards under the RE Directive. Harmonised standards, although not compulsory, give a presumption of conformity to the relevant essential requirements of the RE Directive under the scope of that standard. A list of harmonised standards under the RE Directive is published in the Official Journal of the European Union (OJEU) and is published electronically on the European Commission website[3]. The OJEU maintains the list of harmonised standards and defines which parts and which versions are in force. Conformity to the harmonised standards which are in force at the time of putting into service is recommended. Users are advised to refer to the latest publication of the OJEU for information on current harmonised standards.

9. Where standards are contained in Irish Regulations, these refer to the standards in force at the time of writing of those Regulations. If a standard is superseded this should be read as referring to the relevant successor or most up-to-date revision of that standard.

10. Commission Decision 2000/299/EC[4] 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 on the CEPT website[5]. 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.

11. 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.

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

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[3] http://ec.europa.eu/growth/single-market/european-standards/harmonised-standards/red_en

[4] http://www.eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2000:097:0013:0014:EN:PDF

[5] http://www.cept.org/ecc/topics/short-range-device-regulations-and-indicative-list-of-equipment-sub-classes-in-accordance-with-the-rtte-directive-(19995ec)

13. The information in this document is made available by the Commission for Communications Regulation (ComReg) on the understanding that it is for information purposes only. It is not intended to form the basis of any investment decision and should not be considered as a recommendation by the Commissioners or their advisors to participate in any tender for the allocation of radio spectrum.

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15. Recipients of this document in any format should take their own professional financial, legal or other advice in order to make an independent assessment of the potential value of any allocation of radio spectrum by whatever means applicable.

Important Note:

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 advise users on the risks of potential interference and its consequences.

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2 Introduction

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

2. Short Range Devices operate on a non-interference and non-protected basis in Ireland. SRDs that operate in accordance with the requirements described in this document may be operated without the need for an individual user licence in Ireland. These SRDs are covered by exemption orders. However, this exemption shall not absolve an operator from any requirement in law to obtain additional consents, permissions, authorisations or licences as may be necessary (e.g. for the provision of services to the public).

3. The legislation and documentation relevant to SRDs are listed in Section 4: Relevant Documentation.

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3 Interface Requirements for Short Range Devices

3.1 Interface Requirements for Non-Specific Short Range Devices

This SRD category covers a wide range of applications including telemetry, telecommand, alarms, data and other similar applications. Ultra Wide Band (UWB) is also referenced in this table which permits communication applications using UWB technology in bands below 10.6 GHz.

Table 1 Interface Requirements for Non-specific Short Range Devices

Mandatory Requirements			Information	
Frequency Band	**Maximum Permitted Radiated Power / Field Strength**	**Mitigation Requirements**	**Reference Standards**	**Relevant Documents / Other Notes**
6.765 – 6.795 MHz[6]	42 dBµA/m @ 10m	-	EN 300 330	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
13.553 – 13.567 MHz[7]	42 dBµA/m @ 10m	-	EN 300 330	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03

[6] Frequency band is also identified in Table 9
[7] Frequency band is also identified in Table 9

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Table 1 Interface Requirements for Non-specific Short Range Devices				
Mandatory Requirements			**Information**	
Frequency Band	**Maximum Permitted Radiated Power / Field Strength**	**Mitigation Requirements**	**Reference Standards**	**Relevant Documents / Other Notes**
26.99 – 27.20 MHz[8] **(26.995, 27.045, 27.095,** **27.145, 27.195 MHz)**	100 mW ERP	Maximum occupied bandwidth: 10 kHz Duty cycle: ≤0.1% (Note 1.1)	EN 300 220	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
26.957 – 27.283 MHz[9]	42 dBµA/m @ 10m; 10 mW ERP[10]	-	EN 300 220 EN 300 330	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
40.66 – 40.70 MHz	10 mW ERP	-	EN 300 220	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
49.82 – 49.98 MHz[11]	10 mW ERP	-		

[8] Frequency band is also identified in Table 8
[9] Frequency band is also identified in Table 9
[10] Effective Radiated Power

[11] Not included in ERC/REC/70-03 – National SRD solution only.

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Table 1 Interface Requirements for Non-specific Short Range Devices				
Mandatory Requirements			**Information**	
Frequency Band	**Maximum Permitted Radiated Power / Field Strength**	**Mitigation Requirements**	**Reference Standards**	**Relevant Documents / Other Notes**
138.20 - 138.45 MHz	10 mW ERP	-	EN 300 220	ECC/DEC/(05)02 ERC/REC 70-03
169.4000 – 169.4750 MHz[12]	500 mW ERP	Maximum occupied bandwidth: 50 kHz Duty cycle: ≤1.0 % (Note 1.1)	EN 300 220	Decision 2006/771/EC Decision 2013/752/EU ECC/DEC/(05)02 ERC/REC 70-03
169.4000 – 169.4875 MHz	10 mW ERP	Duty cycle: ≤0.1 % (Note 1.1 & 1.9)	EN 300 220	Decision 2006/771/EC Decision 2013/752/EU ECC/DEC/(05)02 ERC/REC 70-03
169.4875 – 169.5875 MHz[13]	10 mW ERP	Duty cycle: ≤0.001 % Except for 00:00h to 06:00h local time where the duty cycle limit is ≤0.1% (Notes 1.1 & 1.9)	EN 300 220	Decision 2006/771/EC Decision 2013/752/EU ECC/DEC/(05)02 ERC/REC 70-03
169.5875 – 169.8125 MHz	10 mW ERP	Duty cycle: ≤ 0.1 %	EN 300 220	European Legislation:

[12] Frequency band is also identified in Table 2 and Table 10
[13] Frequency band is also identified in Table 10.

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Table 1 Interface Requirements for Non-specific Short Range Devices				
Mandatory Requirements			**Information**	
Frequency Band	**Maximum Permitted Radiated Power / Field Strength**	**Mitigation Requirements**	**Reference Standards**	**Relevant Documents / Other Notes**
		Maximum occupied bandwidth: 12.5 kHz (Notes 1.1 & 1.9)		Decision 2006/771/EC Decision 2013/752/EU ECC/DEC/(05)02 ERC/REC 70-03
173.2125 – 173.2375 MHz[14]	10 mW ERP	Maximum occupied bandwidth: 25 kHz	EN 300 220	Telecommand only
173.2375 – 173.275 MHz[15]	100 mW ERP	Maximum occupied bandwidth: 25 kHz	EN 300 220	
433.05 – 434.79 MHz	10 mW ERP	Duty cycle: ≤ 10 % (Note 1.1)	EN 300 220	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
433.05 – 434.79 MHz	1 mW ERP	(Note 1.10)	EN 300 220	European Legislation: Decision 2006/771/EC Decision 2011/829/EU

[14] Not included in ERC/REC/70-03 – National SRD solution only.
[15] Not included in ERC/REC/70-03 – National SRD solution only.

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Table 1 Interface Requirements for Non-specific Short Range Devices

Mandatory Requirements			Information	
Frequency Band	**Maximum Permitted Radiated Power / Field Strength**	**Mitigation Requirements**	**Reference Standards**	**Relevant Documents / Other Notes**
	(-13 dBm/10 kHz maximum power density for wideband modulation with a bandwidth greater than 250 kHz)			Decision 2013/752/EU ERC/REC 70-03
434.04 – 434.79 MHz	10 mW ERP	Maximum occupied bandwidth: 25 kHz (Note 1.11)	EN 300 220	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
458.4875 – 458.6375 MHz[16]	500 mW ERP	Maximum occupied bandwidth: 25 kHz	EN 300 220	On-site[17] telemetry / telecommand only. Please Note adjacent band use for ECG monitoring in hospitals (see Table 12)
458.8375 – 458.9875 MHz[18]	500 mW ERP	Maximum occupied bandwidth: 25 kHz	EN 300 220	On-site telemetry / telecommand only. Please Note adjacent band use for ECG monitoring in hospitals (see Table 12)
862 – 863 MHz	25 mW ERP	Duty Cycle: ≤ 0.1 %	EN 300 220	ERC/REC 70-03

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[16] Not included in ERC/REC/70-03 – National SRD solution only.
[17] Only systems for which both the transmitter and receiver are on the same site (eg., a company premises, compound, complex, etc.) are considered to be on-site systems
[18] Not included in ERC/REC/70-03 – National SRD solution only.

Table 1 Interface Requirements for Non-specific Short Range Devices

Mandatory Requirements			Information	
Frequency Band	**Maximum Permitted Radiated Power / Field Strength**	**Mitigation Requirements**	**Reference Standards**	**Relevant Documents / Other Notes**
		Maximum occupied bandwidth: 350 kHz		
863 - 870 MHz	25 mW ERP	Duty cycle: ≤ 0.1 % or LBT (Notes 1.1, 1.4). Maximum occupied bandwidth: 100 kHz, for 47 or more channels (Note 1.2)	EN 300 220	FHSS Modulation European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
863 - 870 MHz (continued)	25 mW ERP Power density : -4.5 dBm/100 kHz (Note 1.6)	Duty cycle: ≤ 0.1 % , or LBT + AFA (Note 1.1,1.4 and 1.5)	EN 300 220	DSSS and other wideband modulations other than FHSS European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03

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Table 1 Interface Requirements for Non-specific Short Range Devices

Mandatory Requirements			Information	
Frequency Band	**Maximum Permitted Radiated Power / Field Strength**	**Mitigation Requirements**	**Reference Standards**	**Relevant Documents / Other Notes**
863 - 870 MHz (continued)	25 mW ERP	Duty cycle: ≤ 0.1 %, or LBT + AFA (Note 1.1, 1.5) Maximum occupied bandwidth: 100 kHz, for 1 or more channels. Modulation bandwidth: ≤ 300 kHz (Note 1.2)	EN 300 220	Narrow/wide-band Modulation European Legislation: Decision 2006/771/EC Decision 2011/829/EU (cont.) Decision 2013/752/EU ERC/REC 70-03
868.0 - 868.6 MHz	25 mW ERP	Duty cycle: ≤ 1 %, or LBT + AFA (Note 1.1)	EN 300 220	Narrow/wide-band Modulation No channel spacing. However, the whole stated frequency band may be used (see Note 1.2). European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03

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Table 1 Interface Requirements for Non-specific Short Range Devices

Mandatory Requirements			Information	
Frequency Band	**Maximum Permitted Radiated Power / Field Strength**	**Mitigation Requirements**	**Reference Standards**	**Relevant Documents / Other Notes**
868.700 - 869.200 MHz	25 mW ERP	Duty cycle: ≤ 0.1 %, or LBT + AFA (Note 1.1)	EN 300 220	Narrow/wide-band Modulation No channel spacing. However the whole stated frequency band may be used (see Note 1.2). European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
869.400 - 869.650 MHz	500 mW ERP	Duty cycle: ≤ 10 %, or LBT + AFA (Note 1.1)	EN 300 220	Narrow/wide-band Modulation No channel spacing but the whole stated frequency band may be used. European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03

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Table 1 Interface Requirements for Non-specific Short Range Devices				
Mandatory Requirements			**Information**	
Frequency Band	**Maximum Permitted Radiated Power / Field Strength**	**Mitigation Requirements**	**Reference Standards**	**Relevant Documents / Other Notes**
869.700 - 870.000 MHz	5 mW ERP	Up to 100% duty cycle	EN 300 220	Narrow/wide-band Modulation No channel spacing but the whole stated frequency band may be used. European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
869.700 - 870.000 MHz (continued)	25 mW ERP	Duty cycle: ≤ 1%, or LBT + AFA (Note 1.1)	EN 300 220	Narrow/wide-band Modulation. No channel spacing but the whole stated frequency band may be used. European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03

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Table 1 Interface Requirements for Non-specific Short Range Devices

Mandatory Requirements			Information	
Frequency Band	**Maximum Permitted Radiated Power / Field Strength**	**Mitigation Requirements**	**Reference Standards**	**Relevant Documents / Other Notes**
870 - 876 MHz[19]	25 mW ERP	Duty cycle: ≤ 0.1% For ER-GSM protection (873-876 MHz, where applicable), the duty cycle is limited to ≤ 0.01% and limited to a maximum transmit on-time of 5ms/1s Maximum occupied bandwidth: 200 kHz	EN 300 220	ERC/REC 70-03
870 – 875.8 MHz[20]	25 mW ERP	Duty cycle: ≤ 1% For ER-GSM protection (873-875.8 MHz, where applicable), the duty cycle is limited to ≤ 0.01% and limited to a maximum transmit on-time of 5ms/1s Maximum occupied bandwidth: 600 kHz	EN 300 220	ERC/REC 70-03

[19] This frequency band is also identified in Table 2 and Table 5.
[20] This frequency band is also identified in Table 2 and Table 5.

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Table 1 Interface Requirements for Non-specific Short Range Devices				
Mandatory Requirements			**Information**	
Frequency Band	**Maximum Permitted Radiated Power / Field Strength**	**Mitigation Requirements**	**Reference Standards**	**Relevant Documents / Other Notes**
915 – 921 MHz[21]	25 mW ERP	Duty cycle: ≤ 0.1% For ER-GSM protection (918-921 MHz, where applicable), the duty cycle is limited to ≤ 0.01% and limited to a maximum transmit on-time of 5ms/1s Maximum occupied bandwidth: 200 kHz	EN 300 220	ERC/REC 70-03
915.2 – 920.8 MHz[22]	25 mW ERP except for the 4 channels identified in note 1.9 where100 mW ERP. applies	Duty cycle: ≤ 1% (note 10) For ER-GSM protection (918-920.8MHz, where applicable), the duty cycle is limited to ≤ 0.01% and limited to a maximum transmit on-time of 5ms/1s Maximum occupied bandwidth: 600 kHz except for the 1 channel identified in note 1.9 where ≤ 400 kHz applies	EN 300 220	ERC/REC 70-03

[21] This frequency band is also identified in Table 10 and Table 11.
[22] This frequency band is also identified in Table 10 and Table 11.

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Table 1 Interface Requirements for Non-specific Short Range Devices				
Mandatory Requirements			**Information**	
Frequency Band	**Maximum Permitted Radiated Power / Field Strength**	**Mitigation Requirements**	**Reference Standards**	**Relevant Documents / Other Notes**
2 400 – 2 483.5 MHz[23]	10 mW EIRP	-	EN 300 440	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
5 725 – 5 875 MHz	25 mW EIRP	-	EN 300 440	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
3100 – 4800 MHz	*	*	EN 302 065	Generic UWB regulation. * see detailed requirements in the related ECC Decision ECC/DEC/(06)04 ERC/REC 70-03
6000 – 9000 MHz	*	*	EN 302 065	Generic UWB regulation. * see detailed requirements in the related ECC Decision ECC/DEC/(06)04 ERC/REC 70-03
6000 – 8500 MHz	*	*	EN 302 065	Generic UWB regulation. * see detailed requirements in the related ECC Decision ECC/DEC/(12)03 ERC/REC 70-03

[23] Frequency bands are also identified in Table 3 and Table 6.

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Table 1 Interface Requirements for Non-specific Short Range Devices

Mandatory Requirements			Information	
Frequency Band	**Maximum Permitted Radiated Power / Field Strength**	**Mitigation Requirements**	**Reference Standards**	**Relevant Documents / Other Notes**
24.00 - 24.25 GHz[24]	100 mW EIRP	-	EN 300 440	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
57 – 64 GHz	100 mW EIRP, a maximum transmitter output power of 10 mW, and a power density limited to 13 dBm/MHz EIRP applies.	-	EN 300 550	
61.0 - 61.5 GHz	100 mW EIRP	-	EN 300 550	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
122.00 - 122.25 GHz	10 dBm EIRP/250 MHz and -48 dBm/MHz at >30° elevation	(Note 1.7)	EN 300 550	

[24] Frequency bands are also identified in Table 5.

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Table 1 Interface Requirements for Non-specific Short Range Devices

Mandatory Requirements			Information	
Frequency Band	**Maximum Permitted Radiated Power / Field Strength**	**Mitigation Requirements**	**Reference Standards**	**Relevant Documents / Other Notes**
122.25-123.00 GHz	100 mW EIRP	-	EN 300 550	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
244 – 246 GHz	100 mW EIRP	-	EN 300 550	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
3.1 – 4.8 GHz **6 - 9 GHz**	*	-	EN 302 065	Generic UWB regulation * See detailed requirements in the related ECC Decision ECC/DEC/(06)04 European Legislation: 2014/702/EU
6 – 8.5 GHz	*	-		* See detailed requirements in the related ECC Decision ECC/DEC/(12)03 ERC/REC 70-03 European Legislation: 2014/702/EU

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Table 1 Interface Requirements for Non-specific Short Range Devices				
Mandatory Requirements			**Information**	
Frequency Band	**Maximum Permitted Radiated Power / Field Strength**	**Mitigation Requirements**	**Reference Standards**	**Relevant Documents / Other Notes**
1 349 MHz[25]	500 mW ERP	-	EN 300 440	Video senders only
2 400 – 2 483.5 MHz[26]	25 mW EIRP	-	EN 300 440	Video surveillance only

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[25] Not included in ERC/REC/70-03 – National SRD solution only
[26] This frequency band is also identified in Table 3 and Table 6.

Note 1.1: When either duty cycle, Listen Before Talk (LBT) or equivalent technique applies then it shall not be user dependent/adjustable and shall be guaranteed by appropriate technical means.

For LBT devices without Adaptive Frequency Agility (AFA), or equivalent techniques, the duty cycle limit applies.

For any type of frequency-agile device the duty cycle limit applies to the total transmission unless LBT or equivalent technique is used.

Note 1.2: The preferred channel spacing is 100 kHz allowing for a subdivision into 50 kHz or 25 kHz.

Note 1.3: Sub-bands for alarms are excluded (see Table 7).

Note 1.4: Duty cycle may be increased to 1% if the band is limited to 865 - 868 MHz

Note 1.5: For wide-band modulation other than FHSS (Frequency Hopping Spread Spectrum) and DSSS (Direct-sequence Spread Spectrum) 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 ERP

Note 1.6: The power density can be increased to +6.2 dBm/100 kHz and -0.8 dBm/100 kHz if the band of operation is limited to 865 - 868 MHz and 865 - 870 MHz respectively.

Note 1.7: These limits should be measured with an RMS detector with an averaging time of 1 ms or less.

Note 1.8: Equipment that concentrates or multiplexes individual equipment is excluded.

Note 1.9: The available channel centre frequencies are 916.3 MHz, 917.5MHz, 918.7MHz and 919.9MHz The channel bandwidth is 400 kHz.

Note 1.10: RFID tag emissions responding to RFID interrogators operating on centre frequencies 916.3 MHz, 917.5 MHz, 918.7 MHz and 919.9 MHz are not duty cycle limited.

Note 1.11 Audio and video applications are excluded. Voice applications (analogue or digital) are allowed with a maximum bandwidth of 25 kHz, and with spectrum access techniques such as LBT or equivalent and shall include a power output sensor controlling the transmitter period of 1 minute for each transmission.

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3.2 Interface Requirements for Tracking, Tracing and Data Acquisition Devices

This table covers devices including:

-Emergency detection of buried victims and valuable items, for example, avalanche search and rescue operations;

- Meter Reading;

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

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

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

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Table 2 Interface Requirements for Tracking, Tracing and Data Acquisition Devices				
Mandatory Requirements			**Information**	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
456.9 – 457.1 kHz	7 dBμA/m @ 10 m	Continuous Wave (CW) – no modulation	EN 300 718	Emergency Detection of buried victims and valuable items. Centre frequency is 457kHz European Legislation: 2001/148/EC 2013/752/EU ERC/REC 70-03
169.4 - 169.475 MHz[27]	500 mW ERP	Duty cycle: ≤10% Maximum occupied bandwidth: 50 kHz	EN 300 220	Meter Reading European Legislation: Decision 2006/771/EC Decision 2013/752/EU ECC/DEC(05)02 ERC/REC 70-03

[27] This frequency is also identified in Table 1

Table 2 Interface Requirements for Tracking, Tracing and Data Acquisition Devices				
Mandatory Requirements			**Information**	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
430 – 440 MHz	-50 dBm/100 kHz max ERP density but not exceeding a total power of -40dBm/10 MHz (both limits are intended for measurement outside of the patient's body)	Maximum occupied bandwidth: ≤ 10 MHz	EN 303 502	ULP-WMCE ERC/REC 70-03
865 – 868 MHz	500 mW ERP Adaptive Power Control (APC) required, alternatively other mitigation techniques which achieve at least an equivalent level of spectrum compatibility.	Duty Cycle: ≤ 20% Maximum occupied bandwidth: 200 kHz	TO BE DEFINED	Data Networks. The APC is able to reduce a link's transmit power from its maximum to ≤ 5 mW. ERC/REC 70-03
870 – 875.6 MHz[28]	500mW ERP	Duty cycle: ≤ 2.5% and APC required. For ER-GSM protection (873-875.6 MHz, where applicable), the duty cycle is limited to ≤ 0.01% and limited to a maximum transmit on-time of 5ms/1s. Maximum occupied bandwidth: 200 kHz	EN 303 204	Individual licence may be required for Metropolitan/Rural Area Networks. Adaptive Power Control (APC) required. The APC control is able to reduce a link's transmit power from its maximum to ≤5mW.

[28] This frequency band is also identified in Table 1 and Table 5.

Table 2 Interface Requirements for Tracking, Tracing and Data Acquisition Devices

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
2 483.5 – 2 500 MHz[29]	1 mW EIRP	Maximum occupied bandwidth: 3 MHz Adequate spectrum sharing mechanisms (eg. Listen-Before-Talk and Adaptive Frequency Agility) shall be implemented by the equipment. Duty cycle: ≤10%	EN 303 203	ERC/REC 70-03 The application is for MBANS, indoor only within healthcare facilities.
2 483.5 – 2 500 MHz[30]	10 mW EIRP	Maximum occupied bandwidth: 3 MHz Adequate spectrum sharing mechanisms (eg. Listen-Before-Talk and Adaptive Frequency Agility) shall be implemented by the equipment. Duty cycle: ≤2%	EN 303 203	ERC/REC 70-03 The application is for MBANS, indoor only within the patient's home.

[29] This frequency band is also identified in Table 12.
[30] This frequency band is also identified in Table 12.

NOT IN FORCE

3.3 Interface Requirements for Wideband Data Transmission Systems (including WAS/RLANs)

This table covers wideband data transmission systems and Wireless Access Systems including Radio Local Area Networks (WAS/RLANs) within the bands 2 400 – 2 483.5 MHz and for Multiple-Gigabit WAS/RLAN Systems within the band 57 – 66 GHz.

Table 3 Interface Requirements for Wideband Data Transmission Systems (including WAS/RLANs)

Mandatory Requirements			**Information**	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
863 – 868 MHz	25 Mw ERP	Duty Cycle: ≤10% for network access points Maximum occupied bandwidth: 1 MHz	To be defined	Data Networks ERC/REC 70-03
2 400 – 2 483.5 MHz	100 mW EIRP 100mW/100 kHz EIRP density applies when frequency hopping modulation is used. For wide band modulations other than FHSS, the maximum EIRP density is limited to 10 mW/MHz.	(See Note 3.1)	EN 300 328	European Legislation: Decision 2006/771/EC Decision 2013/752/EU Decision 2011/829/EU ERC/REC 70-03

Table 3 Interface Requirements for Wideband Data Transmission Systems (including WAS/RLANs)				
Mandatory Requirements			**Information**	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
5.15 – 5.35 GHz[31]	200 mW mean EIRP (see Note 3.3) Power Density[32]: 10 mW/MHz in any 1 MHz band	Indoor use only. (Notes 3.1 and 3.2)	EN 301 893	European Legislation: Decisions 2007/90/EC, 2005/513/EC. ECC/DEC/(04)08 ERC/REC 70-03
5.470 – 5.725 GHz[33]	1 W mean EIRP Power Density[34]: 50 mW/MHz in any 1 MHz band (see Note 3.3)	(Notes 3.1 and 3.2)	EN 301 893	European Legislation: Decisions 2007/90/EC, 2005/513/EC, ECC/DEC/(04)08 ERC/REC 70-03
5.725 – 5.875 GHz[35]	2 W EIRP (Max mean) Power Density (Max mean EIRP): 100mW/MHz (see Note 3.1)	-	EN 301 489-4 EN 301 489-17 EN 302 326e EN 302 502	Registration Required[36] ECC/REC (06)04

[31] Not included in ERC/REC/70-03 – National SRD solution only
[32] Max mean EIRP
[33] Not included in ERC/REC/70-03 – National SRD solution only
[34] Max mean EIRP
[35] Not included in ERC/REC/70-03 – National SRD solution only
[36] See ComReg document 03/42 or http://www.comreg.ie/licensing_and_services/5_8_ghz_registration.683.ghzlic.html

SUPERSEDED

Table 3 Interface Requirements for Wideband Data Transmission Systems (including WAS/RLANs)				
Mandatory Requirements			**Information**	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
17.1 – 17.3 GHz[37]	100 mW EIRP	-	-	-
57 -66 GHz	40 dBm mean EIRP. This refers to the highest power level of the transmitter power control range during the transmission burst if transmitter power control is implemented. The maximum EIRP density is limited to 13 dBm/MHz.	Fixed outdoor applications are excluded (Notes 3.1 and 3.4)	EN 302 567	European Legislation: Decision 2006/771/EC Decision 2013/752/EU Decision 2011/829/EU ERC/REC 70-03

Note 3.1: The equipment shall implement adequate spectrum sharing mechanisms (eg. Listen-Before-Talk, Detect and Avoid) in order to facilitate sharing between the various technologies and applications covered in Table 2.

Note 3.2: WAS/RLANs operating in the bands 5250 – 5350 MHz and 5470 – 5725 MHz shall use mitigation techniques that give at least the same protection as the detection, operational, and response requirements described in EN 301 893 to ensure compatible operation with radio determination systems (radars). Such mitigation techniques shall equalise the probability of selecting a specific channel for all available channels so as to ensure, on average, a near-uniform spread of spectrum loading. Specific information about the applicability of EN 301 893 can be found at http://ec.europa.eu/growth/single-market/european-standards/harmonised-standards/rtte/index_en.htm.

[37] 17.1 – 17.3 GHz has been removed from Annex 3 of ERC/REC/70-03, as such this frequency band may be subject to removal from future revisions of this document. Note that this frequency band is also identified in Table 6.

SUPERSEDED - NOT FOR REFERENCE

Note 3.3: WAS/RLANs operating in the bands 5250 – 5350 MHz and 5470 – 5725 MHz shall employ transmitter power control (TPC) which provides, on average a mitigation factor of at least 3 dB on the maximum permitted output power of the systems. If TPC is not in use the maximum permitted mean EIRP and the corresponding mean EIRP density limits shall be reduced by 3 dB.

Note 3.4 Point to point links of the fixed service are regulated by ECC/REC/(05)02 and ECC/REC/(09)01.

SUPERSEDED - NO LONGER IN FORCE

3.4 Interface requirements for Railway Applications

Table 4 Interface requirements for Railway Applications

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
984 kHz – 7.484 MHz[38]	9 dBμA/m at 10m	Duty cycle: ≤1%	EN 302 608	Transmitting only on receipt of a Balise/Eurobalise tele-powering signal from a train. Centre frequency is 4234 kHz ERC/REC 70-03
7300- 23000 kHz	-7 dBμA/m @ 10 m	-	EN 302 609	Maximum field strength specified in a bandwidth of 10 kHz, spatially averaged over any 200m length of the loop. Transmitting only in presence of trains. Spread Spectrum Signal, Code Length: 472 Chips. Centre frequency is 13.547 MHz ERC/REC 70-03

[38] Balise up-link (ground to train) systems including Eurobalise

Table 4 Interface requirements for Railway Applications

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
27.09 – 27.10 MHz[39]	42 dBμA/m @ 10 m	-	EN 302 608	Railway Application (Eurobalise) Centre Frequency is 27.095 MHz **May also be used for the activation of the loop / Euroloop.** ERC/REC 70-03
7.3 – 23.0 MHz[40]	-7 dBμA/m at 10m	-	EN 302 609	Maximum field strength specified in a bandwidth of 10 kHz, spatially averaged over any 200m length of the loop. Transmitting only in the presence of trains. Spread Spectrum Signal. Code length: 472 chips. Centre frequency is 13.547 MHz ERC/REC 70-03

[39] Balise tele-powering and down-link (train to ground) systems including Eurobalise and activation of the Loop / Euroloop

[40] Loop up-link (ground to train) systems including Euroloop

Table 4 Interface requirements for Railway Applications

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
76-77 GHz[41]	55 dBm peak EIRP		EN 301 091	Obstruction/Vehicle detection via radar Sensor at railway level crossings.50 dBm average power or 23.5 dBm average power for pulse radar.

SUPERSEDED - NO LONGER IN USE

[41] This frequency band is also identified in Table 5.

3.5 Interface Requirements for Road Transport and Traffic Telematics (RTTT)

This table covers radio systems used in the field of transport and traffic telematics (road, rail and water depending on the relevant technical restrictions), traffic management, navigation and mobility management. Typical applications are used for interfaces between different modes of transport, communication between vehicles (eg. car-to-car), between vehicles and fixed locations (eg. car-to-infrastructure), and communication from and to users and radar system installations. Automotive radar is defined as a moving radar device supporting functions of the vehicle.

Table 5 Interface Requirements for Road Transport and Traffic Telematics (RTTT)

Mandatory Requirements			**Information**	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
870 – 875.8 MHz[42]	500mW ERP	Duty cycle: ≤ 0.1% For ER-GSM protection (873-876 MHz, where applicable), the duty cycle is limited to ≤ 0.01% and limited to a maximum transmit on-time of 5ms/1s. Maximum occupied bandwidth: 500 kHz.	EN 300 200	Restricted to vehicle-to-vehicle applications. Adaptive Power Control (APC) is required. The APC is able to reduce a link's transmit power from its maximum to ≤5mW.

[42] This frequency band is also identified in Table 1 and Table 2.

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Table 5 Interface Requirements for Road Transport and Traffic Telematics (RTTT)

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
870 – 875.8 MHz[43]	100mW ERP	Duty cycle: ≤ 0.1% For ER-GSM protection (873-876 MHz, where applicable), the duty cycle is limited to ≤ 0.01% and limited to a maximum transmit on-time of 5ms/1s. Maximum occupied bandwidth: 500 kHz.	EN 300 200	Restricted to in-vehicle applications. Adaptive Power Control (APC) is required. The APC is able to reduce a link's transmit power from its maximum to ≤5mW.
5.795 – 5.805 GHz	2 W EIRP	-	EN 300 674 ES 200 674	ECC/DEC/(02)01 ERC/REC 70-03
5.805 – 5.815 GHz	2 W EIRP	-	EN 300 674 ES 200 674	Expansion spectrum only ECC/DEC/(02)01 ERC/REC 70-03

[43] This frequency band is also identified in Table 1 and Table 2.

Table 5 Interface Requirements for Road Transport and Traffic Telematics (RTTT)

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
21.65 – 26.65 GHz	Max Mean Power Density for frequencies below 22GHz: - 61.3dBm/MHz EIRP Max Mean Power Density for frequencies above 22GHz: - 41.3 dBm/MHz EIRP; Peak Power Density: 0 dBm/50 MHz EIRP	For automotive Short Range Radars (SRR) * See detailed requirements in related ECC Decision. New SRR equipment shall not be placed onto the market as of 1 July 2013	EN 302 288	Temporary designation for automotive Short Range Radar (SRR) for collision mitigation and traffic safety applications only. European Legislation: Decision 2011/485/EU Decision 2005/50/EC ECC/DEC/(04)10 ERC/REC 70-03
24.25 – 26.65 GHz	*	For automotive Short Range Radars (SRR) * See detailed requirements in related ECC Decision. New SRR equipment shall not be placed onto the market as of 1 January 2018	EN 302 288	For automotive Short Range Radars (SRR). See detailed requirements in related EEC Decision. SRR equipment may only be placed onto the market until 1 January 2018. This date is extended by 4 years for SRR equipment mounted on motor vehicles for which vehicle conformity compliance has been granted before 1 January 2018, ERC/REC 70-03 ECC/DEC/(04)10

Table 5 Interface Requirements for Road Transport and Traffic Telematics (RTTT)

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
24.05 – 24.075 GHz	100 mW EIRP	-	EN 302 858	For Vehicle Radars European Legislation: Decision 2006/771/EU Decision 2013/752/EU Decision 2011/829/EU ERC/REC 70-03
24.075 – 24.150 GHz	0.1 mW EIRP	-	EN 302 858	For vehicle radars European Legislation: Decision 2006/771/EU Decision 2013/752/EU Decision 2011/829/EU ECC/DEC/(04)10 ERC/REC 70-03

Table 5 Interface Requirements for Road Transport and Traffic Telematics (RTTT)

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
24.075 – 24.150 GHz (continued)	100 mW EIRP	≤ 4µs/40 kHz dwell time for every 3ms[44]	EN 302 858	For automotive radars. The mitigation requirement is given for devices mounted behind a bumper. If mounted without a bumper , the requirement should be 3 µs/40 kHz maximum dwell time every 3 ms. European Legislation: Decision 2006/771/EC Decision 2013/752/EU Decision 2011/829/EU ECC/DEC/(04)10 ERC/REC 70-03

[44] A requirement for minimum frequency modulation range (applicable to FMCW or step frequency signals) or minimum instantaneous bandwidth (applicable to pulsed signal) of 250 kHz applies in addition to the requirement on maximum dwell time.

Table 5 Interface Requirements for Road Transport and Traffic Telematics (RTTT)

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
24.075 – 24.150 GHz (continued)	100 mW EIRP	≤ 1ms/40 kHz dwell time every 40 ms[45]	EN 302 858	For vehicle radars. The spectrum access and mitigation requirement is given for devices mounted either behind a bumper or mounted without a bumper. European Legislation: Decision 2006/771/EC Decision 2013/752/EU Decision 2011/829/EU ECC/DEC/(04)10 ERC/REC 70-03
24.150 – 24.250 GHz	100 mW EIRP	-	EN 302 858	For vehicle radars European Legislation: Decision 2006/771/EC Decision 2013/752/EU Decision 2011/829/EU ECC/DEC/(04)10 ERC/REC 70-03

[45] A requirement for minimum frequency modulation range (applicable to FMCW or step frequency signals) or minimum instantaneous bandwidth (applicable to pulsed signal) of 250 kHz applies in addition to the requirement on maximum dwell time.

Table 5 Interface Requirements for Road Transport and Traffic Telematics (RTTT)

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
24.25 – 26.65 GHz	*	*	EN 302 288	For Automotive Short Range Radars (SRR). See detailed requirements in related ECC decision. SRR equipment may only be placed onto the market until 1st of January 2018. This date is extended by 4 years for SSR equipment mounted on motor vehicles for which vehicle conformity compliance has been granted before 1 January 2018. ECC/DEC/(04)10 ERC/REC 70-03
76 – 77 GHz[46]	55 dBm peak EIRP 50 dBm average power or 23.5 dBm average power for pulse radar only.		EN 301 091	For ground based vehicle and infrastructure systems only. European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ECC/DEC(16)01 ERC/REC 70-03

[46] Frequency band is also included in Annex 4

Table 5 Interface Requirements for Road Transport and Traffic Telematics (RTTT)

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
77-81 GHz	*	* See detailed requirements in related ECC Decision.	EN 302 264	For vehicle Short Range Radars (SRR). ECC/DEC(04)03

3.6 Interface Requirements for Radiodetermination Applications

This table covers SRD radiodetermination applications including equipment for detecting movement and alert. Radiodetermination is defined as the determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to these parameters, by means of the propagation properties of radio waves.

Table 6 Interface Requirements for Radiodetermination Applications

Mandatory Requirements		Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Reference Standards	Relevant Documents / Other Notes
30 MHz – 12.4 GHz	*	EN 302 066	For Ground and Wall Probing Radar (GPR / WPR) imaging systems, subject to an appropriate licensing regime. See detailed requirements in related ECC decision. ECC/DEC/(06)08
2 200 MHz – 8 GHz	*	EN 302 045	For Material Sensing Devices. See detailed requirements in related ECC decision. ECC/DEC/(07)01
2400 – 2483.5 MHz	25 mW EIRP	EN 300 440	European Legislation:

Table 6 Interface Requirements for Radiodetermination Applications

Mandatory Requirements		Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Reference Standards	Relevant Documents / Other Notes
			Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/DEC/(01)08 ERC/REC 70-03
3.1 – 4.8 GHz	*	EN 302 065	For UWB Location Tracking Application for Emergency and Disaster Situations (LAES), subject to an appropriate licensing regime. See detailed requirements in related ECC Recommendation ECC/REC/(11)10 European Legislation: 2014/702/EU
3.1 – 4.8 GHz	*	EN 302 065	For UWB Location Tracking Systems Type 2 (LT2), subject to an appropriate licensing regime. See detailed requirements in related ECC Recommendation. ECC/REC/(11)09 European Legislation: 2014/702/EU
9.2 – 9.5 GHz	25 mW EIRP	EN 300 440	ERC/REC 70-03

Table 6 Interface Requirements for Radiodetermination Applications

Mandatory Requirements		Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Reference Standards	Relevant Documents / Other Notes
9.500 – 9.975 GHz	25 mW EIRP	EN 300 440	ERC/REC 70-03
4.5 – 7.0 GHz	-41.3 dBm/MHz EIRP	EN 302 372	Tank Level Probing Radar (TLPR) only European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU Other references: ERC/REC 70-03
6.0 -8.5 GHz	*	EN 302 729	For Industrial Level Probing Radar (LPR). See detailed requirements in related ECC Decision. ERC/REC 70-03 ECC/DEC/(11)02
24.05 – 26.5 GHz	*	EN 302 729	For Industrial Level Probing Radar (LPR). See detailed requirements in related ECC Decision. ERC/REC 70-03 ECC/DEC/(11)02

Table 6 Interface Requirements for Radiodetermination Applications

Mandatory Requirements		Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Reference Standards	Relevant Documents / Other Notes
57 – 64 GHz	*	EN 302 729	For Industrial Level Probing Radar (LPR). See detailed requirements in related ECC Decision. ERC/REC 70-03 ECC/DEC/(11)02
75 – 85 GHz	*	EN 302 729	For Industrial Level Probing Radar (LPR). See detailed requirements in related ECC Decision. ERC/REC 70-03 ECC/DEC/(11)02
6 – 8.5 GHz	*	EN 302 729	For industrial level probing radar (LPR). * see detailed requirements in related ECC Decision ERC/REC 70-03 ECC/DEC/(11)02 ERC/REC 70-03
24.05 – 26.5 GHz	*	EN 302 729	For industrial level probing radar (LPR). * see detailed requirements in related ECC Decision ERC/REC 70-03 ECC/DEC/(11)02 ERC/REC 70-03
8.5 – 10.6 GHz	-41.3 dBm/MHz EIRP	EN 302 372	Tank Level Probing Radar (TLPR) only The radiated unwanted emissions within the frequency band 10.6-10.7 GHz outside the test tank enclosure shall be less than -60 dBm/MHz EIRP

Table 6 Interface Requirements for Radiodetermination Applications

Mandatory Requirements		Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Reference Standards	Relevant Documents / Other Notes
			European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU Other references: ERC/REC 70-03
10.4 - 10.42 GHz[47]	500 mW EIRP	EN 300 440	
10.5 – 10.6 GHz	25 mW EIRP	EN 300 440	Other references: ERC/REC 70-03
13.4 – 14 GHz	25 mW EIRP	EN 300 440	Other references: ERC/REC 70-03
17.1 – 17.3 GHz[48]	26 dBm EIRP	EN 300 440	Ground Based Synthetic Aperture Radar[49] - DAA

[47] Not included in ERC/REC/70-03 – National SRD solution only

[48] Frequency band also identified in Table 3

[49] Specific requirements for the radar antenna pattern and for the implementation of the Detect and Avoid (DAA) technique apply as described in EN 300 440 for Ground Based Synthetic Aperture Radar (GBSAR) systems.

SUPERSEDED

Table 6 Interface Requirements for Radiodetermination Applications

Mandatory Requirements		Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Reference Standards	Relevant Documents / Other Notes
			European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU Other references: ERC/REC 70-03
24.05 – 24.25 GHz[50]	100 mW EIRP	EN 300 440 EN 302 372	Other references: ERC/REC 70-03 The frequency band 24.00 – 24.25 GHz is identified with the same emission parameters in Table 1
57 – 64 GHz	-41.3 dBm/MHz EIRP outside the enclosed tank test structure.	EN 302 372	For Industrial Level Probing Radar (LPR). ECC/DEC/(11)02 Other references: ERC/REC 70-03

[50] Frequency band also identified in Table 1

Table 6 Interface Requirements for Radiodetermination Applications			
Mandatory Requirements		**Information**	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Reference Standards	Relevant Documents / Other Notes
75 –85 GHz	-41.3 dBm / MHz EIRP	EN 302 372	Tank Level Probing Radar (TLPR) only European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU Other references: ERC/REC 70-03
9.2 – 9.5 GHz	*	EN 300 440	ERC/REC 70-03
9.5 - 9.975 GHz	*	EN 300 440	ERC/REC 70-03

3.7 Interface Requirements for Alarms

This table covers alarm systems including social alarms and alarms for security and safety.

Table 7 Interface Requirements for Alarms				
Mandatory Requirements			**Information**	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
868.600 – 868.700 MHz	10 mW ERP	Duty cycle: ≤ 1 % Maximum occupied bandwidth: 25 kHz	EN 300 220	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03

Table 7 Interface Requirements for Alarms

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
		The whole frequency band may also be used as one single channel for high-speed data transmission.		
869.200 – 869.250 MHz	10 mW ERP	Duty cycle: ≤ 0.1 % Maximum occupied bandwidth: 25 kHz	EN 300 220	Social Alarms[51] European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
869.250 – 869.300 MHz	10 mW ERP	Duty cycle: ≤ 0.1 % Maximum occupied bandwidth: 25 kHz	EN 300 220	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
869.3 – 869.4 MHz	10 mW ERP	Duty cycle: ≤ 1 %	EN 300 220	European Legislation: Decision 2006/771/EC

[51] Social alarm devices are used to assist elderly people and people with disabilities living at home when then they are in distress.

Table 7 Interface Requirements for Alarms

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
		Maximum occupied bandwidth: 25 kHz		Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
869.65 – 869.70 MHz	25 mW ERP	Duty cycle: ≤ 10 % Maximum occupied bandwidth: 25 kHz	EN 300 220	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03

SUPERSEDED - N CE

3.8 Interface Requirements for Model Control

This table covers the application of model control equipment, which is solely for the purpose of controlling the movement of the model, in the air, on land, or over or under the water surface.

Table 8 Interface Requirements for Model Control

Mandatory Requirements			**Information**	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
26.99 – 27.20 MHz **(26.995, 27.045, 27.095,** **27.145, 27.195 MHz)**	100 mW ERP	Maximum occupied bandwidth: 10 kHz	EN 300 220	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
34.995 – 35.225 MHz	100 mW ERP	Maximum occupied bandwidth: 10 kHz	EN 300 220	Flying Models only ERC/DEC/(01)11 ERC/REC 70-03
40.660 – 40.700 MHz **(40.665, 40.675, 40.685, 40.695 MHz)**	100 mW ERP	Maximum occupied bandwidth: 10 kHz	EN 300 220	ERC/DEC/(01)12 ERC/REC 70-03

SUPERSEDED IN FORCE

3.9 Interface Requirements for Inductive Applications

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

Table 9 Interface Requirements for Inductive Applications

Mandatory Requirements		**Information**	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Reference Standards	Relevant Documents / Other Notes
9 – 90 kHz	72 dBμA/m @ 10m. The limit is reduced to 42dBμA/m @10m according to Table 10.	EN 300 330	In case of external antennas only loop coil antennas may be employed. Field strength level descending 3dB/octave at 30kHz European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03

SUPERSEDED NOT IN FORCE

Table 9 Interface Requirements for Inductive Applications

Mandatory Requirements		Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Reference Standards	Relevant Documents / Other Notes
90 – 119 kHz	42 dBμA/m @ 10m	EN 300 330	In case of external antennas only loop coil antennas may be employed. European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
119 – 135 kHz	66 dBμA/m @ 10m The limit is reduced to 42dBμA/m @10m according to Table 10.	EN 300 330	In case of external antennas only loop coil antennas may be employed. Field strength level descending 3dB/octave at 119 kHz European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03

Table 9 Interface Requirements for Inductive Applications

Mandatory Requirements		Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Reference Standards	Relevant Documents / Other Notes
135 – 140 kHz	42 dBμA/m @ 10m	EN 300 330	In case of external antennas only loop coil antennas may be employed. European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
140 – 148.5 kHz	37.7 dBμA/m @ 10m	EN 300 330	In case of external antennas only loop coil antennas may be employed. European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03

Table 9 Interface Requirements for Inductive Applications

Mandatory Requirements		Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Reference Standards	Relevant Documents / Other Notes
148.5 – 1 600 kHz[52]	-5 dBμA/m @ 10m	EN 300 330	In case of external antennas only loop coil antennas may be employed.
148.5 kHz – 5 MHz	-15 dBμA/m at 10m	EN 300 330	In the case of external antennas, only loop coil antennas may be employed. The maximum field strength is specified in a bandwidth of 10 kHz. The maximum allowed total field strength is -5 dBμA/m at 10m for systems operating at bandwidths larger than 10 kHz whilst keeping the density limit (-15 dBμA/m at 10m) European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
285 – 400 kHz[53]	38 dBμA/m @ 10m	EN 300 330	

[52] Not included in ERC/REC/70-03 – National SRD solution only
[53] Not included in ERC/REC/70-03 – National SRD solution only

Table 9 Interface Requirements for Inductive Applications

Mandatory Requirements		Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Reference Standards	Relevant Documents / Other Notes
400 – 600 kHz	-8 dBμA/m at 10m	EN 300 330	For RFID only. In the case of external antennas, only loop coil antennas may be employed. The maximum field strength is specified in a bandwidth of 10 kHz. The maximum allowed total field strength is -5 dBμA/m at 10 m for systems operating at bandwidths larger than 10 kHz measured at the centre frequency, whilst keeping the density limit (-8 dBμA/m in a bandwidth of 10 kHz.) These systems should operate with a minimum operating bandwidth of 30 kHz. European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
1650 – 1950 kHz[54]	8 dBμA/m @ 10m	EN 300 330	
1805 – 2200 kHz[55]	-8 dBμA/m @ 10m	EN 300 330	

[54] Not included in ERC/REC/70-03 – National SRD solution only
[55] Not included in ERC/REC/70-03 – National SRD solution only

SUPERSEDED CEPT

Table 9 Interface Requirements for Inductive Applications

Mandatory Requirements		Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Reference Standards	Relevant Documents / Other Notes
2540 kHz – 3.560 MHz[56]	-8 dBμA/m @ 10m	EN 300 330	
3.155 – 3.400 MHz	13.5 dBμA/m @ 10m	EN 300 330	In case of external antennas only loop coil antennas may be employed. European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
6.765 – 6.795 MHz	42 dBμA/m @ 10m	EN 300 330	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03

[56] Not included in ERC/REC/70-03 – National SRD solution only

Table 9 Interface Requirements for Inductive Applications

Mandatory Requirements		Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Reference Standards	Relevant Documents / Other Notes
7.4 – 8.8 MHz	9 dBμA/m @ 10m	EN 300 330	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
5 MHz - 30 MHz	-20 dBμA/m at 10m	EN 300 330	In the case of external antennas, only loop coil antennas may be employed. The maximum field strength is specified in a bandwidth of 10 kHz. The maximum allowed total field strength is -5 dBμA/m at 10m for systems operating at bandwidths larger than 10 kHz whilst keeping the density limit (-20 dBμA/m at 10m) European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
10.2 – 11 MHz	9 dBμA/m @ 10m	EN 300 330	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03

Table 9 Interface Requirements for Inductive Applications

Mandatory Requirements		Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Reference Standards	Relevant Documents / Other Notes
13.553 – 13.567 MHz	42 dBμA/m @ 10m	EN 300 330	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
13.553 – 13.567 MHz	60 dBμA/m @ 10m	EN 300 330	For RFID and EAS only European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
11.81 – 12.66 MHz	-16 dBμA/m @ 10m	EN 300 330	For RFID only, only in connection with the band 13.553 – 13.567 MHz operating at 42 dBμA/m @ 10m
12.66 – 13.11 MHz	-10 dBμA/m @ 10m	EN 300 330	For RFID only, only in connection with the band 13.553 – 13.567 MHz operating at 42 dBμA/m @ 10m
13.11 – 13.41 MHz	-3.5 dBμA/m @ 10m	EN 300 330	For RFID only, only in connection with the band 13.553 – 13.567 MHz operating at 42 dBμA/m @ 10m
13.41 – 13.553 MHz	9 dBμA/m @ 10m	EN 300 330	For RFID only, only in connection with the band 13.553 – 13.567 MHz operating at 42 dBμA/m @ 10m

Table 9 Interface Requirements for Inductive Applications

Mandatory Requirements		Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Reference Standards	Relevant Documents / Other Notes
13.567 – 13.71 MHz	9 dBμA/m @ 10m	EN 300 330	For RFID only, only in connection with the band 13.553 – 13.567 MHz operating at 42 dBμA/m @ 10m
13.71 – 14.01 MHz	-3.5 dBμA/m @ 10m	EN 300 330	For RFID only, only in connection with the band 13.553 – 13.567 MHz operating at 42 dBμA/m @ 10m
14.01 – 14.46 MHz	-10 dBμA/m @ 10m	EN 300 330	For RFID only, only in connection with the band 13.553 – 13.567 MHz operating at 42 dBμA/m @ 10m
14.46 – 15.31 MHz	-16 dBμA/m @ 10m	EN 300 330	For RFID only, only in connection with the band 13.553 – 13.567 MHz operating at 42 dBμA/m @ 10m
12.66 -13.11 MHz	-5 dBμA/m @ 10m	EN 300 330	For RFID only, only in connection with the band 13.553 – 13.567 MHz operating at 60 dBμA/m @ 10m
13.11 – 13.36 MHz	-3.5 dBμA/m @ 10m	EN 300 330	For RFID only, only in connection with the band 13.553 – 13.567 MHz operating at 60 dBμA/m @ 10m
13.36 – 13.46 MHz	Linear transition from 27 to -3.5 dBμA/m @10m	EN 300 330	For RFID only, only in connection with the band 13.553 – 13.567 MHz operating at 60 dBμA/m @ 10m
13.46 – 13.553 MHz	27 dBμA/m @ 10m	EN 300 330	For RFID only, only in connection with the band 13.553 – 13.567 MHz operating at 60 dBμA/m @ 10m
13.567 – 13.660 MHz	27 dBμA/m @ 10m	EN 300 330	For RFID only, only in connection with the band 13.553 – 13.567 MHz operating at 60 dBμA/m @ 10m

Table 9 Interface Requirements for Inductive Applications

Mandatory Requirements		Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Reference Standards	Relevant Documents / Other Notes
13.66 – 13.76 MHz	Linear transition from 27 to -3.5 dBμA/m @10m	EN 300 330	For RFID only, only in connection with the band 13.553 – 13.567 MHz operating at 60 dBμA/m @ 10m
13.76 – 14.01 MHz	-3.5 dBμA/m @ 10m	EN 300 330	For RFID only, only in connection with the band 13.553 – 13.567 MHz operating at 60 dBμA/m @ 10m
14.01 – 14.46 MHz	-5 dBμA/m @ 10m	EN 300 330	For RFID only, only in connection with the band 13.553 – 13.567 MHz operating at 60 dBμA/m @ 10m
26.957 – 27.283 MHz	42 dBμA/m @ 10m; 10mW ERP	EN 300 330	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03

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3.10 Interface Requirements for Radio Microphone Applications Including Aids for the Hearing Impaired

This table covers radio microphone applications (also referred to as wireless microphones or cordless microphones) including Assistive Listening Devices (ALD) (also referred to as aids for the hearing impaired). Radio microphones are small, low power (typically 50mW or less) transmitters designed to be worn on the body, or hand-held, for the transmission of sound. The receivers are tailored to specific uses and may range from small and portable to rack mounted modules as part of a multichannel system. This table covers professional and consumer radio microphones, both hand-held and body-worn, and Assistive Listening Devices (ALD). ALD are specific radio microphone applications which capture an acoustic signal that is transmitted by radio to the hearing aid receivers.

Table 10 Interface Requirements for Radio Microphones and Assistive Hearing Devices

Mandatory Requirements			**Information**	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
29.7 – 47.0 MHz	10 mW ERP	Maximum occupied bandwidth: 50 kHz	EN 300 422	On a tuning range basis. The frequency bands 30.3 – 30.5 MHz, 32.15 – 32.45 MHz and 41.015 - 47.00 MHz are harmonised military bands in Europe. ERC/REC 70-03
87.5 – 108 MHz	50 nW ERP	Maximum occupied bandwidth: 200 kHz	EN 301 357	Band II low power FM transmitters ERC/REC 70-03
169.4 – 174.0 MHz	10mW ERP	Maximum occupied bandwidth: 50 kHz	EN 300 422	Assistive Listening Device (ALD). On a tuning range basis. ERC/REC 70-03

NOT IN FORCE

Table 10 Interface Requirements for Radio Microphones and Assistive Hearing Devices

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
169.400 - 169.475 MHz	10 mW ERP	Maximum occupied bandwidth: 50 kHz	EN 300 422	Aids for the hearing impaired. (Personal Hearing Aid System) European Legislation: Decision 2006/771/EC Decision 2013/752/EU ECC/DEC(05)02 ERC/REC 70-03
169.4875 – 169.5875 MHz	10mW ERP	Maximum occupied bandwidth: 50 kHz	EN 300 422	Aids for the hearing impaired (Personal Hearing Aid System) – exclusive use. European Legislation: Decision 2006/771/EC Decision 2013/752/EU ECC/DEC(05)02 ERC/REC 70-03
173.965 – 216 MHz	10 mW ERP	Maximum occupied bandwidth: 50 kHz (Notes 8.1 and 8.2)	EN 300 422 ECC Report 230	Assistive Listening Device (ALD). On a tuning range basis. Individual licence may be required. ERC/REC 70-03

Table 10 Interface Requirements for Radio Microphones and Assistive Hearing Devices

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
174 – 216 MHz	50 mW ERP		EN 300 422	Radio microphones. On a tuning range basis. Individual license may be required ERC/REC 70-03
470 – 786 MHz	50 mW ERP		EN 300 422	Radio microphones. On a tuning range basis. Individual license may be required ERC/REC 70-03
786 – 789 MHz	12 mW ERP		EN 300 422	Radio microphones. On a tuning range basis. Individual license may be required ERC/REC 70-03
823 – 826 MHz	20 mW EIRP/ 100 mW EIRP	Maximum occupied bandwidth: 200 kHz	EN 300 422	Radio microphones. Individual licence may be required. 100 mW restricted to body worn equipment. ERC/REC 70-03

SUPERSEDED

Table 10 Interface Requirements for Radio Microphones and Assistive Hearing Devices

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
826 – 832 MHz	100 mW EIRP	Maximum occupied bandwidth: 200 kHz	EN 300 422	Radio microphones. Individual licence may be required. 100 mW restricted to body worn equipment. ERC/REC 70-03
863 – 865 MHz	10 mW ERP	Maximum occupied bandwidth: 200 kHz	EN 301 357	ERC/REC 70-03
916.1 – 916.5 MHz[57]	10mW ERP	Duty cycle: ≤25% Maximum occupied bandwidth: 400 kHz	EN 300 422	Indoor Digital Assistive Listening Device. The centre frequency is 916.3 MHz.
917.3 – 917.7 MHz[58]	10mW ERP	Duty cycle:≤25% Maximum occupied bandwidth: 400 kHz	EN 300 422	Indoor Digital Assistive Listening Device. The centre frequency is 917.5 MHz
918.5 – 918.9 MHz[59]	10mW ERP	Duty cycle:≤25% Maximum occupied bandwidth: 400 kHz	EN 300 422	Indoor Digital Assistive Listening Device. The centre frequency is 918.7 MHz

[57] This frequency band is also identified in Table 1 and Table 11.
[58] This frequency band is also identified in Table 1 and Table 11.
[59] This frequency band is also identified in Table 1 and Table 11.

Table 10 Interface Requirements for Radio Microphones and Assistive Hearing Devices				
Mandatory Requirements			**Information**	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
919.7 – 920.1 MHz[60]	10mW ERP	Duty cycle: ≤25% Maximum occupied bandwidth: 400 kHz	EN 300 422	Indoor Digital Assistive Listening Device. The centre frequency is 919.9 MHz
1350 – 1400 MHz	20 mW EIRP/ 50 nW EIRP		EN 300 422	Radio microphones. Individual license may be required. 50 mW restricted to body worn equipment or equipment with Spectrum Scanning Procedure (SSP) implemented for the 1350 – 1400 MHz band. ERC/REC 70-03
1492 – 1518 MHz	50 mW EIRP		EN 300 422	Radio microphones. On a tuning range basis. Individual licence required. Restricted to indoor use. ERC/REC 70-03
1518 – 1525 MHz	50 mW EIRP		EN 300 422	Radio microphones. On a tuning range basis. Individual licence required. Restricted to indoor use. ERC/REC 70-03
1785 - 1795 MHz	20 mW EIRP / 50 mW EIRP		EN 300 422	Radio microphones. Individual licence may be required. 50 mW restricted to body worn equipment

[60] This frequency band is also identified in Table 1 and Table 11.

Table 10 Interface Requirements for Radio Microphones and Assistive Hearing Devices

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
				or equipment with Spectrum Scanning Procedure (SSP) implemented for the 1785 – 1804.8 MHz band ERC/REC 70-03
1795 – 1800 MHz	20 mW EIRP / 50 mW EIRP		EN 301 357	Radio microphones including wireless audio and multimedia streaming devices. Individual licence may be required. 50 mW restricted to body worn equipment or equipment with Spectrum Scanning Procedure (SSP) implemented for the 1785 – 1804.8 MHz band ERC/REC 70-03
1800 – 1804.8 MHz	20 mW EIRP / 50 mW EIRP		EN 300 422	Radio microphones. Individual licence may be required. 50 mW restricted to body worn equipment or equipment with Spectrum Scanning Procedure (SSP) implemented for the 1785 – 1804.8 MHz band ERC/REC 70-03

Note 8.1: A threshold of 35dBμV/m is required to ensure the protection of a DAB receiver located at 1.5m from the ALD device, subject to DAB signal strength measurements taken around the ALD operating site.

Note 8.2: The ALD device should operate under all circumstances at least 300 kHz away from the channel edge of an occupied DAB channel.

SUPERSEDED - NO LONGER IN FORCE

3.11 Interface Requirements for Radio Frequency Identification Applications (RFID)

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

Table 11 Interface Requirements for Radio Frequency Identification Applications (RFID)

Mandatory Requirements			**Information**	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
865 – 868 MHz	2 W EIRP	Maximum occupied bandwidth: 200 kHz	EN 302 208	Operation only when necessary to perform the intended operation, i.e. when RFID tags are expected to be present ERC/REC 70-03
865.0 – 865.6 MHz	100 mW ERP	Maximum occupied bandwidth: 200 kHz	EN 302 208	ERC/REC 70-03
865.6 – 867.6 MHz	2 W ERP	Maximum occupied bandwidth: 200 kHz	EN 302 208	ERC/REC 70-03
867.6 – 868.0 MHz	500 mW ERP	Maximum occupied bandwidth: 200 kHz	EN 302 208	ERC/REC 70-03
915 – 921 MHz	4 W ERP[61]		EN 302 208	ERC/REC 70-03

[61] Interrogator transmissions in this band at 4 W ERP are only permitted within the four channels centred at 916.3 MHz, 917.5 MHz, 918.7 MHz and 919.9 MHz, each with a bandwidth of 400 kHz.

SUPERSEDED IN FORCE

Table 11 Interface Requirements for Radio Frequency Identification Applications (RFID)

Mandatory Requirements			**Information**	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
2446 – 2454 MHz	500 mW EIRP	-	EN 300 440	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
2446 – 2454 MHz	>500 mW - 4 W EIRP	Duty cycle: ≤ 15 % FHSS techniques should be used.	EN 300 440	Power levels above 500 mW are restricted to be used inside the boundaries of a building. Duty cycle ≤ 15 % in any 200 ms period (i.e. 30 ms on / 170 ms off) ERC/REC 70-03

SUPERSEDED

3.12 Interface Requirements for Active Medical Implants and Their Associated Peripherals

This category covers the radio part of active implantable medical devices, as defined in Council Directive 90/385/EEC of 20 June 1990 on the approximation of the laws of the Member States relating to active implantable medical devices and their peripherals.

Table 12 Interface Requirements for Active Medical Implants and Their Associated Peripherals

Mandatory Requirements			**Information**	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
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 European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
315 – 600 kHz	-5 dBµA/m @ 10 m	Duty cycle: ≤ 10 %	EN 300 330	Animal implantable devices European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03

Table 12 Interface Requirements for Active Medical Implants and Their Associated Peripherals

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
12.5 – 20 MHz	-7 dBμA/m @ 10m	Duty cycle: ≤10%	EN 300 330	This application is for Ultra Low Power (ULP) active animal implantable devices (ULP-AID), limited to indoor only applications. The maximum field strength is specified in a bandwidth of 10 kHz. The transmission mask of ULP-AID is defined as follows: 3 dB Bandwidth 300 kHz 10 dB Bandwidth 800 kHz 20 dB Bandwidth 2 MHz European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
30.0 – 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.
401 – 402 MHz	25 μW ERP	Duty cycle ≤ 0.1% unless devices use LBT or equally efficient	EN 302 537	For Ultra Low Power Active Medical Implants and accessories covered by the applicable harmonised standard and not covered by 402 – 405 MHz.

Table 12 Interface Requirements for Active Medical Implants and Their Associated Peripherals

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
		mitigation technique in which case there is no duty cycle restriction (see Note 12.2). Channel spacing 25kHz		Individual transmitters may combine adjacent 25kHz channels for increased bandwidth up to 100 kHz (See Note 12.1) European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU Other references: ERC/REC 70-03
402 – 405 MHz	25 µW ERP	Channel Spacing: 25kHz Other channelling restriction: Individual transmitters may combine adjacent channels for increased bandwidth up to 300 kHz. See Note 12.3	EN 301 839	Active Medical Implants European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU Other references: ERC/DEC/(01)17 ERC/REC 70-03
405 – 406 MHz	25 µW ERP	Duty cycle ≤ 0.1% Unless devices use LBT or equally efficient mitigation technique in	EN 302 537	For Ultra Low Power Active Medical Implants and accessories covered by the applicable harmonised standard and not covered by 402 – 405 MHz.

Table 12 Interface Requirements for Active Medical Implants and Their Associated Peripherals

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
		which case there is no duty cycle restriction (see Note 12.2). Channel spacing 25kHz		Individual transmitters may combine adjacent 25kHz channels for increased bandwidth up to 100 kHz (see Note 12.1) European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU Other references: ERC/REC 70-03
458.6375 – 458.8375 MHz[62]	10 mW ERP	Maximum occupied bandwidth: 25 kHz	EN 300 220	**ECG monitoring only**
2483.5 – 2500 MHz	10 dBm EIRP	LBT + AFA and less than 10% duty cycle The equipment shall implement a spectrum access mechanism as described in the applicable harmonised standard or an equivalent spectrum access mechanism Maximum occupied bandwidth: 1MHz	EN 301 559	For Low Power Active Medical Implants and associated peripherals, covered by the applicable harmonised standard. Individual transmitters may combine adjacent channels on a dynamic basis for increased bandwidth higher than 1 MHz. Peripheral units are for indoor use only.

[62] Not included in ERC/REC/70-03 – National SRD solution only.

3.13 Interface Requirements for Wireless Audio Applications

This table covers applications for wireless audio and multimedia streaming systems including the following, cordless loudspeakers; cordless headphones; cordless headphones for portable use, for example portable CD, cassette or radio devices carried on a person; cordless headphones for use in a vehicle, for example for use with a radio or mobile telephone etc.; in-ear monitoring, for use with concerts or other stage productions.

Table 13 Interface Requirements for Wireless Audio Applications

Mandatory Requirements			**Information**	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
31.025 – 31.325 MHz[63]	10 mW ERP	-	Ref to TTE 9 (see document ODTR 98/62R)	Analogue cordless phones only National Legislation: S.I. 410 of 1997
39.925 – 40.225 MHz[64]	10 mW ERP	-	Ref to TTE 9 (see document ODTR 98/62R)	Analogue cordless phones only National Legislation: S.I. 410 of 1997
49.82 – 49.98 MHz[65]	10 mW ERP	-	EN 300 220	Baby monitors[66]

[63] Not included in ERC/REC/70-03 – National SRD solution only
[64] Not included in ERC/REC/70-03 – National SRD solution only
[65] Not included in ERC/REC/70-03 – National SRD solution only
[66] When operating short range devices on these frequencies in close proximity to domestic television receivers care must be taken as the domestic television receivers may suffer interference

SUPERSEDED NOT IN FORCE

Table 13 Interface Requirements for Wireless Audio Applications

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
87.5 – 108.0 MHz	50 nW ERP	Maximum occupied bandwidth: 200 kHz	EN 301 357	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/REC 70-03
446.0 – 446.1 MHz[67]	500 mW ERP	8 channels specified in S.I. 93 of 1998. Maximum occupied bandwidth: 12.5 kHz CTCSS or DCS tone control	EN 300 296	PMR446 hand portable with integral antennas for speech communications. National Legislation: S.I. 93 of 1998.
446.1 – 446.2 MHz[68]	500 mW ERP	Occupied bandwidth: 6.25 kHz or 12.5 kHz	EN 300 113 - 2 or EN 301 166 - 2	Digital PMR 446 hand portable ECC/DEC(05)12

[67] Not included in ERC/REC/70-03 – National SRD solution only
[68] Not included in ERC/REC/70-03 – National SRD solution only

Table 13 Interface Requirements for Wireless Audio Applications

Mandatory Requirements			Information	
Frequency Band	Maximum Permitted Radiated Power / Field Strength	Mitigation Requirements	Reference Standards	Relevant Documents / Other Notes
863 – 865 MHz	10 mW ERP	-	EN 301 357	European Legislation: Decision 2006/771/EC Decision 2011/829/EU Decision 2013/752/EU ERC/DEC/(01)18 ERC/REC 70-03
864.8 – 865.0 MHz	10 mW ERP	Maximum occupied bandwidth: 50 kHz	EN 300 220	Narrow band analogue voice devices ERC/REC 70-03
1880 – 1900 MHz[69]	250 mW ERP (Peak)	-	EN 301 406	DECT Cordless Phones National Legislation: S.I. 169 of 1994

[69] Not included in ERC/REC/70-03 – National SRD solution only

SUPERSEDED

4 Relevant Documentation

National Legislation

Primary Legislation

Wireless Telegraphy Acts 1926 to 2009.

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

13/118, as revised: Radio Frequency Plan for Ireland

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

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

SUPERSEDED - NO LONGER IN FORCE

ETSI Documentation

EN 302 567: Broadband Radio Access Networks (BRAN); 60 GHz Multiple-Gigabit WAS/RLAN Systems; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive.

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

EN 302 502: Broadband Radio Access Networks (BRAN); 5,8 GHz fixed broadband data transmitting systems; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive

EN 302 326: Fixed Radio Systems; Multipoint Equipment and Antennas.

EN 302 264: Electromagnetic compatibility and Radio spectrum Matters (ERM);Short Range Devices; Road Transport and Traffic Telematics (RTTT); Short Range Radar equipment operating in the 77 GHz to 81 GHz band

EN 301 489-4: Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 4: Specific conditions for fixed radio links, Broadband Data Transmission System Base stations, ancillary equipment and services.

EN 301 489-17: Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment; Part 17: Specific conditions for Broadband Data Transmission Systems.

EN 301 326: Fixed Radio Systems; Multipoint Equipment and Antennas

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.

SUPERSEDED – NO LONGER IN FORCE

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 300 718: Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Avalanche Beacons; Transmitter-receiver systems.

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 301 893: 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.

SUPERSEDED - NO LONGER IN FORCE

CEPT Documentation

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)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)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)17: ERC Decision of 12 March 2001 amended 9 December 2011 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.

ECC/DEC/(04)03: ECC Decision of 19 March 2004 on the frequency band 77-81 GHz to be designated for the use of Automotive Short Range Radars

ECC/DEC/(04)08: ECC Decision of 9 July 2004 on the harmonised use of the 5 GHz frequency bands for the implementation of Wireless Access Systems including Radio Local Area Networks (WAS/RLANs)

ECC/DEC/(04)10: ECC Decision of 12 November 2004 amended 1 June 2012 on the frequency bands to be designated for the temporary introduction of Automotive Short Range Radars (SRR) (2004/545/EC) and (2005/50/EC), amended by 2011/485/EU

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

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.

ECC/DEC/(06)04: ECC Decision of 24 March 2006 amended 9 December2011 on the harmonised conditions for devices using UWB technology in bands below 10.6 GHz.

SUPERSEDED - NO LONGER IN FORCE

ECC/DEC/(07)01: ECC Decision of 30 March 2007 on specific Material Sensing devices using Ultra-Wideband (UWB) Technology.

ECC/DEC/(12)03: ECC Decision of 2 November 2012 on the harmonised conditions for UWB applications on board aircraft.

ECC/REC/(06)04: Use of the band 5725 – 5875 for Broadband Fixed Wireless Access (BFWA).

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

European Legislation

Commission Decision 2014/702/EU amending Decision 2007/131/EC on allowing the use of the radio spectrum for equipment using ultra-wideband technology in a harmonized way in the Community.

Commission Decision 2013/752/EU amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by short-range devices.

Commission Decision 2011/829/EU amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by short-range devices.

Commission decision 2009/343/EC amending Decision 2007/131/EC on allowing the use of the radio spectrum for equipment using ultra-wideband technology in a harmonized way in the Community.

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

Commission Decision 2007/90/EC amending Decision 2005/513/EC on the harmonised use of radio spectrum in the 5 GHz frequency band for the implementation of Wireless Access Systems including Radio Local Area Networks (WAS/RLANs).

Commission Decision 2006/804/EC on harmonisation of the radio spectrum for radio frequency identification (RFID) devices operating in the ultra high frequency (UHF) band.

Commission Decision 2006/771/EC, amended by 2008/432/EC, 2009/381/EC, 2010/368/EU and 2013/752/EU on the harmonisation of the radio spectrum for use by short-range devices.

Commission Decision 2005/513/EC on the Harmonised use of radio spectrum in the 5 GHz frequency band for the implementation of Wireless Access Systems including Radio Local Area Networks (WAS/RLANs).

SUPERSEDED - NO LONGER IN FORCE

Commission Decision 2005/50/EC amended by 2011/485/EU on the harmonisation of the 24 GHz range radio spectrum band for the time-limited use by automotive short-range radar equipment in the Community.

Commission Decision 2004/545/EC on the harmonisation of radio spectrum in the 79 GHz range for the use of automotive short-range radar equipment in the Community.

Commission Decision 2001/148/EC on the application of Article 3(3)(e) of Directive 1999/5/EC to avalanche beacons.

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

SUPERSEDED - NO LONGER IN FORCE