ERC Recommendation 70-03

STATUS of ERC RECOMMENDATION 70-03

RELATING TO THE USE OF SHORT RANGE DEVICES (SRD) Including Appendixes and Annexes

at May 2003

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ERC RECOMMENDATION 70-03 (Tromsø 1997 and subsequent amendments*)

RELATING TO THE USE OF SHORT RANGE DEVICES (SRD)

Recommendation adopted by the Frequency Management, Radio Regulatory and Spectrum Engineering Working Groups

Foreword

This Recommendation sets out the general position on common spectrum allocations for Short Range Devices (SRDs) for countries within the CEPT. It is also intended that it can be used as a reference document by the CEPT member countries when preparing their national regulations in order to keep in line with the provisions of the R&TTE Directive.

In using this Recommendation it should be remembered that it represents the most widely accepted position within the CEPT but it should not be assumed that all allocations are available in all countries. An indication of where allocations are not available or where deviations from the CEPT position occur is to be found in Appendix 3.

It should also be remembered that the pattern of radio use is not static. It is continuously evolving to reflect the many changes that are taking place in the radio environment; particularly in the field of technology. Spectrum allocations must reflect these changes and the position set out in this Recommendation is therefore subject to continuous review.

Moreover, many administrations have designated additional frequencies or frequency bands for SRD applications on a national basis that do not conform to the CEPT position set out in this Recommendation.

For these reasons, those wishing to develop or market SRDs based on this Recommendation are advised to contact the relevant national administration to verify that the position set out herein still applies.

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.

INTRODUCTION

The CEPT has adopted Recommendations to deal with low power devices, and specific short range devices. The European Telecommunications Standards Institute (ETSI) has now developed harmonised standards and standards for the majority of these devices. Other standards or technical specifications might be applicable within the framework of the R&TTE Directive.

The term "Short Range Device" (SRD) is intended to cover the radio transmitters which provide either unidirectional or bi-directional communication and which have low capability of causing interference to other radio equipment. SRDs use either integral, dedicated or external antennas and all modes of modulation can be permitted subject to relevant standards. Due to the many different services provided by these devices, no description can be exhaustive, however, the following categories are amongst those covered:

> Telecommand and Telecontrol Telemetry Alarms Speech and Video.

^{*} See cover sheet for current status of Recommendation.

This Recommendation describes the spectrum management requirements for SRDs relating to allocated frequency bands, maximum power levels, channel spacing and duty cycle. For CEPT countries that have implemented the R&TTE Directive, article 12 (CE-marking) and article 7.2 on putting into service of radio equipment apply. Article 12 tates that "any other marking may be affixed to the equipment provided that the visibility and legibility of the CE-marking is not hereby reduced" and art. 7.2 states that "member states may restrict the putting into service of radio equipment only for reasons related to the effective and appropriate use of the radio spectrum, avoidance of harmful interference or matters relating to public health." For Short Range Devices individual license is normally not required. However, for particular applications individual license may be required for example where national frequency bands are chosen within tuning ranges. This is referred to in the particular annex.

Appendix 1 Table 1 lists the applications covered by this Recommendation. Tables 2 to 4 in Appendix 1 list parameters relevant to these applications.

In the following annexes the regulatory parameters as well as additional information about harmonised standards, frequency issues and important technical parameters also referred to in the harmonised standards are indicated for each type of Short Range Device applications. Other technical parameters are indicated in the relevant standard.

Relevant ERC Decisions and standards produced by ETSI are mentioned in Appendix 2 of this Recommendation for information purposes. Relevant ETSI Standards are also mentioned by their relevant (ETS/EN) number in the corresponding annexes. However, this list is not necessarily exhaustive and other standards or technical specifications may be applicable. For countries having implemented the R&TTE Directive its art. 10 procedures will then be applied for conformity assessment where either harmonised standards or with the involvement of a Notified Body also other standards and specifications may be applicable. Further details can be found on the relevant EC and the ERO web sites (www.ero.dk).

"The European Conference of Postal and Telecommunications Administrations,

considering

- that SRDs in general operate in shared bands and are not permitted to cause harmful interference to other radio services;
- b) that in general SRDs cannot claim protection from other radio services;
- that due to the increasing interest in the use of SRDs for a growing number of applications it is necessary to harmonise frequencies and regulations for these devices;
- d) that there is a need to distinguish between different applications;
- e) that additional applications and associated annexes will be added as necessary;
- f) that the list of applications currently covered by this Recommendation is shown in Appendix 1, Table 1;
- g) that for CEPT countries that have implemented the R&TTE Directive article 12 (CE marking) and article 7.2 on putting into service of radio equipment apply,
- h) that equipment marketed before the adoption of this Recommendation marked with the abbreviation CEPT LPD Y according to the abrogated CEPT Recommendation T/R 01-04 should be allowed continuation of free circulation and use

- i) that maintenance of Appendices 2 and 3 and also the related cross-references in the Annexes may be undertaken by the ERO based on information from Administrations,
- that information about placing SRD equipment on the market and its use can be obtained by contacting individual administrations, especially with regard to equipment operating in frequencies or frequency bands that may be designated for SRDs by administrations in addition to those covered in this recommendation;
- k) that SRD equipment normaly use either integral or dedicated antennas. In exceptional cases external antennas could be used which will be mentioned in the appropriate annex to this Recommendation;
- 1) that for those countries implementing the provisions of this Recommendation, national restrictions in respect of the annexes can be found in Appendix 3;

Recommends

- 1) that CEPT Administrations implement the parameters listed in Appendix 1 (Applications and Parameter Tables) in accordance with the indications mentioned in the annexes;
- 2) that technical parameter limits should not be exceeded by any function of the equipment;
- 3) that, for CEPT countries that have not implemented the R&TTE Directive, whenever there are ERC Decisions harmonising the radio parameters and adopting European standards the ERC Decision ERC/DEC/(97)10 is applicable. CEPT Administrations that have not implemented the R&TTE Directive should accept the conformity assessment performed by bodies in other CEPT member countries without requiring national conformity assessment;
- 4) that, for CEPT countries that have not implemented the R&TTE Directive, whenever recommends (3) cannot be applied but there is an ETSI standard mentioned in the Annexes, those Administrations should accept the test results reached by an accredited test laboratory in another country in accordance with ERC Recommendation CEPT/ERC/REC 01-06 (Brussels 1994) (Procedure for mutual recognition of type testing and type-approval for radio equipment);
- 5) that in cases not covered by recommends 3 and 4, CEPT Administrations that have not implemented the R&TTE Directive should introduce national conformity assessment based on national type testing;
- 6) that CEPT Administrations should allow visitors from other countries to carry and use their equipment temporarily without any further formalities unless there are national restrictions as shown in Appendix 3."

Note:

Please check the ERO web site (www.ero.dk) for the up to date position on the implementation of this and other ERC Decisions.

Appendix 1

Applications and Parameter Tables.

Table 1: Applications

Annex	Application
1	Non-specific Short Range Devices
2	Equipment for Detecting Avalanche Victims
3	Local Area Networks, RLANs and HIPERLANs
4	Automatic Vehicle Identification for Railways (AVI)
5	Road Transport & Traffic Telematics (RTTT)
6	Equipment for Detecting Movement and Equipment for Alert
7	Alarms
8	Model Control
9	Inductive Applications
10	Radio Microphones
11	RF Identification Systems
12	Ultra Low Power Active Medical Implants
13	Wireless Audio Applications

Table 2: Radiated Power or Magnetic Field Strength

	Maximum power level		
1.	7 dBμA/m at 10 metres		
2.	42 dBμA/m at 10 metres		
3.	72 dBµA/m at 10 metres (at 30 kHz descending 3 dB/octave)		
4.	38 dBμA/m at 10 metres		
5.	9 dBμA/m at 10 metres		
5a.	25 μW ¹		
6.	1 mW ¹		
7.	2 mW ¹		
7a.	5 mW ¹		
8.	10 mW ¹		
9.	25 mW ¹		
10.	50 mW ¹		
11.	100 mW ¹		
11a.	200 mW ¹		
12.	500 mW ¹		
13.	1 W ¹		
14.	2 W ¹		
14a	4 W ¹		
15.	8 W ¹		
16.	To be determined (t.b.d.) 1		
17.	55 dBm peak power ¹ 50 dBm average power ¹ 23.5 dBm average power ¹ ²		
18.	Power requirements defined in relevant Annex.		

Levels are either effective radiated power (e.r.p.) or equivalent isotropically radiated power (e.i.r.p.) as indicated in the relevant annex. Pulsed radar only.

Table 3. Channel spacing permitted

	Tuble 5. Channel spacing per inteced
	Channel spacing
1.	5 kHz
2.	6.25 kHz
3.	10 kHz
4.	12.5 kHz
5.	20 kHz
6.	25 kHz
7.	50 kHz
8.	75 kHz
9.	100 kHz
10.	150 kHz
11.	200 kHz
12.	Other channel spacing – see specific annex
13.	No channel spacing – whole stated frequency band may be used

In the frequency bands where channel spacing is defined the centre frequency of the first channel is at a distance of *channel spacing/2* from the lower frequency band edge.

Table 4: Duty cycle categories

For the purposes of this Recommendation the duty cycle is defined as the ratio, expressed as a percentage, of the maximum transmitter "on" time on one carrier frequency, relative to a one hour period.

For pre-programmed devices the maximum transmitter "on" time and minimum "off" time are given in the following table. These limits are advisory with a view to facilitating sharing between systems in the same frequency band

	Name	Transmitting time/Full cycle ¹	Maximum transmitter "on" time (seconds)	Minimum transmitter "off" time (seconds)	Explanation
1	Very Low	<0.1%	0.72	0.72	For example, 5 transmissions of 0.72 seconds within one hour.
2	Low	<1.0%	3.6	1.8	For example, 10 transmissions of 3.6 seconds within one hour.
3	High	<10%	36	3.6	For example, 10 transmissions of 36 seconds within one hour
4	Very High	Up to 100%	-	-	Typically continuous transmissions but also those with a duty cycle greater than 10%

¹ The ETSI standard EN 300 220-1 gives a further guide in section 8.9 for the definition, the declaration and the rationale to define duty cycle categories using pre-programmed, software controlled or manually operated equipment.

Appendix 2

List of relevant ECC/ERC Decisions, Recommendations and ETSI Standards

ECC/ERC Decisions

ERC/DEC/(02)01	On the frequency bands to be designated for the coordinated introduction
` ′	of Road Transport and Traffic Telematic Systems.
ERC/DEC/(95)01	On the free circulation of radio equipment in CEPT member countries.
ERC/DEC(97)06	On the harmonised frequency band to be designated for Social Alarm
ERC/DEC(57)00	Systems.
ERC/DEC/(97)10	On the mutual recognition of conformity assessment procedures including marking of radio equipment and radio terminal equipment.
ERC/DEC(99)23	On the harmonised frequency bands to be designated for the introduction of High Performance Radio Local Area Networks (HIPERLANs)
ERC/DEC(01)01	Non-specific Short Range Devices in 6765-6795 kHz and 13.552-13.567 MHz
ERC/DEC(01)02	Non-specific Short Range Devices in 26.957-27.283 MHz
ERC/DEC(01)03	Non-specific Short Range Devices in 40.660-40.700 MHz
ERC/DEC(01)04	Non-specific Short Range Devices in 868.0-868.6 MHz, 868.7-869.2 MHz, 869.4-869.65 MHz, 869.7-870.0 MHz
ERC/DEC(01)05	Non-specific Short Range Devices in 2400-2483.5 MHz
ERC/DEC(01)06	Non-specific Short Range Devices in 5725-5875 MHz
ERC/DEC(01)07	Radio-LAN Short Range Devices in 2400-2483.5 MHz
ERC/DEC(01)08	Short Range Devices for Movement Detection and Alert in 2400-2483.5 MHz
ERC/DEC(01)09	Short Range Devices for Alarms in 868.6-868.7 MHz, 869.25-869.3 MHz, 869.65-869.7 MHz
ERC/DEC(01)10	Short Range Devices for Model control in 26.995, 27.045, 27.095, 27.145 and 27.195 MHz
ERC/DEC(01)11	Short Range Devices for Flying Model Control in 34.995-35.225 MHz
ERC/DEC(01)12	Short Range Devices for Model Control in 40.665, 40.675, 40.685 and 40.695 MHz
ERC/DEC(01)13	Short Range Devices for Inductive applications in 9-59.750 kHz, 59.750 – 60.250 kHz, 60.250-70 kHz, 70-119 kHz and 119-135 kHz
ERC/DEC(01)14	Short Range Devices for Inductive applications in 6765-6795 kHz, 13.553-13.567 MHz
ERC/DEC(01)15	Short Range Devices for Inductive applications in 7400-8800 kHz
ERC/DEC(01)16	Short Range Devices for Inductive applications in 26.957-27.283 MHz
ERC/DEC(01)17	Short Range Devices for Medical Implants in 402-405 MHz
ERC/DEC(01)18	Short Range Devices for Wireless Audio in 863-865 MHz
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ECC/ERC Recommendations

CEPT/ERC/REC 01-06 Procedure for mutual recognition of type testing and type-approval for radio equipment.

ECC/ERC Reports

ERC Report 005	ERC Report on frequency bands for Low Power Devices	
ERC Report 044	ERC Report on sharing inductive systems and radiocommunication systems in the band 9-135 kHz	
ERC Report 047	ERC Report on compatibility fixed services and motion sensors at 10.5 GHz	
ERC Report 063	ERC Report on radio microphone applications in the frequency range 1785-1800 MHz	
ERC Report 069	ERC Report on propagation model and interference range calculation for inductive systems in 10 kHz – 30 MHz	
ERC Report 074	ERC Report on RFID and the radioastronomy services at 13 MHz	
ERC Report 092	ERC Report on sharing inductive Short Range Devices and radio communication systems in 10.2-11 MHz	
ERC Report 095	ERC Report on the use of 3155-3400 kHz for general inductive applications	
ERC Report 096	ERC Report on the use of 290-300 kHz and 500-510 kHz for general inductive applications	
ERC Report 098	ERC Report on compatibility of Short Range Devices at 900 MHz with adjacent services	
ERC Report 109	Compatibility of Bluetooth with other existing and proposed radiocommunication systems in the 2.45 GHz frequency band	
ECC Report 001	Compatibility between inductive LF and HF RFID transponder and other radio communications systems in the frequency ranges 135-148.5 kHz, 4.78-8.78 MHz and 11.56-15.56 MHz	
ECC Report 007	Compatibility between inductive LF RFID systems and radio communications systems in the frequency range 135 - 148.5 kHz	
ECC Report 011	Strategic Plans for the future use of the frequency bands 862-870 MHz and 2400-2483.5 MHz for Short Range Devices	
ECC Report 012	Ultra Low Power Active Medical Implant systems (ULP-AMI)	
ECC Reort 13	Adjacent band compatibility between Short Range Devices and TETRA TAPS mobile services at 870 MHz	

ETSI Standards incl harmonised standards

Generic standards	
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;Part 3: Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive
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;Part 2: Harmonized EN under article 3.2 of the R&TTE Directive
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;Part 2: Harmonized EN under article 3.2 of the R&TTE Directive

Specific standards	Electromagnetic compatibility and Radio spectrum Matters
EN 300 328	(ERM); Wideband Transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using spread spectrum modulation techniques; Part 2: Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive.
EN 300 422	Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless microphones in the 25 MHz to 3 GHz frequency range; Part 2: Harmonized EN under article 3.2 of the R&TTE Directive
EN 300 454	Electromagnetic compatibility and Radio spectrum Matters (ERM); Wide band audio links; Part 2: Harmonized EN under article 3.2 of the R&TTE Directive
ETS 300 836-1	Broadband Radio Access Networks (BRAN);HIgh PErformance Radio Local Area Network (HIPERLAN) Type 1;Conformance testing specification;Part 1: Radio type approval and Radio Frequency (RF) conformance test specification
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; Part 3: Harmonized EN covering essential requirements of article 3.3e of the R&TTE Directive
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;Part 2: Harmonized standard covering essential requirements under article 3.2 of the R&TTE Directive
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); Analogue cordless wideband audio devices using integral antennas operating in the CEPT recommended 863 MHz to 865 MHz frequency range; Part 2: Harmonized EN under article 3.2 of the R&TTE Directive
EN 301 839	Electromagnetic compatibility and Radio spectrum Matters (ERM); Radio equipment in the frequency range 402 MHz to 405 MHz for Ultra Low Power Active Medical Implants and Accessories; Part 2: Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive
EN 301 840	Electromagnetic compatibility and Radio Spectrum Matters (ERM);Digital radio microphones operating in the CEPT Harmonized band 1 785 MHz to 1 800 MHz;Part 2: Harmonized EN under article 3.2 of the R&TTE Directive

Annex Country Restriction Reason/remarks

All Annexes

France

France does not recognise the former marking CEPT SRD Aa Y and CEPT RLAN Y recommended by T/R 01-04 and T/R 10-01 respectively. The free circulation and use of products bearing these old markings must then be confined to existing equipments and to countries which have already adopted these markings. The marking CEPT SRD Aa Y proposed by T/R 70-03 will not be recognised in France. In any case in France marking issues are in line with the R&TTE Directive.

Germany

Moldova

with reference to the German Telecommunications Act of 25 July 1996: The use of frequencies or frequency bands for the operation of transmitting equipment requires "frequency assignment". There are two types of frequency assignments: individual frequency assignments are granted upon application and correspond to "individual licence required" within the meaning of CEPT/ERC/REC 70-03; general frequency assignments are granted ex officio by administrative act, published in the Regulatory Authority Official Gazette and correspond to "individual licence not required"

Clarification of the terms contained in the table

A "licence" is required for the operation of transmission lines used to offer specified telecommunications services for the public and/or for voice telephony. A licence does not include the right to operate a radio system.

03.

within the the meaning of CEPT/ERC/REC 70-

Present legislation requires that use of any transmitter is subject to licence

In accordance with Law of Telecommunications of Republic of Moldova.

Lithuania Individual licence for operation is

required

Telecommunication equipment and cables are imported commercialized only on basis of conformity certificates issued by the Telecommunication Products Certification Body of Moldova and must be marked in Moldova. It is not permitted to ustilise non-certificated and nonmarked telecommunication equipment

and cables.

Subject to the above all SRD frequency bands with technical parameters indicated in ERC REC 70-03 are permitted on secondary basis.

Portugal The placing on the market of SRD

exempted.

equipment is in line with the R&TTE Directive. The present national legislation requires that on ly equipment marked with the CE mark be placed on the market, in line with the R&TTE Directive. In accordance with the national legislation individual licence is required before SRD equipment is put into service, unless it is explicitly mentioned through publication, that those specific equipments are license

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			Apppendix 3 Page 13
Annex	Country	Restriction	Reason/remarks
	Russia	In accordance with the current National Frequency Allocation Table, different communication services, including special applications operate in frequency bands designated for SRD applications. All radiocommunication systems require individual license and authorization for using certain radio frequencies, which is granted after conformity assessment procedures. All types of radio equipment requires national approval based on the national standard system (GOST) and issue of conformity certificate. Only equipment with national mark can be placed on the market in Russia.	
Annex 1 Band	dA		
Non Specific 6765-6795 kH	Short Range Devices		
	Bulgaria	Not implemented	
	Latvia	Not implemented	Under study
	Romania	Secondary basis - individual licence	
	Spain	Not implemented	
	United Kingdom	Not implemented	see annex 9
Annex 1 Band	d B		
Non Specific 13.553-13.567	Short Range Devices 7 MHz		
	Bulgaria	Not implemented	
	Latvia	Not implemented	Under study
	Romania	Secondary basis - individual licence	
	United Kingdom	Not implemented	See annex 9
Annex 1 Band	d C		
Non Specific 26.957-27.283	Short Range Devices 3 MHz		
	Finland	Only 26.995, 27.045, 27.095, 27.145, 27.195, 27.255 MHz @10 kHz	To keep non-voice applications out of CB/PR27 channels/ Voice, Audio and video only on frequencies above 2.4 GHz
	Latvia	Only 26.995, 27.045, 27.095, 27.145 MHz; ERP<10 mW	
	Luxembourg	Not on CB channels. Only 26.995, 27.045, 27.145 and 27.195 MHz allowed	
	Norway	Only 26.995, 27.045, 27095, 27.145 and 27.195 MHz allowed	
	Romania	Secondary basis - individual licence	
	Sweden	Limited to 10 kHz channel seperation. Carriers 26.825, 26.865, 26.885, 26.935, 26.995, 27.045, 27.095, 27.145 and 27.195 MHz	
	United Kingdom	Only 26.995, 27.045, 27.095, 27.145, 27.195 MHz @10 kHz, e.r.p 1mW	
Annex 1 Band	d D	- •	
Non Specific 40.660-40.700	Short Range Devices MHz		
	Latvia	Only 40.670, 40.675, 40.680, 40.685, 40.690, 40.695 MHz; channel spacing 5 kHz	

Secondary basis - individual licence

Romania

			Apppendix 3 Page 14
Annex	Country	Restriction	Reason/remarks
Annex 1 Band R			
Non Specific Shor	rt Range Devices		
138.2-138.45 MH	z		
	Bulgaria	Not implemented	
	Croatia	Not implemented	
	Estonia	Not implemented	
	France	Not implemented	Exclusive military band
	Germany	Not implemented	Military band
	Greece	Not implemented	Land Mobile service
	Hungary	Not implemented	
	Iceland	Not Implemented	
	Ireland	Not implemented	Assigned to the Land Mobile Service
	Italy	Not implemented	Military applications
	Latvia	Not implemented	
	Norway	Not implemented	
	Poland	Not Implemented	
	Portugal	Not implemented	Governmental band
	Romania	Not implemented	Not available
	Slovak Republic	Not implemented	
	Slovenia	Not implemented	Not available
	Spain	Not implemented	
	Sweden	Not implemented	
	Switzerland	Not implemented	Exclusive Military band
	The Netherlands	Not implemented	Exclusive Military band
	Turkey	Not implemented	
Annex 1 Band E			
Non Specific Shor	rt Range Devices		
433.050-434.790	MHz		
	Estonia	Audio and video not allowed	Video only above 2.4 GHz
	Finland	Audio and voice not allowed	Voice, Audio and video only on frequencies above 2.4 GHz. Duty cycle limit will be applied from 1 April 2003
	France	No duty cycle limits Voice applications allowed	Conformity with ERC RE C70-03 in progress
	Hungary	Two way speech not allowed	

Estonia	Audio and video not allowed	Video only above 2.4 GHz
Finland	Audio and voice not allowed	Voice, Audio and video only on frequencies above 2.4 GHz. Duty cycle limit will be applied from 1 April 2003
France	No duty cycle limits Voice applications allowed	Conformity with ERC RE C70-03 in progress
Hungary	Two way speech not allowed	
Italy	Limited to 433.05-433.575 MHz for audio signals with 12.5 or 25 kHz channel spacing. Audio and voice signals not allowed	Military applications
Latvia	Voice, audio, video not allowed	
Luxembourg	Audio and voice not allowed	
Turkey	Not implemented	
United Kingdom	Voice not allowed	

	Country	Restriction	Reason/remarks
Annex 1 Band	d E1		
Non Specific S	Short Range Devices		
433.050-434.7	_		
	Croatia	Individual license required	
	Finland	Not yet implemented	Implementation expected 1 April 2003
	France	No duty cycle limits Voice applications allowed	Conformity with ERC REC 70-03 in progress
	Norway	Not implemented	Planned
	Poland	Not implemented	
	Portugal	Not implemented	
	Sweden	Not implemented	No duty cycle restriction
Annex 1 Bana	i E2		
=	Short Range Devices		
434.040-434.7	9 MHz		
	Croatia	Individual license required	
	Estonia	Not Implemented	
	Finland	Not yet implemented	Implementation expected 1 April 2003
	France	No duty cycle limits Voice applications allowed	Conformity with ERC REC 70-03 in progress
	Norway	Not implemented	Planned
	Poland	Not implemented	
	Portugal	Not implemented	
	Sweden	Not implemented	No duty cycle restriction
Annex 1 Bana	1 F		
Non Specific S	Short Range Devices		
_	Short Range Devices 500 MHz Bulgaria	Not implemented	
_	600 MHz	Not implemented Not implemented	Military or government use
_	600 MHz Bulgaria		Military or government use
_	600 MHz Bulgaria Greece	Not implemented	Military or government use Military
868.000-868.6 Annex 1 Band	Bulgaria Greece Latvia Slovak Republic	Not implemented ERP < 10 mW	
868.000-868.6 Annex 1 Band Non Specific S	Bulgaria Greece Latvia Slovak Republic G G Short Range Devices	Not implemented ERP < 10 mW	
868.000-868.6 Annex 1 Band Non Specific S	Bulgaria Greece Latvia Slovak Republic G G Short Range Devices	Not implemented ERP < 10 mW	
868.000-868.6 Annex 1 Band Non Specific S	Bulgaria Greece Latvia Slovak Republic ### G Short Range Devices 200 MHz	Not implemented ERP < 10 mW Not implemented	
868.000-868.6 Annex 1 Band Non Specific S	Bulgaria Greece Latvia Slovak Republic G G Short Range Devices B U B Bulgaria	Not implemented ERP < 10 mW Not implemented Not implemented	Military
868.000-868.6 Annex 1 Band Non Specific S	Bulgaria Greece Latvia Slovak Republic I G Short Range Devices Bulgaria Greece	Not implemented ERP < 10 mW Not implemented Not implemented Not implemented	Military
Annex 1 Band Non Specific 8 868.700-869.2	Bulgaria Greece Latvia Slovak Republic I G Short Range Devices 200 MHz Bulgaria Greece Latvia Slovak Republic	Not implemented ERP < 10 mW Not implemented Not implemented Not implemented ERP < 10 mW	Military Military or government use
Annex 1 Band Non Specific 5 868.700-869.2 Annex 1 Band Non Specific 5	Bulgaria Greece Latvia Slovak Republic I G Short Range Devices 200 MHz Bulgaria Greece Latvia Slovak Republic I H Short Range Devices	Not implemented ERP < 10 mW Not implemented Not implemented Not implemented ERP < 10 mW	Military Military or government use
Annex 1 Band Non Specific 9 868.700-869.2 Annex 1 Band	Bulgaria Greece Latvia Slovak Republic I G Short Range Devices O MHz Bulgaria Greece Latvia Slovak Republic I H Short Range Devices	Not implemented ERP < 10 mW Not implemented Not implemented Not implemented ERP < 10 mW	Military Military or government use
Annex 1 Band Non Specific 5 868.700-869.2 Annex 1 Band Non Specific 5	Bulgaria Greece Latvia Slovak Republic I G Short Range Devices 200 MHz Bulgaria Greece Latvia Slovak Republic I H Short Range Devices	Not implemented ERP < 10 mW Not implemented Not implemented Not implemented ERP < 10 mW Not implemented	Military Military or government use Military
Annex 1 Band Non Specific 5 868.700-869.2 Annex 1 Band Non Specific 5	Bulgaria Greece Latvia Slovak Republic I G Short Range Devices 200 MHz Bulgaria Greece Latvia Slovak Republic I H Short Range Devices Bulgaria Greece Latvia Slovak Republic I H Short Range Devices Devices Devices Devices Devices Devices Devices Devices Devices	Not implemented ERP < 10 mW Not implemented Not implemented Not implemented ERP < 10 mW Not implemented ERP solution implemented Not implemented	Military Military or government use
Annex 1 Band Non Specific 5 868.700-869.2 Annex 1 Band Non Specific 5	Bulgaria Greece Latvia Slovak Republic I G Short Range Devices O MHz Bulgaria Greece Latvia Slovak Republic I H Short Range Devices Bulgaria Greece Latvia Slovak Republic I H Short Range Devices Do MHz Bulgaria Denmark Estonia	Not implemented ERP < 10 mW Not implemented Not implemented Not implemented ERP < 10 mW Not implemented ERP < 10 mW Not implemented	Military Military or government use Military
Annex 1 Band Non Specific 5 868.700-869.2 Annex 1 Band Non Specific 5	Bulgaria Greece Latvia Slovak Republic I G Short Range Devices 200 MHz Bulgaria Greece Latvia Slovak Republic I H Short Range Devices 100 MHz Bulgaria Greece Latvia Slovak Republic I H Short Range Devices 100 MHz Bulgaria Denmark Estonia Germany	Not implemented ERP < 10 mW Not implemented Not implemented Not implemented ERP < 10 mW Not implemented ERP solution implemented Not implemented Not implemented Not implemented Not implemented Not implemented Planned	Military Military or government use Military
Annex 1 Band Non Specific 5 868.700-869.2 Annex 1 Band Non Specific 5	Bulgaria Greece Latvia Slovak Republic I G Short Range Devices 200 MHz Bulgaria Greece Latvia Slovak Republic I H Short Range Devices Latvia Bulgaria Greece Latvia Slovak Republic I H Short Range Devices Latvia Slovak Republic	Not implemented ERP < 10 mW Not implemented Not implemented Not implemented ERP < 10 mW Not implemented ERP with the state of the sta	Military Military or government use Military
Annex 1 Band Non Specific 5 868.700-869.2	Bulgaria Greece Latvia Slovak Republic I G Short Range Devices O MHz Bulgaria Greece Latvia Slovak Republic I H Short Range Devices Under the Short R	Not implemented ERP < 10 mW Not implemented Not implemented Not implemented ERP < 10 mW Not implemented Not implemented Not implemented Not implemented Not implemented Not implemented Planned Not implemented ERP < 10 mW	Military Military or government use Military
Annex 1 Band Non Specific 5 868.700-869.2 Annex 1 Band Non Specific 5	Bulgaria Greece Latvia Slovak Republic I G Short Range Devices 200 MHz Bulgaria Greece Latvia Slovak Republic I H Short Range Devices Latvia Bulgaria Greece Latvia Slovak Republic I H Short Range Devices Latvia Slovak Republic	Not implemented ERP < 10 mW Not implemented Not implemented Not implemented ERP < 10 mW Not implemented ERP with the state of the sta	Military Military or government use Military

Annex	Country	Restriction	Reason/remarks
Annex 1 Band I	<u> </u>		
Non Specific Shor	t Range Devices		
869.400-869.650	g		
	Bulgaria	Not implemented	
	Greece	Not implemented	Government use
	Italy	Max 25 mW erp	Military applications
	Latvia	ERP < 10 mW	
	Slovak Republic	Not implemented	Military
Annex 1 Band K			
Non Specific Shor	t Range Devices		
869.700-870.000 M	1Hz		
	Bulgaria	Not implemented	
	Croatia	Channel spacing 25 kHz or 50 kHz	
	Finland		Voice, Audio and video only on frequencies above 2.4 GHz
	Greece	Not implemented	Government use
	Latvia	ERP < 10 mW	
	Slovak Republic	Not implemented	Military
Annex 1 Band L			
Non Specific Shor 2400-2483.5 MHz	t Range Devices		
	France	Indoor use limited to 10 mW e.i.r.p.;	
		outdoor use limited to 2.5 mW e.i.r.p.	
	Romania	Secondary basis - individual licence	
	United Kingdom	Channel spacing > 20 MHz on where justified by the modulation	
Annex 1 Band M			
Non Specific Shor 5725-5875 MHz	t Range Devices		
	Latvia	Not implemented	Under study
	Romania	Secondary basis - individual licence	•
	Spain	Not implemented	
Annex 1 Band N			
Non Specific Shor	t Range Devices		
24.0-24.25 GHz	· runge z e viees		
	France	Not implemented	
	Latvia	Not implemented	Under study
	Luxembourg	Limited to 24.05-24.25 GHz	24.0-24.05 for amateur use only
	_		,
	United Kingdom	Only 24.150-24.250 GHz	
Annex 1 Band O	United Kingdom	Only 24.150-24.250 GHz	
	-	Only 24.150-24.250 GHz	
Non Specific Shor	-	Only 24.150-24.250 GHz	
Non Specific Shor	t Range Devices	Only 24.150-24.250 GHz	Equipment/standards not yet developed
Non Specific Short 61.0-61.5 GHz	-	Only 24.150-24.250 GHz	Equipment/standards not yet developed
Annex 1 Band O Non Specific Short 61.0-61.5 GHz Annex 1 Band P	t Range Devices All Administrations	Only 24.150-24.250 GHz	Equipment/standards not yet developed
Non Specific Short 61.0-61.5 GHz	t Range Devices All Administrations	Only 24.150-24.250 GHz	Equipment/standards not yet developed

Annex	Country	Restriction	Reason/remarks
Annex 1 Band Q			
Non Specific Short	Range Devices		
244-246 GHz	9		
	All Administrations		Equipment/standards not yet developed
Annex 2 Band B			
Avalanche Victims	.		
457 kHz	,		
	Belgium	Not applicable	
	Bulgaria	Not implemented	Under study
	Estonia	Not applicable	
	Ireland	Not applicable	
	Latvia	Not applicable	
	Malta	Not implemented	
	Portugal	Not implemented	Governmental band
	The Netherlands	Not applicable	
Annex 3 Band A			
RLANs and HIPE	DI AN _s		
KLANS and HIPE 2400-2483.5 MHz	NLAINS		
270U-240J.3 NIMZ	Eronos	Indeed yes limited to 100 m. W.	
	France	Indoor use limited to 100 mW e.i.r.p. in 2446.5-2483.5 MHz and 10 mW e.i.r.p in 2400-2483.5 MHz. Outdoor use inside private area only; limited to 2446.5-2483.5 MHz with 100 mW e.i.r.p. with authorisation. Outside private area: the band is not opened	
	Italy	ould is not oponed	If used outside of own premises, general authorisation is required.
	Luxembourg		System provider for third party traffic may require a Telecommunications Act licence
	Romania	On a secondary basis. Individual licence required. T/R 22-06 not implemented	
	United Kingdom		System provider for third party traffic may require a Wireless Telegraphy and/or Telecommunictions Act Licence
Annex 3 Band B			
RLANs and HIPE 5150-5350 MHz	RLANs		
	Belgium	5250-5350 MHz excluded	
	Croatia	Licence required	
	Greece	Limited to 5250-5255 MHz	
	Hungary	5250-5350 MHz excluded	
	Latvia	Not implemented	Under study
	Luxembourg	None	System provider for third party traffic may require a Telecommunications Act licence
	Malta	Limited to 5150-5250 MHz indoor use only	
	Spain	Not implemented	
	Switzerland	Limited to 5150-5250 MHz	5250-5350 MHz: Exclusively military band
	United Kingdom		System provider for third party traffic may require a Wireless Telegraphy and/or Telecommunictions Act Licence

Annex			
	Country	Restriction	Reason/remarks
Annex 3 Band	\overline{C}		
RLANs and H	IPERLANs		
5470-5725 MH	I z		
	Austria	Not implemented	Military band
	Bulgaria	Not implemented	
	Croatia	Not implemented	
	France	Not implemented	France will implement this band identified by the ERC DEC(99)23 when the efficiency of the mitigation techniques made mandatory by this Decision is ensured
	Greece	Not implemented	Under study
	Latvia	Not implemented	Under study
	Luxembourg	None	System provider for third party traffic may require a Telecommunications Act licence
	Malta	Not implemented	Under study
	Spain	Not implemented	
	Switzerland	Not implemented	Exclusive Military band
	United Kingdom		System provider for third party traffic may require a Wireless Telegraphy and/or Telecommunictions Act Licence
Annex 3 Band	D		
RLANs and H 17.1-17.3 GHz			
	All Administrations		Equipment/standards not yet developed
	Croatia	License required	
Annex 4 Rand	\boldsymbol{A}		
Railway applic	cations		
Railway applic	cations	Not implemented	
Railway applic	cations Iz	Not implemented Not implemented	
Railway applic	cations Iz Estonia	Not implemented	
Railway applic	eations Iz Estonia Greece	•	
Railway applic	Estonia Greece Iceland	Not implemented Not applicable	Under study
Railway applic	Estonia Greece Iceland Italy	Not implemented Not applicable Not implemented	Under study
Railway applic	Estonia Greece Iceland Italy Latvia	Not implemented Not applicable Not implemented Not implemented	Under study
Railway applic	Estonia Greece Iceland Italy Latvia Malta	Not implemented Not applicable Not implemented Not implemented No applicable	Under study
Railway applic	Estonia Estonia Greece Iceland Italy Latvia Malta Portugal	Not implemented Not applicable Not implemented Not implemented No applicable Not implemented Secondary basis. Individual licence	Under study
Railway applic	Estonia Greece Iceland Italy Latvia Malta Portugal Romania	Not implemented Not applicable Not implemented Not implemented No applicable Not implemented Secondary basis. Individual licence required	Under study
Railway applic	Estonia Greece Iceland Italy Latvia Malta Portugal Romania Slovak Republic Sweden	Not implemented Not applicable Not implemented Not implemented No applicable Not implemented Secondary basis. Individual licence required Not implemented	Under study
Railway applio 2446-2454 MH 	Estonia Greece Iceland Italy Latvia Malta Portugal Romania Slovak Republic Sweden	Not implemented Not applicable Not implemented Not implemented No applicable Not implemented Secondary basis. Individual licence required Not implemented	Under study
Railway applio 2446-2454 MH 	Estonia Greece Iceland Italy Latvia Malta Portugal Romania Slovak Republic Sweden	Not implemented Not applicable Not implemented Not implemented No applicable Not implemented Secondary basis. Individual licence required Not implemented	Under study
Railway applio 2446-2454 MH 	Estonia Greece Iceland Italy Latvia Malta Portugal Romania Slovak Republic Sweden	Not implemented Not applicable Not implemented Not implemented No applicable Not implemented Secondary basis. Individual licence required Not implemented Not implemented	Under study
Railway applio 2446-2454 MH 	Estonia Greece Iceland Italy Latvia Malta Portugal Romania Slovak Republic Sweden B Cations Croatia	Not implemented Not applicable Not implemented Not implemented No applicable Not implemented Secondary basis. Individual licence required Not implemented Not implemented Individual license required	Under study
Railway applio 2446-2454 MH 	Estonia Greece Iceland Italy Latvia Malta Portugal Romania Slovak Republic Sweden B Cations Croatia Estonia	Not implemented Not applicable Not implemented Not implemented No applicable Not implemented Secondary basis. Individual licence required Not implemented Not implemented Not implemented Not implemented	Under study
Railway applio 2446-2454 MH 	Estonia Greece Iceland Italy Latvia Malta Portugal Romania Slovak Republic Sweden B Cations Croatia Estonia Iceland	Not implemented Not applicable Not implemented Not implemented No applicable Not implemented Secondary basis. Individual licence required Not implemented Not implemented Not implemented Not implemented Not implemented	Under study Under study
Railway applio 2446-2454 MH 	Estonia Greece Iceland Italy Latvia Malta Portugal Romania Slovak Republic Sweden B Cations Croatia Estonia Iceland Ireland	Not implemented Not applicable Not implemented Not implemented No applicable Not implemented Secondary basis. Individual licence required Not implemented	
Annex 4 Band Railway applic 2446-2454 MH Annex 4 Band Railway applic 27.095 MHz	Estonia Greece Iceland Italy Latvia Malta Portugal Romania Slovak Republic Sweden B Cations Croatia Estonia Iceland Ireland Latvia	Not implemented Not applicable Not implemented Not implemented No applicable Not implemented Secondary basis. Individual licence required Not implemented Not implemented Not implemented Not implemented Not implemented Not implemented Not applicable Not implemented Not implemented	

Annex	Country	Restriction	Reason/remarks
Annex 4 Band C			
Railway applicat	tions		
4515 kHz			
	Croatia	Not implemented	
	Estonia	Not implemented	
	Greece	Not implemented	Under study
	Iceland	Not applicable	No railways
	Ireland	Not implemented	
	Latvia	Not implemented	Under study
	Luxembourg	Not implemented	
	Malta	Not applicable	
	Portugal	Not implemented	Governmental band
	The Netherlands	Not implemented	
Annex 5 Band A			
RTTT			
K111 5795-5805 MHz			
3173-3003 WIIIZ	Estonia	Power limited to 2 W e.i.r.p.	
	Finland	1	
	riniang	Licence required for base station equipment	
	France	Power limited to 2 W e.i.r.p	
	Latvia	Not implemented	Under study
	Malta	Limited to 2 Watts e.i.r.p.	System provider may require a Wireless Telegraphy and a Telecommunications Act licence.
	Norway	Power limited to 2 W e.i.r.p	
	Romania	Not implemented	Under study
	Sweden	Individual licence required	
	United Kingdom	Only 2 W permitted	System provider may require a Wireless Telegraphy and/or Telecommunications Acts licence to operate. The end user (vehicle units will be licence exempted.
Annex 5 Band B			
RTTT			
5805-5815 MHz			
	Croatia	Individual license required	
	Estonia	Not implemented	
	Finland	Licence required	
	France	Not implemented	
	Latvia	Not implemented	Under study
	Luxembourg	None	System provider for third party traffic may
	Malta	Limited to 2 W e.i.r.p.	require a Telecommunications Act licence System provider may require a Wireless Telegraphy and a Telecommunications Act
			licence.
	Norway	Power limited to 2 W e.i.r.p.	
	Romania	Not implemented	Under study
	Sweden	Not implemented	
	Switzerland	Not implemented	Exclusive Military band
	United Kingdom	System provider may require a Wireless Telegraphy and/or Telecommunications Acts licence to operate. The end user (vehicle units) will be licence exempted. Only 2 W permitted	

Annex	Country	Restriction	Reason/remarks
Annex 5 Band C			
RTTT			
63-64 GHz			
	All Administrations		Equipment/standards not yet developed
	Croatia	Licence required	
	Portugal	Not implemented	
Annex 5 Band D			
RTTT			
76-77 GHz			
	All Administrations		Equipment/standards not yet developed
	Latvia	Not implemented	Under study
Annex 6 Band A			·
Movement Detect	ion		
2400-2483.5 MHz			
2400-2403.3 WIIIZ	France	Limited to 2446-2454 MHz	
	Latvia	ERP < 10 mW	
	Malta	Limited to the band 2445-2455 MHz	
	Romania	Not implemented	Under study
	United Kingdom	Limited to 2445-2455 MHz	ondo stady
Annex 6 Band B			
	•		
Movement Detect 9200-9500 MHz	ion		
9200-9300 WIIIZ	Dulassia	Not involved a	
	Bulgaria Czech Republic	Not implemented	
	Estonia	Individual licence required Not implemented	
	Finland	Not implemented	
	France	Not implemented	
	Italy	Not implemented	Military applications
	Latvia	Not implemented	Under study
	Malta	Not implemented	Under study
	Norway	Not implemented	•
	Spain	Not Implemented	
	Sweden	Not implemented	
	United Kingdom	May be used for Radar Level Gauges on a licence per site basis only	

Annex	Country	Restriction	Reason/remarks
Annex 6 Band C			
Movement Detect 9500-9975 MHz	ion		
	Bulgaria	Not implemented	
	Czech Republic	Individual licence required	
	Estonia	Not implemented	
	France	Limited to 9.88-9.92 with max e.i.r.p 50 mW	
	Germany	Not implemented	Military band
	Latvia	Not implemented	Under study
	Malta	Not implemented	Under study
	Malta	Surface model control only	
	Norway	Not implemented	
	Slovak Republic	Not implemented	Military
	Spain	Not implemented	
	Sweden	Not implemented	
	United Kingdom	May be used for Radar Level Gauges on a licence per site basis only	

Annex 6 Band D

Movement Detection 10.5-10.6 GHz

Austria	Not implemented	Fixed Service
Bulgaria	Not implemented	
Croatia	Not implemented	
Estonia	Not implemented	
Finland	Not implemented	10.45-10.5 GHz available
France	Limited to 10.57-10.61 with max e.i.r.p. 20 mW	
Germany	Not implemented	ENG/OB video links equipment
Hungary	Maximum e.i.r.p. 25 mW	
Ireland	Maximum e.i.r.p. 25 mW	
Latvia	Not implemented	Under study
Luxembourg	In the band 10.5-10.6 GHz the e.i.r.p is limited to 25 mW	
Malta	Limited to 25 mW e.i.r.p.	
Portugal	Not implemented	SAP/SAB applications
Slovak Republic	Not implemented	Fixed Service
Spain	Limited to 10517.5-10537.5 MHz	
Sweden	Limited to 10.51-10.58 GHz	
Turkey	Not implemented	
United Kingdom	Limited to 10.577-10.597 GHz	

Annex	Country	Restriction	Reason/remarks
Annex 6 Band	d E		
Movement Do	etection		
13.4-14.0 GH	Z		
	Bulgaria	Not implemented	
	Estonia	Not implemented	
	France	Not implemented	
	Latvia	Not implemented	Under study
	Norway	Not implemented	
	Spain	Not implemented	
	Sweden	Not implemented	
	Turkey	Not implemented	
Annex 6 Band	d F		
Movement Do	etection		
24.05-24.25 G	GHz		
	Estonia	Not implemented	
	France	Limited to 24.075-24.175 GHz	
	Latvia	Not implemented	Under study
	United Kingdom	Limited to 24.15-24.25 GHz	
Annex 7 Band	d A		
Alarms			
868.600-868.7	700 MHz		
	Bulgaria	Not implemented	
	Greece	Not implemented	Military or government use
	Latvia	Not implemented	Under study
	Romania	Not implemented	
	Slovak Republic	Not implemented	
Annex 7 Band	d B		
Alarms			
869.250-869.3	800 MHz		
007.230-007.0	Bulgaria	Not implemented	
	Greece	Not implemented	Military or government use
	Hungary	Not implemented	Withtary of government use
	Latvia	Not implemented	Under study
	Romania	Not implemented	Onder study
	Slovak Republic	Not implemented	
Annex 7 Band		. or impremented	
	ı C		
Alarms	700 MIII.		
869.650-869.7			
	Bulgaria	Not implemented	A 2015
	Greece	Not implemented	Military or government use
	Hungary	Not implemented	
	Latvia	Not implemented	Under study
	D	Not implemented	
	Romania Slovak Republic	Not implemented	

Annex	Country	Restriction	Reason/remarks
Annex 7 Band D			
Alarms			
869.200-869.250	MHz		
	Bulgaria	Not implemented	
	Greece	Not implemented	Military or government use
	Slovak Republic	Not implemented	
Annex 8 Band A			
Model Control			
26.995, 27.045, 27 27.195 MHz	7.095, 27.145,		
	France	Not implemented	Citizen band
	Ireland	Surface control only	
	Latvia	ERP < 10 mW	
	Malta	Surface model control only	
Annex 8 Band B			
Model Control 34.995-35.225 MI	Hz		
	Bulgaria	Not implemented	
	France	Not implemented	
	Germany	Limited to 35.005-35.205 MHz and individual frequency assignment required	Emergency services
	Greece	Not implemented	Military or government use
	Ireland	Aircraft Model Control Only	
	Latvia	Not implemented	Under study
	Malta	Aircraft model control only	
	Norway	Limited to 35.005-35.305 MHz channel spacing 10 kHz Max e.r.p. 100 mW	
	Romania	Limited to 34.995-35.005 and 35.195- 35.225 MHz. Individual licence required if e.r.p. > 100 mW	
	Spain	Limited to 35.030-35.200 MHz	
	Sweden	Limited to 35.025-35.205 MHz	
	Switzerland	Not implemented	Implementation planned
Annex 8 Band C			
Model Control			
40.665, 40.675, 40 MHz	0.685, 40.695		
	France	Not implemented	
	Ireland	Surface control only	
	Latvia	ERP <10 mW	

Appendix 3 - National Restrictions

			Apppendix 3 Page
Annex	Country	Restriction	Reason/remarks
Annex 9 Band	AA		
Inductive appli	ications		
9-59.750 kHz			
	Bulgaria	Not implemented	
	Croatia	Not implemented	
	Czech Republic	Individual licence required	
	Germany	Within 9-57 kHz max field strength is 42 dB μ A/m at 10 metres. The length of any antenna loop element shall be < 30 m.	Applications within the Fixed Service
	Greece	Not implemented	Military or government use
	Hungary	19.95-20.05 kHz excluded	
	Latvia	Not implemented	Under study
	Romania	Not implemented	
	Spain	Limited to 20.05-70 kHz	
Annex 9 Band	AB		
Inductive appli 59.750-60.250 l			
37.130-00.230 1		N. C. L. C. L.	
	Bulgaria	Not implemented	
	Croatia	Not implemented	
	Czech Republic	Individual licence required	
	Germany	The length of any antenna loop element shall be < 30 m.	
	Greece	Not implemented	Military or government use
	Latvia	Not implemented	Under study
	Romania	Not implemented	
Annex 9 Band .	AC		
Inductive appli			
60.250-70 kHz	ications		
00.230-70 KHZ	D. I	AV	
	Bulgaria	Not implemented	
	Croatia	Not implemented	
	Czech Republic	Individual licence required	
	Germany	Within 67-70 kHz max field strength is 42 dB μ A/m at 10 metres. The length of any antenna loop element shall be < 30 m.	Applications within the Fixed Service
	Greece	Not implemented	Military or government use
	Latvia	Not implemented	Under study
	Romania	Not implemented	
Annex 9 Band	В		
Inductive appli 70-119 kHz	ications		
	Bulgaria	Not implemented	
	Croatia	Not implemented	
	Czech Republic	Individual licence required	
	Germany	The length of any antenna loop element	
	·	shall be $\leq 30 \text{ m}$.	
	Greece	Not implemented	Government use
	Latvia	Not implemented	Under study
	Romania	Not implemented	

			Apppendix 3 Page 25
Annex	Country	Restriction	Reason/remarks
Annex 9 Band	d C		
Inductive app	olications		
119-135 kHz			
	Bulgaria	Not implemented	
	Croatia	Not implemented	
	Czech Republic	Individual licence required	
	Germany	Within 127-135 kHz max field strength is $42dB\mu A/m$ at 10 metres. The length of any antenna loop element shall be < 30 m.	Applications within the Fixed Service
	Greece	Not implemented	Military or government use
	Latvia	Not implemented	Under study
	Romania	Not implemented	
Annex 9 Band	d D		
Inductive app	olications		
6765-6795 kH	Iz		
	Bulgaria	Not implemented	
	Croatia	Individual licence required	
	Latvia	Not implemented	Under study
	Spain	Not implemented	
Annex 9 Band	d E		
Inductive app	olications		
7400-8800 kH	Iz		
	Bulgaria	Not implemented	
	Croatia	Not implemented	
	France	For anti-theft-detection devices	
	Greece	Not implemented	Governmental use - under study
	Latvia	Not implemented	Under study
Annex 9 Band	d F		
Inductive app	olications		
13.553-13.567			
	Bulgaria	Not implemented	
	Croatia	Individual licence required	
	Latvia	Not implemented	Under study
Annex 9 Band	d G		
Inductive app	olications		
26.957-27.283			
	Croatia	Individual licence required	
	France	Not implemented	Citizen band
	Latvia	Not implemented	Under study
	200.10		

Annex Country		Restriction	Reason/remarks		
Annex 10 Band A					
Radio microphone 29.7-47.0 MHz	s				
	Austria	Only the frequencies 36.8, 36.85, 37.45, 37.50, 37.55 MHz for narrow band and 36.7, 37.1, 44.55, 45.0 MHz for broadband radio microphones are available			
	Croatia	Licence required			
Czech Republic		Licence required			
	Estonia	Not implemented			
	Finland	Only 31.100, 32.100, 32.900, 33.500, 36.700, 37.100 MHz and 42.400-43.600 MHz with maz 200 kHz channels			
	France	Limited to 32.8, 36.4, 39.2 MHz 1 mW erp and 200 kHz			
	Germany	Limited to 32.4-38.2 MHz. Individual frequency assignments required. Permitted channel spacing 10 kHz below 36 MHz and 40 kHz above 36 MHz	Military applications. Individual frequency assignment under review.		
	Greece	Limited to 29.7-38.25 MHz	38.25-47 MHz Governmental use		
	Hungary	Limited to 34.9-38.5 MHz			
	Iceland	Limited to 41-43.6 MHz			
	Ireland	Not implemented	Band used for analogue cordless phones		
	Italy	Limited to 41-43.6 MHz	Military applications		
	Latvia	Not implemented			
	Luxembourg	Limited to 29.7-38 MHz, excluding the use of the band 34.995-35.225 MHz			
	Malta	Limited to 29.7-34.399 MHz			
	Norway	Limited to 41.0-43.6 MHz Max ch spacing 10 kHz. Max 100 mW e.r.p. AM not allowed			
	Portugal	Not implemented			
	Romania	Not implemented			
	Slovak Republic	Limited to 36.4-38.5 MHz	Occupied by military		
	Spain	Limited to 31.5, 31.75, 37.85, 38.3 and 38.55 MHz			
	Sweden	Limited to 41.0-43.6 MHz			
	Switzerland	Limited to 31.4-39.6 MHz	Main use by military services		
	Turkey	Limited to 29.7-41.0 MHz			
	United Kingdom	Individual licence required			

A	Commitmen	Doctoriotion	Apppendix 5 rag
Annex	Country	Restriction	Reason/remarks
Annex 10 Band B			
Radio microphon	es		
173.965-174.015 N	MHz		
	Austria	Not implemented	
	Belgium	Not implemented	
	Bulgaria	Not implemented	
	Croatia	Not implemented	
	Czech Republic	Licence required	
	Denmark	Not implemented	PMR band
	Finland	Individual licence required. Regional restrictions Regional restrictions	PMR and broadcasting usage
	France	Not implemented	Governmental band
	Germany	Individual frequency assignment required	
	Greece	Not implemented	Under study
	Hungary	Limited to 174-174.015 MHz	Under review
	Latvia Norway	ERP <10 mW; 174.000, 174.025, 174.050, 174.075, 174.100, 174.125, 174.150, 174.175, 174.200, 174.225 MHz only aids for handicapped Limited to 173.8125, 173.8375, 173.9125, 173.9375 and 173.9625 MHz.	
		Ch spacing 25 kHz Max e.r.p.1 mW Only aids for handicapped	
	Poland	Not implemented	Military band
	Portugal	Not implemented	Under study
	Romania	Not implemented	
	Slovak Republic	Not implemented	
	Spain	Not Implemented	
	Sweden	Not implemented	
	Switzerland	Not implemented	Closely occupied with Mobile services
	The Netherlands	Not implemented	Planned. Requires sec legislation change
Annex 10 Band C			
Radio microphone	es		
863-865 MHz	- ~		
	Bulgaria	Not implemented	
	Croatia	Licence required	
	Greece	Not implemented	Military or government use
	Portugal	Not implemented	Under study
	1 Ortugui	1 tot implemented	Charl study

	, thb.	chara 5 - Mational Aceti Ictions	
			Apppendix 3 Page 28
Annex	Country	Restriction	Reason/remarks
Annex 10 Band D			
Radio microphono 174-216 MHz	es		
	Austria	Not implemented	
	Croatia	Not implemented	
	Estonia	Not implemented	
	Finland	Individual licence required - regional restrictions	Broadcasting usage
	France	175.5-178.5 MHz and 183.5-186.5 MHz with 10 mW erp and 200 kHz channel spacing	
	Greece	Not implemented	Broadcasting
	Iceland	Individual licence required	
	Ireland	Individual license required	TV Broadcasting only
	Latvia	Not implemented	Under study
	Norway	Not implemented	Allocated to Broadcasting Services
	Poland	e.r.p. limited to 2 mW	
	Portugal	Not implemented	Under study
	Romania	Not implemented	
	Spain	Limited to 174.1, 174.3, 175.5, 176.3, 179.3 188.1, 188.5, 189.1, 191.9 and 194.5 MHz	
	Sweden	Individual licence required	
	The Netherlands	None	Tuning range 195.1-201.9 MHz
	United Kingdom	Individual licence required above 175 MHz	
Annex 10 Band E			
Radio microphono 470-862 MHz	es		
	Austria	Individual licence required	
	Croatia	Licence required	

Austria	Individual licence required	
Croatia	Licence required	
Denmark	Limited to 800.100-819.900 MHz	
Estonia	Individual license required	
Finland	Only 800.100-819.900, 855.500, 856.000, 857.250, 860.375, 861.500 and 861.875 MHz. Individual licence required	
France	Limited to 470-830 MHz	
Germany	Subbands 608-614 MHz (TV ch 38) and 814-838 MHz (TV ch 64-66) excluded	Radio Astronomy, military applications
Greece	Not Implemented	Under study
Iceland	Individual licence Required	
Ireland	Individual license required	
Italy	Limited to 470-854 MHz	854-862 MHz is exclusive military band
Latvia	Not implemented	Under study
Malta	Limited to 854-862 MHz	
Norway	Limited to 800-820 MHz max 20 mW erp	
Portugal	Not implemented	Under study
Romania	Not implemented	
Spain	Not Implemented	
Sweden	Individual licence required	
Ukraine	Individual licence required	

Annex	Country	Restriction	Reason/remarks
Annex 10 Band F			
Radio microphone	es		
1785-1800 MHz			
	Austria	Limited to 1785.7-1799.4 MHz	Guard bands required
	Bulgaria	Not implemented	
	Croatia	Not implemented	
	Estonia	Not implemented	
	Finland	Individual licence required	
	Germany	Individual frequency assignment required	
	Greece	Not implemented	Under study
	Ireland	Limited to 1785.7-1799.4 MHz	
	Italy	Not implemented	Military applications
	Latvia	Not implemented	Under study
	Luxembourg	Limited to 1785.7-1799.4 MHz	Guard bands to be respected
	Malta	Not implemented	Under study
	Portugal	Not implemented	Under study
	Romania	Not implemented	
	Slovak Republic	Not implemented	
	Sweden	Individual licence required	
	United Kingdom	Individual licence required	
Annex 11 Band A			
RFID			
2446-2454 MHz			
	Croatia	Not implemented	
	Croatia Estonia	Not implemented Not implemented	
		Not implemented Not implemented Max e.i.r.p. 500 mW	
	Estonia	Not implemented	
	Estonia France	Not implemented Max e.i.r.p. 500 mW	Planned
	Estonia France Italy	Not implemented Max e.i.r.p. 500 mW Not implemented	Planned
	Estonia France Italy Norway Poland	Not implemented Max e.i.r.p. 500 mW Not implemented Not implemented Below 100 mW	Planned
	Estonia France Italy Norway	Not implemented Max e.i.r.p. 500 mW Not implemented Not implemented	Planned Military
	Estonia France Italy Norway Poland Portugal	Not implemented Max e.i.r.p. 500 mW Not implemented Not implemented Below 100 mW Not implemented	
	Estonia France Italy Norway Poland Portugal Slovak Republic	Not implemented Max e.i.r.p. 500 mW Not implemented Not implemented Below 100 mW Not implemented Not implemented	
	Estonia France Italy Norway Poland Portugal Slovak Republic	Not implemented Max e.i.r.p. 500 mW Not implemented Not implemented Below 100 mW Not implemented Not implemented	
Medical Implants	Estonia France Italy Norway Poland Portugal Slovak Republic	Not implemented Max e.i.r.p. 500 mW Not implemented Not implemented Below 100 mW Not implemented Not implemented	
Medical Implants	Estonia France Italy Norway Poland Portugal Slovak Republic Sweden	Not implemented Max e.i.r.p. 500 mW Not implemented Not implemented Below 100 mW Not implemented Not implemented Not implemented Not implemented	
Medical Implants	Estonia France Italy Norway Poland Portugal Slovak Republic Sweden	Not implemented Max e.i.r.p. 500 mW Not implemented Not implemented Below 100 mW Not implemented Not implemented Not implemented Not implemented	
Medical Implants	Estonia France Italy Norway Poland Portugal Slovak Republic Sweden Bulgaria Croatia	Not implemented Max e.i.r.p. 500 mW Not implemented Not implemented Below 100 mW Not implemented Not implemented Not implemented Not implemented Not implemented	Military
Medical Implants	Estonia France Italy Norway Poland Portugal Slovak Republic Sweden Bulgaria Croatia Greece	Not implemented Max e.i.r.p. 500 mW Not implemented Not implemented Below 100 mW Not implemented	Military Under study
Medical Implants	Estonia France Italy Norway Poland Portugal Slovak Republic Sweden Bulgaria Croatia Greece Latvia	Not implemented Max e.i.r.p. 500 mW Not implemented Not implemented Below 100 mW Not implemented	Military
Medical Implants 402-405 MHz	Estonia France Italy Norway Poland Portugal Slovak Republic Sweden Bulgaria Croatia Greece	Not implemented Max e.i.r.p. 500 mW Not implemented Not implemented Below 100 mW Not implemented	Military Under study
Medical Implants	Estonia France Italy Norway Poland Portugal Slovak Republic Sweden Bulgaria Croatia Greece Latvia	Not implemented Max e.i.r.p. 500 mW Not implemented Not implemented Below 100 mW Not implemented	Military Under study
Medical Implants 402-405 MHz	Estonia France Italy Norway Poland Portugal Slovak Republic Sweden Bulgaria Croatia Greece Latvia	Not implemented Max e.i.r.p. 500 mW Not implemented Not implemented Below 100 mW Not implemented	Military Under study
Medical Implants 402-405 MHz Annex 12 Band B	Estonia France Italy Norway Poland Portugal Slovak Republic Sweden Bulgaria Croatia Greece Latvia	Not implemented Max e.i.r.p. 500 mW Not implemented Not implemented Below 100 mW Not implemented	Military Under study
Medical Implants 402-405 MHz Annex 12 Band B Medical Implants	Estonia France Italy Norway Poland Portugal Slovak Republic Sweden Bulgaria Croatia Greece Latvia	Not implemented Max e.i.r.p. 500 mW Not implemented Not implemented Below 100 mW Not implemented	Military Under study

Annex Country		Restriction	Reason/remarks
Annex 13 Band A			
Wireless Audio 863-865 MHz			
	Bulgaria	Not implemented	
	Croatia	Individual licence required	
	Greece	Not implemented	Government use
	Latvia	Not implemented	Under study
Annex 13 Band B			
Wireless Audio			
864.8-865 MHz			
	Croatia	Individual license required	
	Finland	Not yet implemented	Implementation autumn 2002
	Germany	Not implemented	Planned
	Italy	Not implemented	
	Norway	Not implemented	Planned
	Portugal	Not implemented	Planned

Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended primarily for Telemetry, Telecommand, Alarms, Data in general and other similar applications. Video applications should only be used above 2.4 GHz. Audio and voice signals should be avoided in the band 433.050-434.790 MHz.

Regulatory parameters related to Annex 1

Frequency Band		Power / Magnetic field		Duty cycle Cin	Channel spacing	ERC Decision	Notes	
а	6765 - 6795 kHz	42 dBuA/	m at 10 m	No Restriction	No spacing	ERC DEC (01)01		
b	13.553 - 13.567 MHz	42 dBuA/	m at 10 m	No Restriction	No spacing	ERC DEC (01)01		
С	26.957 - 27.283 MHz	42 dBuA/ 10 mW	m at 10 m e.r.p.	No Restriction	No spacing	ERC DEC (01)02		
d	40.660 - 40.700 MHz	10 mW	e.r.p.	No Restriction	No spacing	ERC DEC (01)03		
е	433.050 - 434.790 MHz	10 mW	e.r.p.	< 10 %	No spacing		Audio and voice signals should be avoided in the band 433.05-434.79 MHz	
e1	433.050 - 434.790 MHz	1 mW -13 dBm/	e.r.p. 10 kHz	up to 100%	No spacing		Power density limited to -13 dBm/10 kHz for wideband channels Audio and voice signals should be avoided in the band 433.05-434.79 MHz	
e2	434.040-434.790 MHz	10 mW	e.r.p.	up to 100%	Up to 25 kHz		Audio and voice signals should be avoided in the band 433.05-434.79 MHz	
f	868.000 - 868.600 MHz	25 mW	e.r.p.	< 1.0 %	No spacing	ERC DEC (01)04		
g	868.700 - 869.200 MHz	25 mW	e.r.p.	< 0.1 %	No spacing	ERC DEC (01)04		
h	869.300 - 869.400 MHz	10 mW	e.r.p.	No Restriction	25 kHz		An appropriate access protocol should be used for example EN 301 391	
I	869.400 - 869.650 MHz	500 mW	e.r.p.	< 10 %	25 kHz	ERC DEC (01)04	The whole band may also be used as 1 channel for high speed data transmission	
k	869.700 - 870.000 MHz	5 mW	e.r.p.	up to 100%	No spacing	ERC DEC (01)04		
ı	2400 - 2483.5 MHz	10 mW	e.i.r.p.	No Restriction	No spacing	ERC DEC (01)05		
m	5725 - 5875 MHz	25 mW	e.i.r.p.	No Restriction	No spacing	ERC DEC (01)06		
n	24.00 - 24.25 GHz	100 mW	e.i.r.p.	No Restriction	No spacing			
0	61.0 - 61.5 GHz	100 mW	e.i.r.p.	No Restriction	No spacing			
р	122 - 123 GHz	100 mW	e.i.r.p.	No Restriction	No spacing			
q	244 - 246 GHz	100 mW	e.i.r.p.	No Restriction	No spacing			
r	138.2 - 138.45 MHz	10 mW	e.r.p.	< 1.0 %	No spacing			

Additional Information

Harmonised Standards

EN 300 220 subbands c) - k)
EN 300 330 subbands a) and b)
EN 300 440 subbands l) - m) and n)

Frequency issues

The bands in Annex 1 a - b - c - d - e - l - m - n - o - p and $\,q\,$ are also designated for industrial, scientific and medical (ISM) applications as defined in ITU Radio Regulations.

To avoid interference between CT2 and SRD applications it is recommended that SRDs below 868.5 MHz should avoid using a dedicated frequency channel and instead use a technology that allows automatic channel selection of a free channel within the band.

The adjacent frequency band above 870 MHz has been designated for use by the high powered TETRA and other digital land mobile PMR/PAMR systems. Manufacturers shou take this into account in the design of equipment and choice of power levels.

Technical parameters also referred to in the harmonised standard

No information

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Annex 2 Devices for Detecting Avalanche Victims

Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for devices for detecting avalanche victims.

Regulatory parameters related to Annex 2

Frequency Band	Magnetic field	Duty cycle Channel spacing		ERC Decision	Notes	
b 457 kHz	7 dBuA/m at 10 m	up to 100%	Continous wave (CW) - no modulation			

Additional Information

Harmonised Standards

EN 300 718

Frequency issues

No information

Technical parameters also referred to in the harmonised standard

No information

Annex 3

Wideband Data Transmission systems and HIPERLANs

Page 34

Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for Wideband data transmission systems formerly known as (Radio Local Area Networks (RLANs)) within the band 2400-2483.5 MHz and for High Performance Radio Local Area Networks (HIPERLANs) within the bands 5150-5350 MHz, 5470-5725 MHz and 17.1-17.3 GHz.

Regulatory parameters related to Annex 3

Frequency Band Pov		Power		Duty cycle	Channel spacing	ERC Decision	Notes
а	2400 - 2483.5 MHz	100 mW	e.i.r.p.	No Restriction	No spacing	ERC DEC (01)07	For direct sequence spread spectrum, the maximum spectrum power density is limited to -20 dBW/1 MHz. For FHSS the maximum spectrum power density is limited to -10 dBW/100 kHz.
b	5150 - 5350 MHz	200 mW	Max mean		No spacing	ERC DEC (99)23	Indoor use only
С	5470 - 5725 MHz	1 W	Max mean	No Restriction	No spacing	ERC DEC (99)23	
d	17.1 - 17.3 GHz	100 mW	e.i.r.p.	No Restriction	No spacing		

Additional Information

Harmonised Standards

EN 300 328 subband a)

ETS 300 836 subbands b) c) and d)

Frequency issues

As indicated in the ERC Decision (99)23 the HIPERLANs within band c shall only be allowed to operate when the following mandatory features are realised:

a) transmitter power control to ensure a mitigation factor of at least 3 dB;

b) Dynamic Frequency Selection associated with the channel selection mechanism required to provide a uniform spread of the loading of the HIPERLANs across a minimum of 330 MHz or 255 MHz in the case of equipment used only in the band 5470-5725 MHz. For full details of the mandatory features required see als the standard ETS 300 836-1

Technical parameters also referred to in the harmonised standard

The power level for band b and c refers to Maximum mean e.i.r.p. The mean e.i.r.p. refers here to the e.i.r.p. avaraged over the transmission burst at the highest power control setting.

Annex 4

Railway applications

Page 35

Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for applications specifically intended for use on railways including automatic vehicle identification and balises (train control systems).

The subbands below are intended for the following applications:

- Automatic Vehicle Identification for Railways (AVI) band a)
- Eurobalise band b)
- Euroloop band c)

Regulatory parameters related to Annex 4

Frequency Band		Power / Duty cycle Chamagnetic field		Channel spacing	ERC Decision	Notes	
а	2446 - 2454 MHz	500 mW e.i.r.p.	No Restriction			Transmitting only in presence of trains. 5 channels, each 1.5 MHz wide within the band 2446-2454 MHz	
b	27.095 MHz	42 dBuA/m at 10 m		42 dBuA/m at 10 m No spacing			
c 4515 kHz 7 dBuA/m at 10 m		No Restriction	No spacing		Transmitting only on receipt of a Eurobalise telepowering signal from a train		

Additional Information

Harmonised Standards

EN 300 761 subband a)
EN 300 330 subbands b) and c)

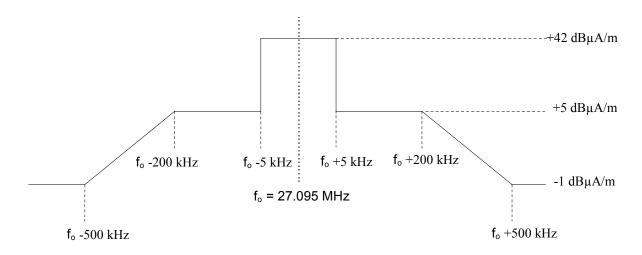
Frequency issues

No information

Technical parameters also referred to in the harmonised standard

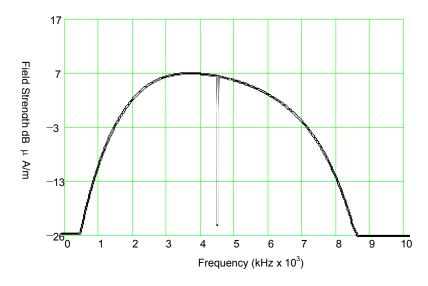
The maximum allowed H-field for the Eurobalise system is illustrated in Figure 1 and for Euroloop in Figure 2 on the next page.

Spectrum mask relating to Eurobalise



Annex 4 - Figure 1: Magnetic field limits at 10 metre measurement distance for the Eurobalise system

Spectrum mask relating to Euroloop



Annex 4 - Figure 2. Magnetic field limits at 10 metre measurement distance in 10 kHz measurement bandwidth for the Euroloop up-link transmission

Annex 5 Road Transport and & Traffic Telematics (RTTT)

Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for Road Transport and Traffic Telematics (RTTT)

Regulatory parameters related to Annex 5

Fı	requency Band	Power		Duty cycle (Channel spacing	ERC Decision	Notes
а	5795 - 5805 MHz	2 W 8 W	e.i.r.p. e.i.r.p.	No Restriction		ECC DEC (02)01	
b	5805 - 5815 MHz	2 W 8 W	e.i.r.p. e.i.r.p.	No Restriction		ECC DEC (02)01	Individual license required
С	63 - 64 GHz				No spacing	ECC DEC (02)01	Vehicle to vehicle and road to vehicle systems Power level to be determined
d	76 - 77 GHz	55 dBm peak		No Restriction	No spacing	ECC DEC (02)01	Power level 55 dBm peak power e.i.r.p 50 dBm average power - 23.5 dBm average power for puls radar only
							Vehicle and infrastructure radar systems.

Additional Information

Harmonised Standards

EN 300 674 subbands a) and b)
EN 301 091 subband d)
ES 201 674 subbands a) and b)

Frequency issues

The frequency band a) is intended for road to vehicle systems, particularly (but not exclusively) road toll systems.

The frequency band a) and b) are recommended for 5 MHz channel spacing systems with the frequencies: 5797.5 MHz, 5802.5 MHz, 5807.5 MHz and 5812.5 MHz. For 10 MHz channel spacing systems 5800 MHz and 5810 MHz.

5805 - 5815 MHz on a national basis for multi-lane road junctions, particularly, but not exclusively road toll systems.

Technical parameters also referred to in the harmonised standard

Annex 6

Equipment for Detecting Movement and Alert

Page 37

Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for Equipment for Detecting Movement and Equipment for Alert.

Regulatory parameters related to Annex 6

Fr	equency Band	Power		Duty cycle	Channel spacing	ERC Decision	Notes
а	2400 - 2483.5 MHz	25 mW	e.i.r.p.	No Restriction	No spacing	ERC DEC (01)08	
b	9200 - 9500 MHz	25 mW	e.i.r.p.	No Restriction	No spacing		
С	9500 - 9975 MHz	25 mW	e.i.r.p.	No Restriction	No spacing		
d	10.5 - 10.6 GHz	500 mW	e.i.r.p.	No Restriction	No spacing		Individual license required
е	13.4 - 14.0 GHz	25 mW	e.i.r.p.	No Restriction	No spacing		
f	24.05 - 24.25 GHz	100 mW	e.i.r.p.	No Restriction	No spacing		

Additional Information

Harmonised Standards

EN 300 440

Frequency issues

Some countries may allow equipment with transmitter powers between 25 mW and 500 mW in which case an individual licence or a general licence may be required.

Technical parameters also referred to in the harmonised standard

Annex 7 Alarms

Scope of Annex

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

The subbands below are intended for the following applications:

- Alarms in general band a) b) and c)
- Social Alarms band d)

Regulatory parameters related to Annex 7

Frequency Band		Power		Duty cycle	Channel spacing	ERC Decision	Notes
а	868.6 - 868.7 MHz	10 mW	e.r.p.	< 0.1 %	25 kHz	ERC DEC (01)09	The whole frequency band may also be used as 1 channel for high speed data transmissions
b	869.250 - 869.300 MHz	10 mW	e.r.p.	< 0.1 %	25 kHz	ERC DEC (01)09	
С	869.650 - 869.700 MHz	25 mW	e.r.p.	< 10 %	25 kHz	ERC DEC (01)09	
d	869.200 - 869.250 MHz	10 mW	e.r.p.	< 0.1 %	25 kHz	ERC DEC (97)06	Social Alarms

Additional Information

Harmonised Standards

EN 300 220

Frequency issues

No information

Technical parameters also referred to in the harmonised standard

Scope of Annex

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

Regulatory parameters related to Annex 8

Frequency Band		Power		Duty cycle	Channel spacing	ERC Decision	Notes
а	26.995, 27.045, 27.095, 27.145, 27.195 MHz	100 mW	e.r.p.	No Restriction	10 kHz	ERC DEC (01)10	
b	34.995 - 35.225 MHz	100 mW	e.r.p.	No Restriction	10 kHz	ERC DEC (01)11	Only for flying models
С	40.665, 40.675, 40.685, 40.695 MHz	100 mW	e.r.p.	No Restriction	10 kHz	ERC DEC (01)12	

Additional Information

Harmonised Standards

EN 300 220

Frequency issues

No information

Technical parameters also referred to in the harmonised standard

Annex 9 Inductive applications

Scope of Annex

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

Regulatory parameters related to Annex 9

Fre	quency Band	Magnetic field	Duty cycle	Channel spacing	ERC Decision	Notes
aa	9 - 59.750 kHz	72 dBuA/m at 10 m	No Restriction	No spacing	ERC DEC (01)13	In case of external antennas only loop coil antennas may be employed Field strength level descending 3 dB/oct at 30 kHz
ab	59.750 - 60.250 kHz	42 dBuA/m at 10 m	No Restriction	No spacing	ERC DEC (01)13	In case of external antennas only loop coil antennas may be employed
ac	60.250 - 70 kHz	69 dBuA/m at 10 m	No Restriction	No spacing	ERC DEC (01)13	In case of external antennas only loop coil antennas may be employed Field strength level descending 3 dB/oct at 30 kHz
b	70 - 119 kHz	42 dBuA/m at 10 m	No Restriction	No spacing	ERC DEC (01)13	In case of external antennas only loop coil antennas may be employed
С	119 - 135 kHz	66 dBuA/m at 10 m	No Restriction	No spacing	ERC DEC (01)13	In case of external antennas only loop coil antennas may be employed
						Field strength level descending 3 dB/oct at 30 kHz
c1	135 - 140 kHz	42 dBuA/m at 10 m	No Restriction	No spacing		In case of external antennas only loop coil antennas could be employed
c2	140 - 148.5 kHz	37.7 dBuA/m at 10 m	No Restriction	No spacing		In case of external antennas only loop coil antennas could be employed
d	6765 - 6795 kHz	42 dBuA/m at 10 m	No Restriction	No spacing	ERC DEC (01)14	
е	7400 - 8800 kHz	9 dBuA/m at 10 m	No Restriction	No spacing	ERC DEC (01)15	
f	13.553 - 13.567 MHz	42 dBuA/m at 10 m	No Restriction	No spacing	ERC DEC (01)14	
g	26.957 - 27.283 MHz	42 dBuA/m at 10 m	No Restriction	No spacing	ERC DEC (01)16	
k	3155 - 3400 kHz	13.5 dBuA/m at 10 m	No Restriction	No spacing		In case of external antennas only loop coil antennas may be employed

Additional Information

Harmonised Standards

EN 300 330

Frequency issues

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

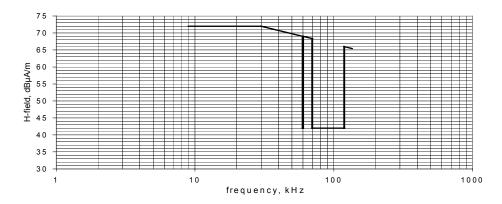
In case of loop antennas used within bands aa) and ac) integral or dedicated within an area between 0.05 m2 and 0.16 m2, the field strength is reduced by $10 * \log$ (area/0.16 m2 for an antenna area less than 0.05 m2 the field strength is reduced by $10 * \log$ (area/0.16 m2).

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

Technical parameters also referred to in the harmonised standard

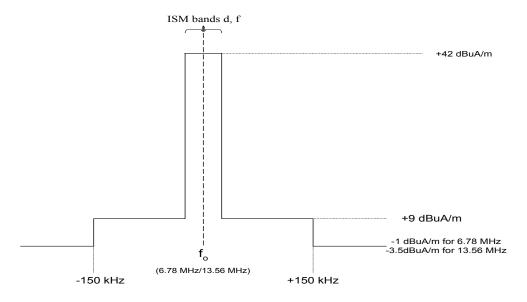
The maximum allowed H-field for bands aa), ab), ac), b) and c) is illustrated in Figure 1; the maximum allowed H-field limits for bands c, c1) and c2) are illustrated in Figure 2 and the maximum allowed H-field limits for bands d) and f) are illustrated in Figure 3 on the next pages

Spectrum mask 9-135 kHz



Annex 9 - Figure 1. 9-135 kHz magnetic field strength_limits at 10-metre measurement distance

Spectrum mask for 6.78 and 13.56 MHz



Annex 9 - Figure 2. Magnetic field strength_limits at 10 metre measurement distance for the 6.78 MHz and 13.56 MHz bands.

Annex 10 Radio microphones

Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for radio microphones (also referred to as wireless microphones or cordless microphones). Radio microphones are small, low power (50 mW or less) transmitters designed to be worn on the body, or hand held, for the transmission of close, personal sound. The receivers are more tailored to specific uses and may range from small and portable to rack mounted modules as part of a multichannel system. This annex covers professional and consumer radio microphones, both hand-held and body-worn, and aids for the handicapped.

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

The subbands below are intended for the following applications:

- Narrow band audio band a)
- Aids for the handicapped band b)
- Radio microphones bands c) d) e) f)

Regulatory parameters related to Annex 10

Fr	equency Band	Power Duty cycle Channel spacing		ERC Decision	Notes		
а	29.7 - 47.0 MHz	10 mW	e.r.p.	up to 100%	50 kHz		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
b	173.965 - 174.015 MHz	2 mW	e.r.p.	up to 100%	50 kHz		
С	863-865 MHz	10 mW	e.r.p.	up to 100%	200 kHz		
d	174-216 MHz	10 mW 50 mW	e.r.p. e.r.p.	up to 100%	200 kHz		On a tuning range basis Professional use only - Individual license required 50 mW restricted to for body worn microphones
е	470 - 862 MHz	10 mW 50 mW	e.r.p. e.r.p.	up to 100%	200 kHz		On a tuning range basis Professional use only -Individual license required 50 mW restricted to for body worn microphones
f	1785 - 1800 MHz	10 mW 50 mW	e.i.r.p. e.i.r.p.	up to 100%	200 kHz		Professional use only - Individual license required 50 mW restricted to for body worn microphones

Additional Information

Harmonised Standards

EN 300 422 subbands a) - e)
EN 301 840 subband f)
EN 301 357 Subband c)

Frequency issues

 $Guard\ bands\ at\ 1785.0\text{-}1785.7\ and\ 1799.4\text{-}1800\ MHz\ may\ be\ required\ to\ protect\ services\ in\ adjacent\ bands$

In case of analogue systems the maximum occupied bandwidth should not exceed 300 kHz in subband c)

Technical parameters also referred to in the harmonised standard

Annex 11 Radio frequency identification applications

Scope of Annex

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

Regulatory parameters related to Annex 11

Frequency Band	Power	Duty cycle	Channel spacing	ERC Decision	Notes
a 2446 - 2454 MHz		.r.p. up to 100% .r.p. < 15 %	No spacing		Power levels above 500 mW are restricted to use inside the boundaries of a building and the duty cycle shall in this case be <= 15 % in any 200 ms period (30 ms on /170 ms off)

Additional Information

Harmonised Standards

EN 300 440

Frequency issues

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

Frequency Hopping Spread Spectrum (FHSS) techniques should be used as means of mitigation when more than 500 mW e.i.r.p. is used.

Technical parameters also referred to in the harmonised standard

As mentioned in the standard EN 300 440 the antenna shall have <= 45 degreed horizontal beamwidth and >=15 dB sidelope attenuation

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

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Annex 12 Ultra Low Power Active Medical Implants

Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for active implantable medical devices (for convenient definitions see the EC Directive 90/385/EEC (Active Implantable Medical Device Directive)).

Regulatory parameters related to Annex 12

Fı	requency Band	Power	Duty cycle	Channel spacing	ERC Decision	Notes
а	402 - 405 MHz	25 uW e.r.p.	No Restriction	25 kHz	ERC DEC (01)17	Individual transmitters may combine adjacent channels for increased bandwidth up to 300 kHz
b	9 - 315 kHz	30 dBuA/m at 10 m	< 10 %	No spacing		

Additional Information

Harmonised Standards

EN 301 839 Subband a) EN 300 330 Subband b)

Frequency issues

No information

Technical parameters also referred to in the harmonised standard

Annex 13 Wireless Audio Applications

Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for applications for wireless audio systems including the following, cordless laudspeakers; 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.

Regulatory parameters related to Annex 13

Fı	requency Band	Power		Duty cycle	Channel spacing	ERC Decision	Notes
а	863-865 MHz	10 mW	e.r.p.	up to 100%	No spacing	ERC DEC (01)18	In case of analogue systems the max occupied bandwidth should not exceed 300 kHz
b	864.8 - 865 MHz	10 mW	e.r.p.	up to 100%	50 kHz		Narrow band analogue voice devices

Additional Information

Harmonised Standards

EN 301 357 subband a) EN 300 220 subband b)

Frequency issues

Narrow band analogue voice devices, such as baby voice monitors, door entry systems etc should only use the band b) 864.8-865 MHz

Technical parameters also referred to in the harmonised standard

Systems should be designed so that when not in use there should be no transmission of an RF carrier.

List of abbreviations as used in this document

AVI	Automatic Vehicle Identification for Railways				
CEPT	European Conference of Postal and Telecommunciations Administrations				
СВ	Citizen Band (27 MHz)				
CT2	Cordless Telephones				
ECC	Electronic Communications Committee				
ENG/OB	Electronic News Gathering / Outside Broadcasting				
ERC	European Radiocommunications Committee				
ERM	Electromagnetic Compatibility and Radio Spectrum Matters				
ETSI	European Telecommunications Standard Institute				
FHSS	Frequency Hopping Spread Spectrum				
ISM	Industrial, Scientific and Medical applications				
PMR	Professional Mobile Radio / Private Mobile Radio				
R&TTE	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				
RFID	Radio Frequency Identification				
RTTT	Road Transport & Traffic Telematics				
SRD	Short Range Devices				
TETRA	Trans European Trunked Radio				
WLL	Wireless Local Loop				