

STATUS
of
ERC RECOMMENDATION 70-03
RELATING TO THE USE OF SHORT RANGE DEVICES (SRD)
Including Appendixes and Annexes
at
April 2002

	Text	Page	Edition
	Text of the ERC Recommendation changed to align with the R&TTE Directive	1 to 3	February 2002
Appendix 1	Applications and Parameter Tables	4 5 6 7	February 2002 February 2002 February 2002 April 2002
Appendix 2	List of relevant ERC Decisions, Recommendations and ETSI Standards	9 10 11	February 2002 February 2002 February 2002
Appendix 3	List of national restrictions	12 - 31	April 2002
Annex 1	Non-specific Short Range Devices	32	February 2002
Annex 2	Devices for Detecting Avalanche Victims	33	February 2002
Annex 3	Wideband Data Transmission systems and HIPERLANs	34	April 2002
Annex 4	Automatic Vehicle Identification for Railways (AVI)	35	February 2002
Annex 5	Road Transport & Traffic Telematics (RTTT)	36	April 2002
Annex 6	Equipment for Detecting Movement and Equipment for Alert	37	February 2002
Annex 7	Alarms	38	February 2002
Annex 8	Model Control	39	February 2002
Annex 9	Inductive applications	40	February 2002
Annex 10	Radio microphones	41	February 2002
Annex 11	RFID	42	February 2002
Annex 12	Ultra Low Power Active Medical Implants	43	February 2002
Annex 13	Wireless Audio Applications	44	February 2002

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 still have national allocations 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 advise 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 uni-directional 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 states 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

- a) 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;
- c) 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,

- j) 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 normally 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;
- l) 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 dB μ A/m at 10 metres
2.	42 dB μ A/m at 10 metres
3.	72 dB μ A/m at 10 metres (at 30 kHz descending 3 dB/octave)
4.	38 dB μ A/m at 10 metres
5.	9 dB μ A/m at 10 metres
5a.	25 μ W 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.	<i>To be determined (t.b.d.)</i> 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.

¹ Levels are either effective radiated power (e.r.p.) or equivalent isotropically radiated power (e.i.r.p.) as indicated in the relevant annex.

² Pulsed radar only.

Table 3. Channel spacing permitted

	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.¹ 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 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

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

ETSI Standards incl harmonised standardsGeneric 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

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;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 301 840	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
<i>All Annexes</i>			
	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		Clarification of the terms contained in the table 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 (Appendix 1, Table 5, No 1.); general frequency assignments are granted ex officio by administrative act, published in the Regulatory Authority Official Gazette and correspond to "individual licence not required" within the meaning of CEPT/ERC/REC 70-03 (Appendix 1, Table 5, No. 2) 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.
	Lithuania	Individual licence for operation is required	Present legislation requires that use of any transmitter is subject to licence
	Moldova	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 utilise non-certificated and non-marked 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.	In accordance with Law of Telecommunications of Republic of Moldova.
	Portugal	The placing on the market of SRD equipment is in line with the R&TTE Directive. The present national legislation requires that only 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 exempted.	

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 A

**Non Specific Short Range Devices
6765-6795 kHz**

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 B

**Non Specific Short Range Devices
13.553-13.567 MHz**

Bulgaria	Not implemented	
Latvia	Not implemented	Under study
Romania	Secondary basis - individual licence	
United Kingdom	Not implemented	See annex 9

Annex 1 Band C

**Non Specific Short Range Devices
26.957-27.283 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
Italy	None	Add channels: 27.515, 27.525, 27.535, 27.545, 27.555, 27.565, 27.575, 27.585 MHz and 29.815, 29.825, 29.835, 29.845, 29.855, 29.865, 29.875 and 29,885 MHz additional channels with 5mW erp, channel spacing 10 kHz and duty cycle <10 % for door openers. 29.7 MHz additional channel with 10 mW e.r.p. for radio-toys. 30.8625, 30.8750, 30.8875, 30.9, 30.9125, 30.9250, 30.9375, 30.95 MHz additional ch with e.r.p. 5 mW, ch spacing 12.5 kHz and duty cycle <10% for door openers.
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, 27.095, 27.145 and 27.195 MHz allowed	
Romania	Secondary basis - individual licence	
Spain	Not implemented	
Sweden	None	100 mW is allowed
United Kingdom	Only 26.995, 27.045, 27.095, 27.145, 27.195 MHz @10 kHz, e.r.p 1mW	

Annex	Country	Restriction	Reason/remarks
Annex 1 Band D			
Non Specific Short Range Devices			
40.660-40.700 MHz			
	Latvia	Only 40.670, 40.675, 40.680, 40.685, 40.690, 40.695 MHz; channel spacing 5 kHz	
	Norway	Channel spacing 10 kHz	
	Romania	Secondary basis - individual licence	
	Sweden	None	100 mW is allowed

Annex 1 Band R**Non Specific Short Range Devices****138.2-138.45 MHz**

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	
Portugal	Not implemented	Governmental band
Romania	Not implemented	Not available
Slovak Republic	Not implemented	
Slovenia	Not implemented	Not available
Spain	Not implemented	
Switzerland	Not implemented	Exclusive Military band
The Netherlands	Not implemented	Exclusive Military band
Turkey	Not implemented	

Annex 1 Band E**Non Specific Short 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
France	None	No dutycycle limit
Germany	None	Duty cycle limit suspended until April 2002
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	
Sweden	None	25 mW is allowed. No duty cycle limitation
The Netherlands	None	No duty cycle limit
Turkey	Not implemented	
United Kingdom	Voice not allowed	

Annex	Country	Restriction	Reason/remarks
Annex 1 Band E2			
Non Specific Short Range Devices			
434.040-434.79 MHz			
	Estonia	Not Implemented	
Annex 1 Band F			
Non Specific Short Range Devices			
868.000-868.600 MHz			
	Bulgaria	Not implemented	
	Germany	Transmission of audio and voice signals excluded	
	Greece	Not implemented	Military or government use
	Latvia	ERP < 10 mW	
	Poland	Not implemented	Implementation planned. WLL usage
	Slovak Republic	Not implemented	
Annex 1 Band G			
Non Specific Short Range Devices			
868.700-869.200 MHz			
	Bulgaria	Not implemented	
	Germany	Transmission of audio and voice signals excluded	
	Greece	Not implemented	Military or government use
	Latvia	ERP < 10 mW	
	Poland	Not implemented	WLL usage. Implementation planned
	Slovak Republic	Not implemented	
Annex 1 Band H			
Non Specific Short Range Devices			
869.300-869.400 MHz			
	Austria	Not allocated	
	Bulgaria	Not allocated	
	Estonia	Not implemented	
	Finland	Not allocated	
	Germany	Not yet allocated	
	Latvia	ERP < 10 mW	
	Portugal	Not allocated	
	Sweden	Not allocated	
Annex 1 Band I			
Non Specific Short Range Devices			
869.400-869.650			
	Bulgaria	Not implemented	
	Germany	Transmission of audio and voice signals excluded	
	Greece	Not implemented	Government use
	Italy	Max 25 mW erp	Military applications
	Latvia	ERP < 10 mW	
	Poland	Not implemented	WLL usage. Implementation planned

Annex	Country	Restriction	Reason/remarks
Annex 1 Band K			
Non Specific Short Range Devices			
869.700-870.000 MHz			
	Bulgaria	Not implemented	
	Finland	Audio and voice not allowed	Voice, Audio and video only on frequencies above 2.4 GHz
	Germany	Transmission of audio and voice signals excluded	
	Greece	Not implemented	Government use
	Latvia	ERP < 10 mW	
	Poland	Not implemented	WLL usage. Implementation planned
Annex 1 Band L			
Non Specific Short Range Devices			
2400-2483.5 MHz			
	France	Indoor use limited to 10 mW; outdoor use limited to 2.5 mW; outdoor use in 2446-2454 MHz only 10 mW e.i.r.p.	
	Romania	Secondary basis - individual licence	
	Slovak Republic	Not implemented	
	Spain	Limited to 2445-2475 MHz	
	Sweden	None	25 mW is allowed
	United Kingdom	Channel spacing > 20 MHz on where justified by the modulation	
Annex 1 Band M			
Non Specific Short Range Devices			
5725-5875 MHz			
	Latvia	Not implemented	Under study
	Poland	Not implemented	Fixed Service. Implementation planned
	Romania	Secondary basis - individual licence	
	Spain	Not implemented	
	Sweden	Licence required	Implementation planned
Annex 1 Band N			
Non Specific Short Range Devices			
24.0-24.25 GHz			
	France	Not implemented	
	Latvia	Not implemented	Under study
	Luxembourg	Limited to 24.05-24.25 GHz	24.0-24.05 for amateur use only
	Poland	Not implemented	Implementation planned
	Spain	Not Implemented	
	Sweden	None	500 mW allowed
	United Kingdom	Only 24.150-24.250 GHz	

Annex	Country	Restriction	Reason/remarks
Annex 1 Band O			
Non Specific Short Range Devices			
61.0-61.5 GHz			
	Austria	Not implemented	Awaiting ETSI standard
	Bulgaria	Not implemented	
	Croatia	License required	
	Denmark	Not implemented	No national interface
	France	Not implemented	
	Ireland	Not implemented	Assessing Demand
	Latvia	Not implemented	Under study
	Poland	Not implemented	Implementation planned
	United Kingdom	Not implemented	Under review
Annex 1 Band P			
Non Specific Short Range Devices			
122-123 GHz			
	Austria	Not implemented	Awaiting ETSI standard
	Croatia	License required	
	Denmark	Not implemented	No national interface
	France	Not implemented	
	Ireland	Not implemented	Assessing Demand
	Latvia	Not implemented	Under study
	Poland	Not implemented	Implementation planned
	Spain	Not Implemented	
	United Kingdom	Not implemented	Under review
Annex 1 Band Q			
Non Specific Short Range Devices			
244-246 GHz			
	Austria	Not implemented	Awaiting ETSI standard
	Croatia	License required	
	Denmark	Not implemented	No national interface
	France	Not implemented	
	Ireland	Not implemented	Under study
	Latvia	Not implemented	Under study
	Poland	Not implemented	Implementation planned
	Spain	Not Implemented	
	United Kingdom	Not implemented	Under review
Annex 2 Band B			
Avalanche Victims			
457 kHz			
	Belgium	Not applicable	
	Bulgaria	Not implemented	Under study
	Estonia	Not applicable	
	Ireland	Not implemented	
	Latvia	Not applicable	
	Poland	Not implemented	Implementation planned
	Portugal	Not implemented	Governmental band
	The Netherlands	Not applicable	

Annex	Country	Restriction	Reason/remarks
Annex 3 Band A			
RLANs and HIPERLANs			
2400-2483.5 MHz			
	Austria	Use of plug-in radio devices only with host equipment and external antennas as declared by the manufacturer	
	France	Limited to 2446.5-2483.5 with some geographical constraints and e.i.r.p limited to -20dBW/MHz. Indoor: 10 mW eirp in 2400-2446 MHz. Inside private area: 2446-2483.5 MHz with 100 mW with authorisation. Outside private area: the band is not opened	
	Hungary	Processing gain: min 10 dB, Antenna type: integral or external with max gain 6 dBi.	
	Italy	None	If used outside of own premises, general authorisation is required.
	Luxembourg	None	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	
	The Netherlands	10 mW licence free indoor and outdoor. 100 mW licence free indoor only. 100 mW with licence outdoor within 2451-2471 MHz	Protection of existing use Government and ENG/OB
	United Kingdom		System provider for third party traffic may require a Wireless Telegraphy and/or Telecommunications Act Licence

Annex 3 Band B**RLANs and HIPERLANs****5150-5350 MHz**

	Belgium	5250-5350 MHz excluded	
	Croatia	Licence required	
	Greece	Limited to 5250-5255 MHz	
	Hungary	5250-5350 MHz excluded	
	Ireland	Indoor use only	
	Italy	Limited to 5150-5250 MHz	The whole frequency band will be implemented within the first half of the year 2002. If used outside of own premises, general authorisation is required.
	Latvia	Not implemented	Under study
	Luxembourg	None	System provider for third party traffic may require a Telecommunications Act licence
	Poland	Not implemented	Implementation planned
	Spain	Not implemented	
	Sweden	Licence required	With standards - licence exempted
	Switzerland	Limited to 5250-5350 MHz	Exclusively military band
	The Netherlands	Limited to 5150-5300 MHz	Under study
	United Kingdom		System provider for third party traffic may require a Wireless Telegraphy and/or Telecommunications Act Licence

Annex	Country	Restriction	Reason/remarks
Annex 3 Band C			
RLANs and HIPERLANs			
5470-5725 MHz			
	Austria	Not implemented	Military band
	Bulgaria	Not implemented	
	Croatia	Licence required	
	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
	Italy	Not implemented	The frequency band will be implemented within the first half of the year 2002
	Latvia	Not implemented	Under study
	Luxembourg	None	System provider for third party traffic may require a Telecommunications Act licence
	Poland	Not implemented	Implementation planned
	Spain	Not implemented	
	Switzerland	Not implemented	Exclusive Military band
	The Netherlands	Not implemented	Implementation planned
	United Kingdom		System provider for third party traffic may require a Wireless Telegraphy and/or Telecommunications Act Licence

Annex 3 Band D**RLANs and HIPERLANs****17.1-17.3 GHz**

	Austria	Not implemented	Awaiting ETSI standard
	Croatia	Licence required	
	Finland	Licence required	
	France	Not implemented	Governmental band
	Germany	Not implemented	Under review
	Greece	Not implemented	Under study
	Italy	None	If used outside of own premises general authorisation is required
	Latvia	Not implemented	Under study
	Luxembourg	Not implemented	
	Poland	Not implemented	Implementation planned
	Sweden	Licence required	With standards - licence exempted
	Turkey	Not implemented	
	United Kingdom		System provider for third party traffic may require a Wireless Telegraphy and/or Telecommunications Act Licence

Annex	Country	Restriction	Reason/remarks
Annex 4 Band A			
Railway applications			
2446-2454 MHz			
	Estonia	Not implemented	
	Greece	Not implemented	
	Iceland	Not applicable	
	Italy	Not implemented	
	Latvia	Not implemented	Under study
	Portugal	Not implemented	
	Romania	Secondary basis. Individual licence required	
	Slovak Republic	Not implemented	
	Sweden	Licence required	
Annex 4 Band B			
Railway applications			
27.095 MHz			
	Estonia	Not implemented	
	Finland	None	Existing system at 27.115 MHz
	Iceland	Not applicable	
	Ireland	Not implemented	
	Italy	Not implemented	The frequency band will be implemented within the first half of the year 2002
	Latvia	Not implemented	Under study
	Portugal	None	Existing system at 27.115 MHz
	Sweden	Licence required	
	The Netherlands	Not implemented	
Annex 4 Band C			
Railway applications			
4515 kHz			
	Croatia	Not implemented	
	Estonia	Not implemented	
	Greece	Not implemented	Under study
	Iceland	Not applicable	
	Ireland	Not implemented	
	Italy	Not implemented	The frequency band will be implemented within the first half of the year 2002
	Latvia	Not implemented	Under study
	Luxembourg	Not implemented	
	Portugal	Not implemented	Governmental band
	Sweden	Licence required	
	The Netherlands	Not implemented	

Annex	Country	Restriction	Reason/remarks
Annex 5 Band A			
RTTT			
5795-5805 MHz			
	Estonia	Power limited to 2 W e.i.r.p.	
	Finland	Licence required	
	France	Power limited to 2 W e.i.r.p.	
	Italy	License required	General authorisation required
	Latvia	Not implemented	Under study
	Norway	Power limited to 2 W e.i.r.p.	
	Poland	Limited implementation	Fixed Services
	Romania	Not implemented	Under study
	Sweden	Individual licence required	
	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 5 Band B			
RTTT			
5805-5815 MHz			
	Estonia	Not implemented	
	Finland	Licence required	
	France	Not implemented	
	Latvia	Not implemented	Under study
	Luxembourg	None	System provider for third party traffic may require a Telecommunications Act licence
	Norway	Power limited to 2 W e.i.r.p.	
	Poland	Limited implementation	Fixed Services
	Portugal	Licence required	Under study
	Romania	Not implemented	Under study
	Sweden	Individual licence required	
	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 5 Band C			
RTTT			
63-64 GHz			
	Austria	Not implemented	Awaiting ETSI standard
	Croatia	Licence required	
	Estonia	Power limited to 2W e.I.r.p.	
	Finland	Licence required	
	Ireland	Not implemented	
	Italy	License required	General authorisation required
	Latvia	Not implemented	Under study
	Norway	National conformity assessment until the standard is available	
	Portugal	Not implemented	
	Romania	Not implemented	Under study
	Sweden	Individual licence required	

Annex	Country	Restriction	Reason/remarks
Annex 5 Band D			
RTTT			
76-77 GHz			
	Bulgaria	Not implemented	
	Croatia	Licence required	
	Ireland	Not implemented	
	Italy	License required	General authorisation required
	Latvia	Not implemented	Under study
	Portugal	Not implemented	Governmental band
	Sweden	Individual licence required	
Annex 6 Band A			
Movement Detection			
2400-2483.5 MHz			
	France	Limited to 2446-2454 MHz with max e.i.r.p 500 mW	
	Italy	Not implemented	The frequency band will be implemented within the first half of the year 2002
	Latvia	ERP < 10 mW	
	Romania	Not implemented	Under study
	Spain	Limited to 2445-2475 MHz	
	The Netherlands	Indoor use only	
	United Kingdom	Limited to 2445-2455 MHz	
Annex 6 Band B			
Movement Detection			
9200-9500 MHz			
	Bulgaria	Not implemented	
	Czech Republic	Individual licence required	
	Estonia	Not implemented	
	Finland	Not implemented	
	France	Not implemented	
	Italy	Not implemented	Military applications
	Latvia	Not implemented	Under study
	Norway	Not implemented	
	Poland	Not implemented	Implementation planned
	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 Detection			
9500-9975 MHz			
	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
	Norway	Not implemented	
	Poland	Not implemented	Implementation planned
	Slovak Republic	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 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	
	Latvia	Not implemented	Under study
	Luxembourg	In the band 10.5-10.6 GHz the e.i.r.p is limited to 25 mW	
	Poland	Limited implementation	Fixed Services
	Portugal	Licence required	
	Spain	Not implemented	
	Sweden	Limited to 10.51-10.58 GHz	Also 10.25-10.28 GHz and 10.35-10.38 GHz licenced
	Turkey	Not implemented	
	United Kingdom	Limited to 10.577-10.597 GHz	

Annex 6 Band E**Movement Detection****13.4-14.0 GHz**

	Bulgaria	Not implemented	
	Estonia	Not implemented	
	France	Not implemented	
	Latvia	Not implemented	Under study
	Norway	Not implemented	
	Poland	Not implemented	Implementation planned
	Spain	Not implemented	
	Sweden	Licence required	
	Turkey	Not implemented	

Annex	Country	Restriction	Reason/remarks
Annex 6 Band F			
Movement Detection			
24.05-24.25 GHz			
	Estonia	Not implemented	
	France	Limited to 24.075-24.175 GHz. 100 mW e.i.r.p. Higher power can be allowed after agreement with the armed forces	
	Latvia	Not implemented	Under study
	Poland	Not implemented	Implementation planned
	Sweden	None	500 mW allowed
	United Kingdom	Limited to 24.15-24.25 GHz	
Annex 7 Band A			
Alarms			
868.600-868.700 MHz			
	Bulgaria	Not implemented	
	Croatia	Licence required	
	Greece	Not implemented	Military or government use
	Latvia	Not implemented	Under study
	Poland	Not implemented	Implementation planned
	Romania	Not implemented	
	Slovak Republic	Not implemented	
Annex 7 Band B			
Alarms			
869.250-869.300 MHz			
	Bulgaria	Not implemented	
	Greece	Not implemented	Military or government use
	Hungary	Not implemented	
	Latvia	Not implemented	Under study
	Poland	Limited implementation	WLL services
	Romania	Not implemented	
	Slovak Republic	Not implemented	
Annex 7 Band C			
Alarms			
869.650-869.700 MHz			
	Bulgaria	Not implemented	
	Greece	Not implemented	Military or government use
	Hungary	Not implemented	
	Latvia	Not implemented	Under study
	Poland	Limited implementation	WLL services
	Romania	Not implemented	
	Slovak Republic	Not implemented	
Annex 7 Band D			
Alarms			
869.200-869.250 MHz			
	Bulgaria	Not implemented	
	Greece	Not implemented	Military or government use
	Poland	Limited implementation	WLL services
	Slovak Republic	Not implemented	

Annex	Country	Restriction	Reason/remarks
Annex 8 Band A			
Model Control			
26.995, 27.045, 27.095, 27.145, 27.195 MHz			
	France	Not implemented	Citizen band
	Ireland	Surface control only	
	Italy	None	Additional channels 27.235 and 27.275 MHz
	Latvia	ERP < 10 mW	
	Slovak Republic	Limited to 29.995 MHz	

Annex 8 Band B**Model Control****34.995-35.225 MHz**

	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	
	Italy	Not implemented	The frequency band will be implemented within the first half of the year 2002
	Latvia	Not implemented	Under study
	Norway	Limited to 30.005-30.305 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	
	Slovak Republic	Limited to 35-35.2 MHz	Occupied by military
	Sweden	Limited to 35.025-35.205 MHz	
	Switzerland	Not implemented	Implementation planned

Annex 8 Band C**Model Control****40.665, 40.675, 40.685, 40.695 MHz**

	France	Not implemented	
	Ireland	Surface control only	
	Italy	None	Additional channels 40.715, 40.725, 40.735, 40.765, 40.775, 40.785, 40.815, 40.825, 40.835, 40.865, 40.875 MHz, 72.080 and 72.240 MHz are also available for these applications
	Latvia	ERP <10 mW	
	The Netherlands	None	Additional channels: 40.725, 40.735, 40.765, 40.775, 40.785, 40.815, 40.825, 40.835, 40.865, 40.875, 40.885, 40.915, 40.925, 40.935, 40.965, 40.975, 40.985 MHz. Additional channels in 30 MHz: 30.085, 30.095, 30.105, 30.115, 30.185, 30.195 MHz

Annex	Country	Restriction	Reason/remarks
Annex 9 Band AA			
Inductive applications			
9-59.750 kHz			
	Bulgaria	Not implemented	
	Croatia	Individual licence required	
	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 applications****59.750-60.250 kHz**

	Bulgaria	Not implemented	
	Croatia	Individual licence required	
	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 applications****60.250-70 kHz**

	Bulgaria	Not implemented	
	Croatia	Individual licence required	
	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 B**Inductive applications****70-119 kHz**

	Bulgaria	Not implemented	
	Croatia	Individual licence required	
	Czech Republic	Individual licence required	
	Germany	The length of any antenna loop element shall be < 30 m.	
	Greece	Not implemented	Government use
	Latvia	Not implemented	Under study
	Romania	Not implemented	
	Spain	Limited to 115-119 kHz	

Annex	Country	Restriction	Reason/remarks
Annex 9 Band C			
Inductive applications			
119-135 kHz			
	Bulgaria	Not implemented	
	Croatia	Individual licence required	
	Czech Republic	Individual licence required	
	Germany	Within 127-135 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 D			
Inductive applications			
6765-6795 kHz			
	Bulgaria	Not implemented	
	Croatia	Individual licence required	
	Latvia	Not implemented	Under study
	Spain	Not implemented	
	The Netherlands	Spectrum mask limited to the ISM band	Lower limit outside ISM band not applicable (see figure 2). Requires secondary legislation
Annex 9 Band E			
Inductive applications			
7400-8800 kHz			
	Bulgaria	Not implemented	
	Croatia	Individual licence required	
	France	For anti-theft-detection devices	
	Greece	Not implemented	Governmental use - under study
	Italy	Not implemented	The frequency band will be implemented within the first half of the year 2002
	Italy	Not implemented	The frequency band will be implemented within the first half of the year 2002
	Latvia	Not implemented	Under study
Annex 9 Band F			
Inductive applications			
13.553-13.567 MHz			
	Bulgaria	Not implemented	
	Croatia	Individual licence required	
	Latvia	Not implemented	Under study
	The Netherlands	Spectrum mask limited to ISM band	Lower limit outside ISM band not applicable (see figure 2). Requires secondary legislation change.

Annex	Country	Restriction	Reason/remarks
Annex 9 Band G			
Inductive applications			
26.957-27.283 MHz			
	Croatia	Individual licence required	
	France	Not implemented	Citizen band
	Italy	Not implemented	The frequency band will be implemented within the first half of year 2002.
	Italy	Not implemented	The frequency band will be implemented within the first half of the year 2002
	Latvia	Not implemented	Under study
	Spain	Not Implemented	
Annex 10 Band A			
Radio microphones			
29.7-47.0 MHz			
	Austria	General licence for 36.8, 36.85, 37.45, 37.50, 37.55 MHz narrow band and 36.7, 37.1, 44.55, 45.0 MHz Broadband radio microphones	
	Croatia	Licence required	
	Czech Republic	Licence required	
	Denmark	32-39.4 MHz as listed in the Danish Radio Interface	
	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 max 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	
	Norway	Limited to 41.0-43.6 MHz Max ch spacing 10 kHz. Max 100 mW e.r.p. AM not allowed	
	Portugal	34.5 and 34.75 MHz available with 180 kHz and 1 mW erp	Under study
	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
	The Netherlands	Not implemented	Tuning range 36.6-38.8 MHz(first channel 36.62 MHz) 1 mW, 40 kHz spacing. Air interface alignment planned.
	Turkey	Limited to 29.7-41.0 MHz	
	United Kingdom	Individual licence required	

Annex	Country	Restriction	Reason/remarks
Annex 10 Band B			
Radio microphones			
173.965-174.015 MHz			
	Austria	Not implemented	
	Belgium	Not implemented	
	Bulgaria	Not implemented	
	Croatia	Licence required	
	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	under review
	Greece	Not implemented	Under study
	Hungary	Limited to 174-174.015 MHz	Under review
	Italy	Not implemented	PMR - the band will be implemented within the first half of the year 2002
	Latvia	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	
	Norway	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	
	Switzerland	Not implemented	Closely occupied with Mobile services
	The Netherlands	Not implemented	Planned. Requires sec legislation change

Annex 10 Band C**Radio microphones****863-865 MHz**

	Bulgaria	Not implemented	
	Croatia	Licence required	
	Greece	Not implemented	Military or government use
	Italy	Not implemented	Military applications - The frequency band will be implemented within the first half of the year 2002
	Poland	Limited implementation	CT2
	Portugal	Not implemented	Under study
	Romania	Limited to 845-862 MHz	

Annex	Country	Restriction	Reason/remarks
Annex 10 Band D			
Radio microphones			
174-216 MHz			
	Austria	Not implemented	
	Croatia	Licence required	
	Denmark	180.5-215.5 available only for handicapped	
	Estonia	Not implemented	
	Finland	Individual licence required - regional restrictions	Broadcasting usage
	France	175.5-178.5 and 183.5-186.5 MHz with 10 mW erp and 200 kHz channel spacing	
	Greece	Not implemented	Broadcasting
	Iceland	Individual licence required	
	Ireland	Not implemented	TV Broadcasting only
	Italy	None	216-223 MHz also available
	Latvia	Not implemented	Under study
	Norway	Not implemented	Allocated to Broadcasting Services
	Portugal	Not implemented	Under study
	Romania	Not implemented	
	Spain	Limited to 174.1, 174.3, 175.5, 176.3 and 179.3 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 microphones****470-862 MHz**

	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	Not implemented	TV Broadcasting only
	Italy	Limited to 470-854 MHz	854-862 MHz is exclusive military band
	Latvia	Not implemented	Under study
	Norway	Limited to 800-820 MHz max 20 mW erp	
	Poland	Limited implementation	Broadcasting services
	Portugal	Not implemented	Under study
	Romania	Not implemented	
	Slovak Republic	Limited to 470-838 MHz	Military band
	Spain	Not Implemented	
	Sweden	Individual licence required	
	The Netherlands	None	Tuning ranges: 550.125-556.875, 630.125- 636.875, 694.125-700.875, 774.125-781.875
	Ukraine	Individual licence required	

Annex	Country	Restriction	Reason/remarks
Annex 10 Band F			
Radio microphones			
1785-1800 MHz			
	Austria	General licence excluding guard bands	
	Bulgaria	Not implemented	
	Denmark	Not implemented	Will be implemented on market requirements
	Estonia	Not implemented	
	Finland	Individual licence required	
	Greece	Not implemented	Under study
	Italy	Not implemented	Military applications
	Latvia	Not implemented	Under study
	Luxembourg	Limited to 1785.7-1799.4 MHz	Guard bands to be respected
	Poland	Limited implementation	Broadcasting services
	Portugal	Not implemented	Under study
	Romania	Not implemented	
	Slovak Republic	Not implemented	
	Spain	Not implemented	
	Sweden	Individual licence required	
	The Netherlands	Not implemented	Planned. Requires sec legislation change.
	United Kingdom	Individual licence required	

Annex 11 Band A**RFID****2446-2454 MHz**

Estonia	Not implemented	
---------	-----------------	--

Annex 12 Band A**Medical Implants****402-405 MHz**

Bulgaria	Not implemented	
Croatia	Not implemented	
Greece	Not implemented	Under study
Latvia	Not implemented	Under study
Sweden	Not implemented	

Annex 13 Band A**Wireless Audio****863-865 MHz**

Bulgaria	Not implemented	
Croatia	Individual licence required	
Greece	Not implemented	Government use
Italy	Not implemented	Military applications - The frequency band will be implemented within the first half of the year 2002
Latvia	Not implemented	Under study
Poland	Limited implementation	CT2
Spain	Not implemented	

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	Channel spacing	ERC Decision	Notes
a 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	
c 26.957 - 27.283 MHz	42 dBuA/m at 10 m 10 mW 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	
e 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 e.r.p. -13 dBm/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
l 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	
l 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		
o 61.0 - 61.5 GHz	100 mW e.i.r.p.	No Restriction	No spacing		
p 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 should 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

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%	Continuous 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

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	Power	Duty cycle	Channel spacing	ERC Decision	Notes
a 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
c 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 also 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. averaged over the transmission burst at the highest power control setting.

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 / Magnetic field	Duty cycle	Channel spacing	ERC Decision	Notes
a 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		No spacing		Transmitting only on receipt of a Eurobalise telepowering signal from a train
c 4515 kHz	7 dBuA/m at 10 m	No Restriction	No spacing		

Additional Information

Harmonised Standards

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

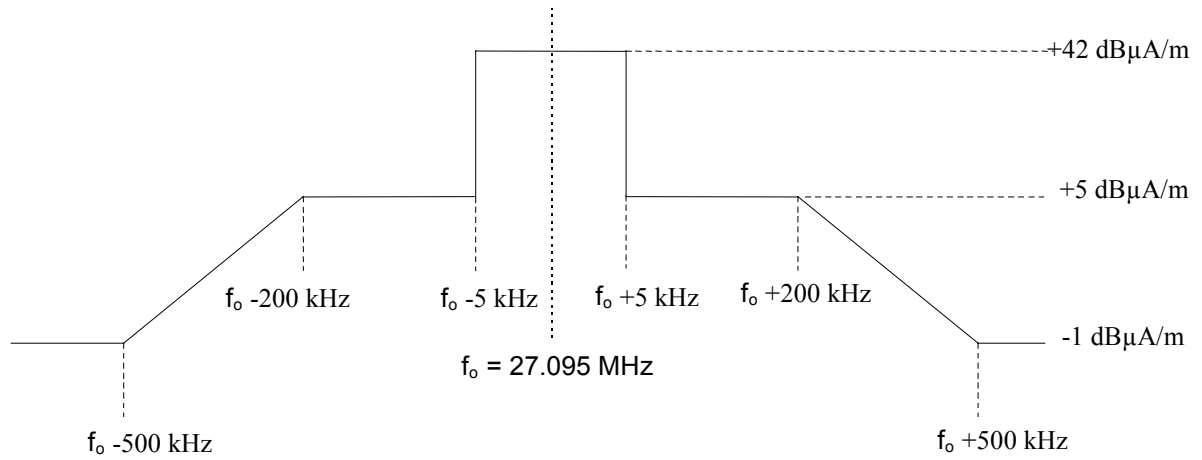
Frequency issues

No information

Technical parameters also referred to in the harmonised standard

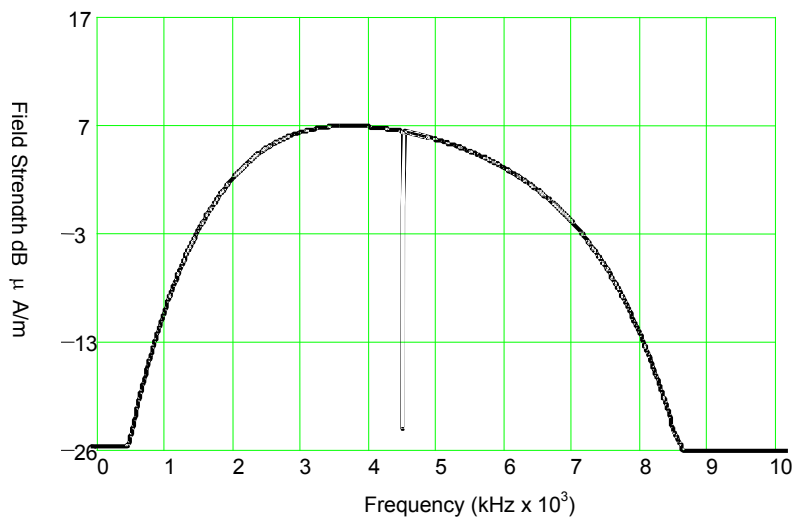
The maximum allowed H-field for the Eurobalise system is illustrated in Figure 1 and for Euroloop in Figure 2 on the next page.

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

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

Frequency Band	Power	Duty cycle	Channel spacing	ERC Decision	Notes
a 5795 - 5805 MHz	2 W 8 W	e.i.r.p. e.i.r.p.	No Restriction	ERC DEC (02)01	
b 5805 - 5815 MHz	2 W 8 W	e.i.r.p. e.i.r.p.	No Restriction	ERC DEC (02)01	Individual license required
c 63 - 64 GHz			No spacing	ERC 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	ERC DEC (02)01	Power level 55 dBm peak power - 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

No information

Annex 6 Equipment for Detecting Movement and Alert

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

Frequency Band	Power	Duty cycle	Channel spacing	ERC Decision	Notes
a 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		
c 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
e 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

No information

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
a 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	
c 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

No information

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. Additional frequencies or frequency bands may be available for use in particular 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
a 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
c 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

No information

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

Frequency 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 could be employed Field strength level decending 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 could be employed
ac 60.250 - 70 kHz	72 dBuA/m at 10 m	No Restriction	No spacing	ERC DEC (01)13	In case of external antennas only loop coil antennas could be employed Field strength level decending 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 could be employed
c 119 - 135 kHz	72 dBuA/m at 10 m	No Restriction	No spacing	ERC DEC (01)13	In case of external antennas only loop coil antennas could be employed Field strength level decending 3 dB/oct at 30 kHz
d 6765 - 6795 kHz	42 dBuA/m at 10 m	No Restriction	No spacing	ERC DEC (01)14	
e 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	

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 $10 \cdot \log(\text{area}/0.16 \text{ m}^2)$; for an antenna area less than 0.05 m² the field strength is reduced by 10 dB

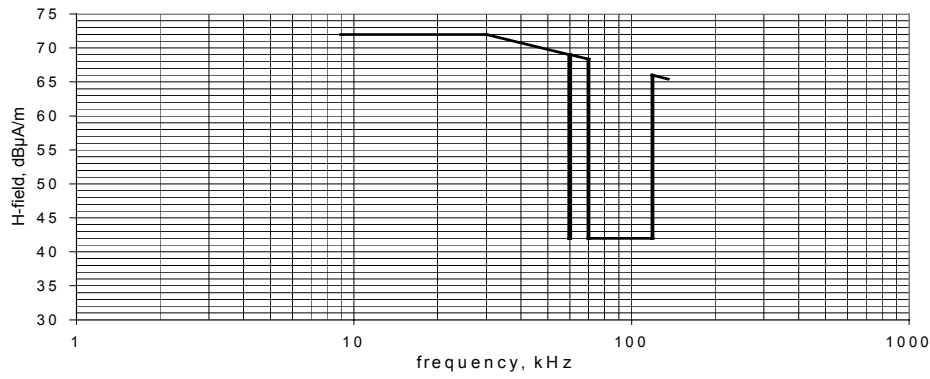
Particular attention should also be paid to the more stringent protection requirements identified by the ITU for global distress and safety communicaitons frequencies in the same or adjacent bands.

Technical parameters also referred to in the harmonised standard

The maximum allowed H-field for bands a) b) and c) is illustrated in Figure 1 on the next page

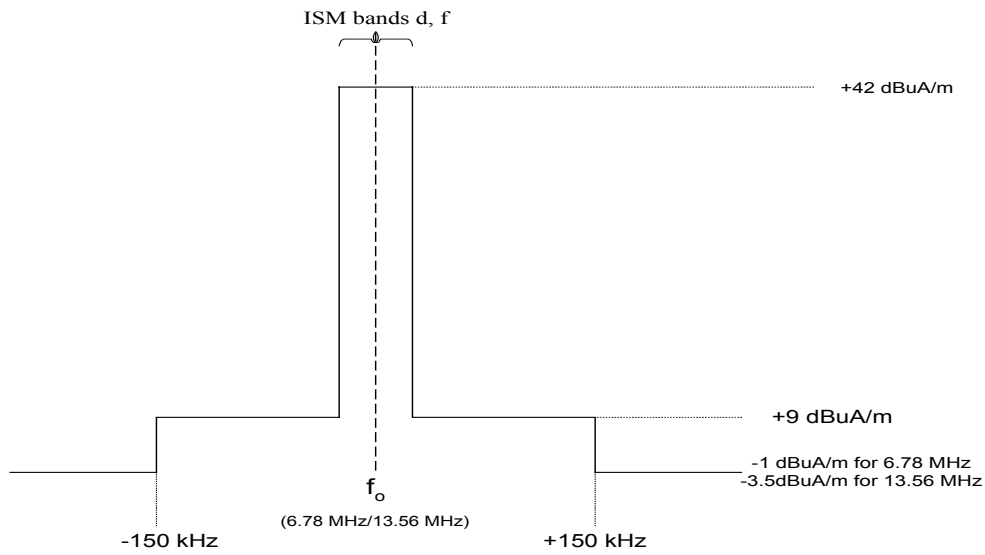
The maximum allowed H-field limits for bands d) and f) are illustrated in Figure 2 on the next page

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.

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

Frequency Band	Power		Duty cycle	Channel spacing	ERC Decision	Notes
a 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		
c 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
e 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 1785.0-1785.7 and 1799.4-1800 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

No information

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	500 mW e.i.r.p. 4 W e.i.r.p.	up to 100% < 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 within 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 degree horizontal beamwidth and >=15 dB sidelobe 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 automatic power control shall guarantee the reduction of the power to a maximum of 500 mW in cases where the device is moved and used outside the boundary of the user's building or premises as described above.

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

Frequency Band	Power	Duty cycle	Channel spacing	ERC Decision	Notes
a 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

Additional Information

Harmonised Standards

EN 300 220	Subband a)
EN 300 330	Subband b)

Frequency issues

No information

Technical parameters also referred to in the harmonised standard

No information

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 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.

Regulatory parameters related to Annex 13

Frequency Band	Power	Duty cycle	Channel spacing	ERC Decision	Notes	
a 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 Telecommunications Administrations
CB	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