CEPT ECC
Electronic Communications Committee

ERC Recommendation 70-03

Relating to the use of Short Range Devices (SRD)

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FOREWORD

This Recommendation sets out the CEPT position on common spectrum which can be designated for Short Range Devices (SRD) applications and is a reference document to assist in preparing national spectrum regulations. 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 entries within this Recommendation are available for SRD in all countries. Variations between this Recommendation and national spectrum usage restrictions are indicated in Appendix 1 and Appendix 3. The CEPT administrations are encouraged to regularly update and complete the appendix 1 and 3 through requests to change or direct changes to EFIS. Moreover, many administrations have designated additional spectrum on a national basis for SRD applications. It is advisable therefore to verify spectrum regulations in EFIS for the relevant CEPT administration(s) and/or by contacting the relevant national administration. If any discrepancies in Appendix 1 or 3 of this Recommendation are identified this should be brought to the attention of the ECO (Robin.Donoghue@eco.cept.org).

The position set out in this Recommendation is subject to continuous review.

Manufacturers and designers should consider that SRD operate in a shared spectrum environment and there is the potential for interference from other radio equipment. This should be taken into account in the design and manufacture of SRD.

This Recommendation is also electronically available in the EFIS database link.

For the CEPT country codes used in this Recommendation see link.

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INTRODUCTION

CEPT has adopted this Recommendation to deal with Short Range Devices and ETSI has developed European harmonised standards (HS) in support of the RE Directive for the majority of these devices.

The term “Short Range Device” (SRD) is intended to cover radio equipment which has a low capability to cause interference. The use of SRD is usually covered by general / non-exclusive authorisations on a non-protected, non-interference basis. SRD applications are not a “radiocommunication service” as defined by the ITU Radio Regulations in Article 1.

This Recommendation describes the spectrum usage requirements for SRD applications including the designated frequency bands, maximum radiated power/ field strength levels etc., channel spacing or modulation / maximum occupied bandwidth and duty cycle.

The conditions provided in the Annexes also apply for the use of SRD on-board aircraft, if such use is not explicitly excluded or restricted by sector-specific regulations in Recommendation 70-03 or other regulations. CEPT does not address aviation safety aspects. Aircraft operators, manufacturers and aircraft owners should consult the relevant national or regional aviation regulatory bodies before installing and using SRD devices on board aircraft. See also the explanatory document FM(19)075 - Annex 39 on 5 GHz RLAN in vehicles (cars, busses, on-board trains, on-board aircraft) (link) and also see the explanatory document FM(18)059 Annex 37 related to non-professional Unmanned Aircraft System (UAS) use under general authorisations (link).

Some Annexes may also contain information for Short Range Devices where individual licenses may be required on a national basis.

The following Annexes define the regulatory usage restrictions for SRD applications. References are given to applicable ETSI HS which specify technical characteristics and methods of measurement to demonstrate compliance of radio equipment with the Essential Requirements of the RE Directive, to allow placing of a product on the market.

Appendix 2 covers the relevant ECC/ERC Decisions and ECC/ERC Reports, ETSI standards and EC Decisions.

For countries having implemented the RE Directive further details can be found on the Office web sites (link).

The text of the RE Directive can be found (link).

Some SRD applications in this Recommendation are also subject to EU harmonisation measures implemented by EC Decisions, including Decision 2006/771/EC (and its amendments) and Decision 2018/1538/EU. These applications are identified by a footnote under “Additional Information” in the relevant Annex which also mentions any derogations. A list of relevant EC Decisions can be found in Appendix 2.

In accordance with relevant EC Decisions, Member States of the EU / EFTA may allow, at national level, equipment to operate under more permissive conditions than those specified in that EC Decision.

This Recommendation is intended to assist in the identification of frequencies and other regulatory parameters in CEPT member countries for the use (putting into service) of SRD. It is not intended to restrict the free movement of products within the EU / EEA and EFTA.

In accordance with Commission Decision 2000/299/EC radio equipment within the scope of the RE Directive falls into one of two classes as follows:

Class 1 - Radio equipment that can be used without any additional national restrictions in the EU, EEA and EFTA. According to Article 8.1(b) of the RE Directive, it is clarified that no national radio interface specification is required to be notified to the European Commission.

Class 2 - Radio equipment subject to restrictions on use in one or more of the EU, EEA and EFTA countries, where either:

- the technical usage parameters are not harmonised throughout the EU, EEA and EFTA; or
- the technical usage parameters are harmonised throughout EU, EEA and EFTA but do not fall within the above definition of class 1 radio equipment.

Information on RE Directive radio equipment classes is available on the EC website as well as in the EFIS database (link).

ERC RECOMMENDATION RELATING TO THE USE OF SHORT RANGE DEVICES (SRD)

"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 radio services;

b. that in general SRD cannot claim protection from interference caused by radiocommunication services as defined by ITU;

c. that due to the increasing use of SRD for a growing number of applications it is necessary to harmonise frequencies and regulations for these devices to allow an economy of scale and improve efficiency for users;

d. that there is a need to distinguish between distinct categories of SRD applications;

e. that additional applications and associated annexes will be added as necessary;

f. that maintenance of Appendices 1 and 3 and also the related cross-references in the Annexes may be undertaken by administrations or the ECO within EFIS, based on information from administrations;

g. that information about the use of SRD in each country, in addition to those covered in this Recommendation, can be obtained by contacting the relevant national administration;

h. that for those countries implementing the provisions of this Recommendation, national restrictions in respect of the annexes can be found in Appendix 3;

i. that applications for certain SRD within this Recommendation are also subject to Commission Implementing Decisions

j. that technical parameters in this Recommendation may differ from those in the Commission Implementing Decision, e.g. due to differences in document update cycles, etc;

k. that ETSI develops harmonised European standard(s), that may be cited in the Official Journal (OJ) of the European Union.

recommends

1. that CEPT administrations implement the parameters in accordance with the Annexes in this Recommendation;

2. that equipment intended to be used across borders should not exceed the technical parameters contained in the Annexes of this Recommendation;

3. 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."

ANNEX 1: NON-SPECIFIC SHORT RANGE DEVICES

Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters valid for all types of applications and also recommended primarily for Telemetry, Telecommand, Alarms and Data in general and other similar applications. Video applications should be preferably used above 2.4 GHz.

This annex also includes references to the generic UWB regulation which was primarily developed to allow communication applications using UWB technology in bands below 10.6 GHz; but enables also other types of radio applications.

Table 1: Regulatory parameters

Frequency Band		Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
a	13553-13567 kHz	10 mW e.r.p.	No requirement	Not specified		The frequency band and equivalent Magnetic Field is also identified in Annex 9
b	26957-27283 kHz	10 mW e.r.p.	No requirement	Not specified		The frequency band and equivalent Magnetic Field is also identified in Annex 9
c1	26990-27000 kHz	100 mW e.r.p.	≤ 0.1 % duty cycle	Not specified		The frequency band is also identified in Annex 8
c2	27040-27050 kHz	100 mW e.r.p.	≤ 0.1 % duty cycle	Not specified		The frequency band is also identified in Annex 8
c3	27090-27100 kHz	100 mW e.r.p.	≤ 0.1 % duty cycle	Not specified		The frequency band is also identified in Annex 8
c4	27140-27150 kHz	100 mW e.r.p.	≤ 0.1 % duty cycle	Not specified		The frequency band is also identified in Annex 8
c5	27190-27200 kHz	100 mW e.r.p.	≤ 0.1 % duty cycle	Not specified		The frequency band is also identified in Annex 8
d	40.66-40.7 MHz	10 mW e.r.p.	No requirement	Not specified		
e	138.2-138.45 MHz	10 mW e.r.p.	≤ 1% duty cycle	Not specified		
f1	169.4-169.475 MHz	500 mW e.r.p.	≤ 1% duty cycle	≤ 50 kHz	ECC/DEC/(05)02	The frequency band is also identified in Annexes 2 and 10
f2	169.4-169.4875 MHz	10 mW e.r.p.	≤ 0.1% duty cycle	Not specified	ECC/DEC/(05)02	

Frequency Band		Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
f3	169.4875-169.5875 MHz	10 mW e.r.p.	≤ 0.001% duty cycle except for 00:00 h to 06:00 h local time where the duty cycle limit is ≤ 0.1%	Not specified	ECC/DEC/(05)02	The frequency band is also identified in Annex 10
f4	169.5875-169.8125 MHz	10 mW e.r.p.	≤ 0.1% duty cycle	Not specified	ECC/DEC/(05)02	
g1	433.05-434.79 MHz	10 mW e.r.p.	≤ 10% duty cycle	Not specified		
g2	433.05-434.79 MHz	1 mW e.r.p.	No requirement (note 3)	Not specified		Power density limited to -13 dBm/10 kHz for wideband modulation with a bandwidth greater than 250 kHz
g3	434.04-434.79 MHz	10 mW e.r.p.	No requirement (note 3)	≤ 25 kHz		
h0	862-863 MHz	25 mW e.r.p.	≤ 0.1% duty cycle	≤ 350 kHz		
h1.0	863-870 MHz (note 2)	25 mW e.r.p.	≤ 0.1% duty cycle (note 1)	≤ 100 kHz for 47 or more hop channels		For FHSS. Parts of the frequency band are also identified in Annexes 2, 3, 10 and 11
h1.2	863-870 MHz (note 2)	25 mW e.r.p. -4.5 dBm/100 kHz e.r.p.	≤ 0.1% duty cycle or LBT+AFA	Not specified		For Non-FHSS. Parts of the frequency band are also identified in Annexes 2, 3, 10 and 11
h1.3	863-865 MHz	25 mW e.r.p.	≤ 0.1% duty cycle or LBT+AFA	Not specified		The frequency band is also identified in Annexes 3 and 10
h1.4	865-868 MHz	25 mW e.r.p.	≤ 1% duty cycle or LBT +AFA	Not specified		The frequency band is also identified in Annexes 2, 3 and 11
h1.5	868-868.6 MHz	25 mW e.r.p.	≤ 1% duty cycle or LBT +AFA	Not specified		
h1.6	868.7-869.2 MHz	25 mW e.r.p.	≤ 0.1% duty cycle or LBT+AFA	Not specified		
h1.7	869.4-869.65 MHz	500 mW e.r.p.	≤ 10% duty cycle or LBT+AFA	Not specified		
h1.8	869.7-870 MHz	5 mW e.r.p.	No requirement (note 3)	Not specified		
h1.9	869.7-870 MHz	25 mW e.r.p.	≤ 1% duty cycle or LBT +AFA	Not specified		

Frequency Band		Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
h2	870-874.4 MHz (note 6)	25 mW e.r.p.	≤ 1% duty cycle. For ER-GSM protection (873-876 MHz, where applicable): the duty cycle is limited to ≤ 0.01% and to a maximum transmit on time of 5ms/1s	≤ 600 kHz		For new implementations, administrations are encouraged to follow the technical conditions for SRD in data networks (see Annex 2). The frequency band is also identified in Annex 2
h3	915-919.4 MHz (note 7)	25 mW e.r.p. except within the RFID channels identified in note 5 where100 mW e.r.p. applies	≤ 1% duty cycle. For ER-GSM protection (918-921 MHz, where applicable): the duty cycle is limited to ≤ 0.01% and to a maximum transmit on-time of 5ms/1s	≤ 600 kHz except within the RFID channels identified in note 5 where ≤ 400 kHz applies		For new implementations, administrations are encouraged to follow the technical conditions for SRD in data networks (see Annex 2). The frequency band is also identified in Annexes 2, 3 and 11
i	2400-2483.5 MHz	10 mW e.i.r.p.	No requirement	Not specified		The frequency band is also identified in Annexes 3 and 6
j	5725-5875 MHz	25 mW e.i.r.p.	No requirement	Not specified		
k1	3100-4800 MHz	*	*	*	ECC/DEC/(06)04	Generic UWB regulation. * See detailed requirements in the related ECC Decision
k2	6000-9000 MHz	*	*	*	ECC/DEC/(06)04	Generic UWB regulation. * See detailed requirements in the related ECC Decision
l	6000-8500 MHz	*	*	*	ECC/DEC/(12)03	UWB regulation on-board aircraft. * See detailed requirements in the related ECC Decision
m	24-24.25 GHz	100 mW e.i.r.p.	No requirement	Not specified		The frequency band is also identified in Annex 5
n1	57-64 GHz	100 mW e.i.r.p. 10 mW output power	No requirement	Not specified		The frequency band is also identified in Annex 6 and within frequency bands in Annex 3
n2	61-61.5 GHz	100 mW e.i.r.p.	No requirement	Not specified		
o1	122-122.25 GHz	10 dBm/250 MHz e.i.r.p. -48 dBm/MHz at >30° elevation (note 4)	No requirement	Not specified		
o2	122.25-123 GHz	100 mW e.i.r.p.	No requirement	Not specified		

Frequency Band		Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
p	244-246 GHz	100 mW e.i.r.p.	No requirement	Not specified		

Note 1: The duty cycle applies to the entire transmission (not to each hop channel).
Note 2: Frequency bands for alarms (see Annex 7) are excluded.
Note 3: Voice applications are allowed with a maximum bandwidth of 25 kHz, with a spectrum access technique such as LBT or equivalent and a maximum transmit period of 1 minute for each transmission. Other audio/video applications are excluded.
Note 4: These limits should be measured with an rms detector and an averaging time of 1 ms or less.
Note 5: The available channel centre frequencies are 916.3 MHz, 917.5 MHz, and 918.7 MHz. The channel bandwidth is 400 kHz.
Note 6: Existing implementations in some countries include frequencies up to 876 MHz. See explanations under frequency issues for sub-bands h2) and h3).
Note 7: Existing implementations in some countries include frequencies up to 921 MHz. A fourth 100 mW e.r.p. / 400 kHz channel at centre frequency 919.9 MHz may be implemented. See explanations under frequency issues for sub-bands h2) and h3).

Additional Information

Harmonised Standards
EN 300 220 sub-bands b) to h3)
EN 300 330 sub-bands a) to b)
EN 300 440 sub-bands i) j) and m)
EN 305 550 sub-bands n1), n2), o1), o2) and p)
EN 302 065 sub-bands k1), k2) and l)

Technical parameters also referred to in the harmonised standard
Listen before talk (LBT) with Adaptive Frequency Agility (AFA) technique feature may be used instead of duty cycle.
LBT is defined in EN 300 220.

Frequency issues
The bands in Annex 1 a), b), c1) to c5), d), g1) to g3), i), j), m), n1), n2), o1), o2), p) are also designated for industrial, scientific and medical (ISM) applications as defined in ITU Radio Regulations.

Sub-band h0):
SRD vendors wishing to use the band 862-863 MHz should weigh the risk and accept responsibility for deciding themselves whether their specific applications shall be capable of operating in the presence of comparatively high ambient noise levels from out-of-band emissions of MFCN terminals and design their products accordingly.

Sub-bands h1.0) to h1.2) and h1.4):
Certain channels may be occupied by RFID interrogators transmitting at higher powers than SRD (see Annex 11). To minimise the risk of interference from RFID, SRD should use LBT with AFA or observe suitable separation distances. In the high power RFID interrogator channels, these may vary from 918 m (indoor) to 3.6 km (rural outdoor). In the remaining 2.2 MHz, where tags at -20 dBm e.r.p. occupy the spectrum, this may vary from 24 m (indoor) to 58 m (rural outdoor).

The adjacent frequency bands below 862 MHz and above 870 MHz may be occupied by systems using high transmission power. SRD manufacturers should take this into account in the design of equipment; choice of frequency bands and power levels.

Sub-bands h2) and h3):
Use of all or part of sub-bands h2) and h3) may be limited or not authorised for non-specific SRD in some countries where the sub-bands are used for defence / governmental systems. Further, some countries use the sub-bands 873-876 MHz and 918-921 MHz as extended GSM-R frequency bands, and therefore access to the frequency bands 873-876 / 918-921 MHz by non-specific SRD applications may require additional interference mitigation measures to be implemented such as transmission timing limitations, as set out in ECC Report 200.

CEPT considers a harmonised spectrum regulatory framework for the future railway mobile communications systems in 874.4-880 MHz and 919.4-925 MHz, and these frequency bands may require a review regarding their use in the future.

Some countries have existing implementations for SRD in the frequency ranges 874.4-876 MHz and 919.4-921 MHz. Appendixes 1 and 3 provide the status of national implementations. It is important that CEPT administrations provide information on any more restrictive or more relaxed national measures to ensure Appendixes 1 and 3 are up to date.

EC Decision 2018/1538/EU applies to EU Member States. CEPT administrations should refrain from introducing new SRD uses in 874.4-876 MHz and 919.4-921 MHz. It is recognised that, in several CEPT countries, existing implementations in these frequency ranges are not impacted by Article 3(4) of the EC Decision.

CEPT administrations wishing to implement new provisions for SRD are encouraged to consider national alignment with the technical conditions for SRD in data networks, as set out in Decision 2018/1538/EU, where all devices within the data network shall be under the control of a network access point (see Annex 2).

National rules, such as local coordination, may also be needed in order to avoid interference to radio services operating in the adjacent bands.

ANNEX 2: TRACKING, TRACING AND DATA AQUISITION

Scope of Annex

This annex covers frequency bands, regulatory and informative parameters recommended for tracking, tracing and data acquisition applications including:

- Emergency detection of buried victims and valuable items such as detecting avalanche victims;
- Person detection and collision avoidance;
- Meter reading;
- Sensors (water, gas, electricity, meteorology, pollution, etc.) and actuators (controlling devices such as street or traffic lights, etc.);
- Data acquisition;
- Wireless Industrial Applications (WIA) to be used in industrial environments including monitoring and worker communications, wireless sensors and actuators.

Table 2: Regulatory parameters

Frequency Band		Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
a1	442.2-450 kHz	7 dBµA/m at 10 m	No requirement	Continuous wave (CW) - no modulation, channel spacing ≥ 150 Hz		Person detection and collision avoidance
a2	456.9-457.1 kHz	7 dBµA/m at 10 m	No requirement	Continuous wave (CW) at 457 kHz - no modulation		Emergency detection of buried victims and valuable items
b	169.4-169.475 MHz	500 mW e.r.p.	≤ 10% duty cycle	≤ 50 kHz	ECC/DEC/(05)02	Meter Reading. The frequency band is also identified in Annex 1
c1	865-868 MHz (note 4)	500 mW e.r.p.	Adaptive Power Control (APC) required for spectrum sharing (note 1) and the following duty cycle restrictions also apply: ≤ 10% duty cycle for network access points; ≤ 2.5% duty cycle otherwise	≤ 200 kHz		Data networks (note 2). APC is able to reduce the equipment's ERP from its maximum to ≤ 5 mW. The frequency band is also identified in Annexes 1, 3 and 11

Frequency Band		Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
c2	870-874.4 MHz (note 5)	500 mW e.r.p.	Adaptive Power Control (APC) required for spectrum sharing (note 1) and the following duty cycle restrictions also apply: ≤ 10% duty cycle for network access points; ≤ 2.5% duty cycle otherwise	≤ 200 kHz		Data networks (notes 2 and 3). All nomadic and mobile devices within the data network shall be controlled by a master network access point (NAP). APC is able to reduce the equipment's ERP from its maximum to ≤ 5 mW. The frequency band is also identified in Annex 1
c3	917.3-918.9 MHz (Note 6)	500 mW e.r.p.	Adaptive Power Control (APC) required for spectrum sharing (note 1) and the following duty cycle restrictions also apply: ≤ 10% duty cycle for network access points; ≤ 2.5% duty cycle otherwise	≤ 200 kHz		Data networks (notes 2 and 8). All nomadic and mobile devices within the data network shall be controlled by a master network access point (NAP). APC is able to reduce the equipment's ERP from its maximum to ≤ 5 mW. The frequency band is also identified in Annexes 1, 3 and 11
c4	915-919.4 MHz	25 mW e.r.p.	≤ 1% duty cycle	≤ 600 kHz		Data networks (notes 2 and 8). All nomadic and mobile devices within the data network shall be controlled by a master network access point (NAP). The frequency band is also identified in Annexes 1, 3 and 11
d	5725-5875 MHz	400 mW e.i.r.p. Adaptive Power Control (APC) required	Adequate spectrum sharing mechanisms (e.g. DFS and DAA) shall be implemented (note 7)	≥ 1 MHz and ≤ 20 MHz		Wireless Industrial Applications (WIA). Registration and/or notification may be required. APC is able to reduce the e.i.r.p. to ≤ 25 mW. The frequency band is also identified in Annex 1

Note 1: Alternatively other mitigation techniques which achieve at least an equivalent level of spectrum compatibility.
Note 2: A network access point in a data network is a fixed terrestrial short range device that acts as a connection point for the other short range devices in the data network to service platforms located outside of that data network. The term data network refers to several short range devices, including the network access point, as network components and to the wireless connections between them.
Note 3: In some countries, usage may be limited such that installation and operation are performed only by professional users and individual authorisation may be required, e.g. to administer geographical sharing and/or the application of mitigation techniques to ensure protection of radio services. Individual authorisation or additional mitigation techniques (e.g. LBT) may also be applied to NAP in areas with a high number of NAP.
Note 4: Transmissions only permitted within the frequency ranges 865.6-865.8 MHz, 866.2-866.4 MHz, 866.8-867.0 MHz and 867.4-867.6 MHz.
Note 5: Existing implementations in some countries include frequencies up to 875.6 MHz. See explanations under frequency issues for sub-bands c2) to c4).
Note 6: Transmissions only permitted within the frequency ranges 917.3-917.7 MHz and 918.5-918.9 MHz.
Note 7: DFS is required in the frequency range 5725-5850 MHz to ensure an appropriate protection to the radiolocation service (including frequency hopping radars), DAA is required in the frequency range 5855-5875 MHz for the protection of ITS, in the frequency range 5725-5875 MHz for the protection of BFWA, and in the frequency range 5795-5815 MHz for the protection of TTT applications

Note 8: In some countries, usage may be limited such that installation and operation are performed only by professional users and individual authorisation may be required, e.g. to administer geographical sharing and/or the application of mitigation techniques to ensure protection of radio services.

Additional Information

Harmonised Standards
To be defined sub-band a1)
EN 300 718 sub-band a2)
EN 300 220 sub-band b)
EN 303 659 (in development) sub-bands c1), c3) and c4)
EN 303 204 sub-band c2)
EN 303 258 sub-band d) for WIA is under development

Technical parameters also referred to in the harmonised standard
Sub-band c1, c2) and c3
The harmonised standard should define adequate spectrum sharing mechanisms

EN 303 204 includes for network access points the requirement to implement LBT.

Frequency issues
Sub-bands c2) to c4):
Use of all or part of sub-bands c2) to c4) may be limited or not authorised for SRD in data networks in some countries where the sub-bands are used for defence / governmental systems. Further, some countries use the sub-bands 873-876 MHz and 918-921 MHz as extended GSM-R frequency bands; therefore geographical restrictions may apply.
CEPT is considering a harmonised spectrum regulatory framework for the future railway mobile communications systems in 874.4-880 / 919.4-925 MHz and these frequency bands may require a review regarding their use in the future.
Some countries have existing implementations for SRD in data networks in the frequency range 874.4-875.6 MHz. Appendixes 1 and 3 provide the status of national implementations. CEPT administrations should provide information on any more restrictive or more relaxed national measures to ensure Appendixes 1 and 3 are up to date.
EC Decision 2018/1538/EU applies to EU Member States. CEPT administrations should refrain from introducing new SRD uses in 874.4-876 MHz and 919.4-921 MHz. It is recognised that, in several CEPT countries, existing implementations in these frequency ranges are not impacted by Article 3(4) of the EC Decision.
National rules, such as local coordination, may also be needed in order to avoid interference to radio services operating in the adjacent bands.
With regard to sub-band c2), the frequency range 874-874.4 MHz is the European harmonised minimum core band according to EC Decision 2018/1538/EU.
With regard to sub-band c4), the frequency range 917.4-919.4 MHz is the European harmonised minimum core band according to EC Decision 2018/1538/EU.

ANNEX 3: WIDEBAND DATA TRANSMISSION SYSTEMS

Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for Wideband Data Transmission Systems.

Table 3: Regulatory parameters

Frequency Band		Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
a1	863-868 MHz	25 mW e.r.p.	≤ 10% duty cycle for network access points and polite spectrum access. ≤ 2.8% duty cycle otherwise and polite spectrum access	> 600 kHz ≤ 1 MHz		Wideband data transmission in data networks (note 1). The frequency band is also identified in Annexes 1, 2, 10 and 11
a2	915.8-919.4 MHz	25 mW e.r.p.	≤ 10% duty cycle for network access points and polite spectrum access. ≤ 2.8% duty cycle otherwise and polite spectrum access	> 600 kHz ≤ 1 MHz		Wideband data transmission in data networks (notes 1 and 2). All nomadic and mobile devices within the data network shall be controlled by a master network access point (NAP). The frequency band is also identified in Annexes 1, 2 and 11
b	2400-2483.5 MHz	100 mW e.i.r.p.	Adequate spectrum sharing mechanism (e.g. LBT and DAA) shall be implemented	Not specified		For wideband modulations other than FHSS, the maximum e.i.r.p. density is limited to 10 mW/MHz
c1	57-71 GHz	40 dBm e.i.r.p., 23 dBm/MHz e.i.r.p. density	Adequate spectrum sharing mechanism shall be implemented	Not specified		Fixed outdoor installations are not allowed.
c2	57-71 GHz	40 dBm e.i.r.p., 23 dBm/MHz e.i.r.p. density and maximum transmit power of 27 dBm at the antenna port or ports	Adequate spectrum sharing mechanism shall be implemented	Not specified	ECC Report 288	
c3	57-71 GHz	55 dBm e.i.r.p., 38 dBm/MHz e.i.r.p. density and transmit antenna gain ≥ 30 dBi	Adequate spectrum sharing mechanism shall be implemented	Not specified	ECC Report 288	Applies only to fixed outdoor installations (note 3)

Note 1: A network access point in a data network is a fixed terrestrial short range device that acts as a connection point for the other short range devices in the data network to service platforms located outside of that data network. The term data network refers to several short range devices, including the network access point, as network components and to the wireless connections between them.

Note 2: Usage may be limited such that installation and operation are performed only by professional users and individual authorisation may be required, e.g. to administer geographical sharing and/or the application of mitigation techniques to ensure protection of radio services.
Note 3: Some CEPT Administrations have an existing regulatory framework for the Fixed Service in 57-66 GHz and may implement a self-coordination mechanism similar to “light licensing” described in ECC Report 80.

Additional Information

Harmonised Standards
EN 304 220 (In development) sub-bands a1) and a2)
EN 300 328 sub-band b)
EN 302 567 (57-66 GHz) sub-band c1)
To be defined sub-bands c2) and c3)

Technical parameters also referred to in the harmonised standard
No information

Frequency issues
Sub-band a1):
The harmonised standard needs to define minimum requirements for the spectrum access protocol to lower the interference probability towards audio applications including ALD in 863-865 MHz, with a detection threshold requirement in line with ECC Report 261.

Sub-band a2):
Use of all or part of the sub-band a2) may be limited or not authorised for wideband data transmission systems in data networks in some countries where all or part of this sub-band is used for defence / governmental systems. Further, some countries use the sub-band 918-921 MHz as extended GSM-R frequency band; therefore geographical restrictions may apply. See Appendices 1 and 3 for national implementation concerning GSM-R and defence/governmental services.

ANNEX 4: RAILWAY APPLICATIONS

Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for applications specifically intended for use on railways.

The sub-bands below are intended for the following applications:

Band a) Balise up-link (ground to train) systems including Eurobalise;

Band b) Loop up-link (ground to train) systems including Euroloop;

Band c) Balise tele-powering and down-link (train to ground) systems including Eurobalise and activation of the Loop / Euroloop;

Band d) Obstruction/Vehicle detection via radar sensor at railway level crossings.

Table 4: Regulatory parameters

	Frequency Band	Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
a	984-7484 kHz	9 dBµA/m at 10 m	≤ 1% duty cycle	Not specified		Transmitting only on receipt of a Balise/ Eurobalise tele-powering signal from a train. Note: Centre frequency is 4234 kHz
b	7300-23000 kHz	-7 dBµA/m at 10 m	No requirement	Not specified		Maximum field strength specified in a bandwidth of 10 kHz, spatially averaged over any 200 m length of the loop. Transmitting only in presence of trains. Spread Spectrum Signal, Code Length: 472 Chips. Note: Centre frequency is 13.547 MHz
c	27090-27100 kHz	42 dBµA/m at 10 m	No requirement	Not specified		Tele-powering and Down-link signal for Balise/ Eurobalise. May also be optionally used for the activation of the Loop/Euroloop. Note: Centre frequency is 27.095 MHz
d	76-77 GHz	55 dBm peak e.i.r.p.	No requirement	Not specified		Obstruction/Vehicle detection via radar Sensor at railway level crossings. 50 dBm average power or 23.5 dBm average power for pulse radar. The frequency band is also included in Annex 5

Additional Information

Harmonised Standards
EN 302 608 sub-bands a) and c)
EN 302 609 sub-band b)
EN 301 091 sub-band d)

Technical parameters also referred to in the harmonised standard
Spectrum masks for Eurobalise and Euroloop are defined in ETSI standards EN 302 608 and EN 302 609, in accordance with the elements given in ECC Report 98.

Frequency issues
No information

ANNEX 5: TRANSPORT AND TRAFFIC TELEMATICS (TTT)

Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for radio systems used in the field of transport and traffic telematics (road, rail and water depending on the relevant technical restrictions), traffic management, navigation and mobility management. Typical applications are used for interfaces between different modes of transport, communication between vehicles (e.g. car-to-car), between vehicles and fixed locations (e.g. car-to-infrastructure), communication from and to users as well as radar system installations. Automotive radar is defined as a moving radar device supporting functions of the vehicle. Entry e2) is limited to obstacle detection radars for rotorcraft use.

Table 5: Regulatory parameters

Frequency Band		Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
a	5795-5805 MHz	2 W e.i.r.p. / 8 W e.i.r.p.	No requirement			Individual license may be required for the higher power of 8 W systems
b	5805-5815 MHz	2 W e.i.r.p. / 8 W e.i.r.p.	No requirement			Individual license may be required
c1	21.65-26.65 GHz	*	*	*	ECC/DEC/(04)10	For automotive Short Range Radars (SRR). * See detailed requirements in related ECC Decision. New SRR equipment shall not be placed onto the market
c2	24.25-26.65 GHz	*	*	*	ECC/DEC/(04)10	For automotive Short Range Radars (SRR). See detailed requirements in related ECC Decision. SRR equipment may only be placed onto the market until 1 January 2018. This date is extended by 4 years for SRR equipment mounted on motor vehicles for which vehicle conformity compliance has been granted before 1 January 2018
d1	24.05-24.075 GHz	100 mW e.i.r.p.	No requirement			For automotive radars
d2	24.075-24.15 GHz	0.1 mW e.i.r.p.	No requirement			For automotive radars

	Frequency Band	Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
d3	24.075-24.15 GHz	100 mW e.i.r.p.	≤ 4µs/40 kHz dwell time every 3ms			For automotive radars (road vehicles only). The spectrum access and mitigation requirement is given for devices mounted behind a bumper. If mounted without a bumper, the requirement should be 3µs/40kHz maximum dwell time every 3ms. A requirement for minimum frequency modulation range (applicable to FMCW or step frequency signals) or minimum instantaneous bandwidth (applicable to pulsed signal) of 250 kHz applies in addition to the requirement on maximum dwell time
d4	24.075-24.15 GHz	100 mW e.i.r.p.	≤ 1ms/40 kHz dwell time every 40ms			For automotive radars (road vehicles only). The spectrum access and mitigation requirement is given for devices mounted either behind a bumper or mounted without a bumper. A requirement for minimum frequency modulation range (applicable to FMCW or step frequency signals) or minimum instantaneous bandwidth (applicable to pulsed signal) of 250 kHz applies in addition to the requirement on maximum dwell time
d5	24.15-24.25 GHz	100 mW e.i.r.p.	No requirement			For automotive radars (road vehicles only)
e1	76-77 GHz	55 dBm peak e.i.r.p.	(note 1)	Not specified	ECC Report 262	50 dBm average power or 23.5 dBm average power for pulse radar only. For ground based vehicle and infrastructure systems only. The frequency band is also included in Annex 4
e2	76-77 GHz	*	*	*	ECC/DEC/(16)01	For obstacle detection radars for rotorcraft use. Use is not possible in specific areas of some European countries due to exclusion zones implementation around RAS observatories. * See detailed requirements in related ECC Decision
f	5855-5875 MHz	*	*		ECC/REC/(08)01	For ITS non-safety applications * See detailed requirements in related ECC Recommendation

Note 1: Fixed transportation infrastructure radars have to be of a scanning nature in order to limit the illumination time and ensure a minimum silent time to achieve coexistence with automotive radar systems.

Additional Information

Harmonised Standards
EN 300 674 sub-bands a), b)
EN 302 571 sub-band f)
EN 301 091 sub-band e1)
EN 302 288 sub-band c2)
EN 302 858 sub-bands d1) to d5)
EN 303 360 sub-band e2)

Technical parameters also referred to in the harmonised standard
No information

Frequency issues
Sub-bands d1) to d5) as well as c1), c2):
Note that the regulation in the bands d1) to d5) for the band 24.05-24.25 GHz for automotive radars is without any plans for a time limit within CEPT (see document ECC(15)058). Only the bands c1), c2) for Short Range Radar (SRR) are time limited.

ANNEX 6: RADIODETERMINATION APPLICATIONS

Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for SRD radiodetermination applications including Equipment for Detecting Movement and Alert. Radiodetermination is defined as the determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to these parameters, by means of the propagation properties of radio waves.

Radiodetermination equipment typically conducts measurements to obtain such characteristics. Any kind of point-to-point or point-to-multipoint radio communications is outside of this definition.

Table 6: Regulatory parameters

	Frequency Band	Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
a	30 MHz-12.4 GHz	*	*	*	ECC/DEC/(06)08	For Ground- and Wall- Probing Radar (GPR/WPR) imaging systems, subject to an appropriate licensing regime. * See detailed requirements in related ECC Decision
b	2200-8000 MHz	*	*	*	ECC/DEC/(07)01	For Material Sensing Devices. * See detailed requirements in related ECC Decision
c	2400-2483.5 MHz	25 mW e.i.r.p.	No requirement	Not specified		
d	3100-4800 MHz	*	*	*	ECC/REC/(11)09	For UWB Location Tracking Systems Type 2 (LT2), subject to an appropriate licensing regime. * See detailed requirements in related ECC Recommendation
e	3100-4800 MHz	*	*	*	ECC/REC/(11)10	For UWB Location tracking application for emergency and disaster situations (LAES), subject to an appropriate licensing regime. * See detailed requirements in related ECC Recommendation
f1	4500-7000 MHz	-41.3 dBm/MHz e.i.r.p. outside the enclosed test tank structure	No requirement	Not specified		For Tank Level Probing Radar (TLPR)

Frequency Band		Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
f2	8500 MHz-10.6 GHz	-41.3 dBm/MHz e.i.r.p. outside the enclosed test tank structure	No requirement	Not specified		For Tank Level Probing Radar (TLPR). The radiated unwanted emissions within the frequency band 10.6-10.7 GHz outside the test tank enclosure shall be less than -60 dBm/MHz e.i.r.p.
f3	24.05-27 GHz	-41.3 dBm/MHz e.i.r.p. outside the enclosed test tank structure	No requirement	Not specified		For Tank Level Probing Radar (TLPR)
f4	57-64 GHz	-41.3 dBm/MHz e.i.r.p. outside the enclosed test tank structure	No requirement	Not specified		For Tank Level Probing Radar (TLPR)
f5	75-85 GHz	-41.3 dBm/MHz e.i.r.p. outside the enclosed test tank structure	No requirement	Not specified		For Tank Level Probing Radar (TLPR)
g1	6000-8500 MHz	*	*	Not specified	ECC/DEC/(11)02	For Industrial Level Probing Radar (LPR). *See detailed requirements in related ECC Decision
g2	24.05-26.5 GHz	*	*	Not specified	ECC/DEC/(11)02	For Industrial Level Probing Radar (LPR). *See detailed requirements in related ECC Decision
g3	57-64 GHz	*	*	Not specified	ECC/DEC/(11)02	For Industrial Level Probing Radar (LPR). *See detailed requirements in related ECC Decision
g4	75-85 GHz	*	*	Not specified	ECC/DEC/(11)02	For Industrial Level Probing Radar (LPR). *See detailed requirements in related ECC Decision
h	9200-9500 MHz	25 mW e.i.r.p.	No requirement	Not specified		
i	9500-9975 MHz	25 mW e.i.r.p.	No requirement	Not specified		
j	10.5-10.6 GHz	500 mW e.i.r.p.	No requirement	Not specified		
k	13.4-14 GHz	25 mW e.i.r.p.	No requirement	Not specified		
l	17.1-17.3 GHz	26 dBm e.i.r.p.	DAA	Not specified		For Ground Based Synthetic Aperture Radar (GBSAR). Specific requirements for the radar antenna pattern and for the implementation of Detect And Avoid (DAA) technique apply as described in EN 300 440
m	24.05-24.25 GHz	100 mW e.i.r.p.	No requirement	Not specified		The frequency band 24.0-24.25 GHz is identified with the same emission parameters in Annex 1 band m

Frequency Band		Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
n1	100 Hz-148 kHz	46 dBµA/m at 10 m distance at 100 Hz outside the NMR device	No requirement	Not specified		For enclosed Nuclear Magnetic Resonance (NMR) applications. Magnetic field strength descending 10dB/decade above 100 Hz
n2	148-5000 kHz	-15 dBµA/m at 10 m distance outside the NMR device	No requirement	Not specified		For enclosed Nuclear Magnetic Resonance (NMR) applications
n3	5000 kHz-30 MHz	-5 dBµA/m at 10 m distance outside the NMR device	No requirement	Not specified		For enclosed Nuclear Magnetic Resonance (NMR) applications
n4	30-130 MHz	-36 dBm e.r.p. outside the NMR device	No requirement	Not specified		For enclosed Nuclear Magnetic Resonance (NMR) applications
o	76-77 GHz	*	*	*	ECC/DEC/(21)02	For High Definition Ground Based Synthetic Aperture Radar (HD-GBSAR) Use is not possible in specific areas of some European countries due to exclusion zones implementation around RAS observatories in case of free line of sight. RAS exclusion zones and DAA are required only in case of outdoor use of HD-GBSAR. * See detailed requirements in related ECC Decision

Additional Information

Harmonised Standards
EN 300 440 sub-bands c), h), i), j), k), l), m)
EN 302 372 sub-bands f1), f2), f3), f4), f5)
EN 302 729 sub-bands g1), g2), g3), g4)
EN 302 066 sub-band a)
EN 302 065 sub-bands b), d), e)
Sub-bands n1) to n4) to be defined
EN 303 661 sub-band o)

Technical parameters also referred to in the harmonised standard
No information

Frequency issues
Sub-bands n1) to n4):
Enclosed NMR sensors are devices where the material/object under investigation is put inside the enclosure of the NMR device.

NMR techniques use nuclear magnetic resonance excitation and magnetic field strength response of a material/object under test to get information about material properties based on resonance frequency responses of isotopes of atoms. Nuclear magnetic resonance imaging and magnetic resonance tomography systems are not included in this scope.

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 sub-bands below are intended for the following applications:

Alarms in sub-bands a), c), d), e);

Social Alarms in sub-band b).

Table 7: Regulatory parameters

	Frequency Band	Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
a	868.6-868.7 MHz	10 mW e.r.p.	≤ 1.0 % duty cycle	≤ 25 kHz		The whole frequency band may also be used as1 channel for high speed data transmissions
b	869.2-869.25 MHz	10 mW e.r.p.	≤ 0.1 % duty cycle	≤ 25 kHz		Social Alarms
c	869.25-869.3 MHz	10 mW e.r.p.	≤ 0.1 % duty cycle	≤ 25 kHz		
d	869.3-869.4 MHz	10 mW e.r.p.	≤ 1.0 % duty cycle	≤ 25 kHz		
e	869.65-869.7 MHz	25 mW e.r.p.	≤ 10 % duty cycle	≤ 25 kHz		

Additional Information

Harmonised Standards
EN 300 220 all sub-bands

Technical parameters also referred to in the harmonised standard
No information

Frequency issues
No information

ANNEX 8: MODEL CONTROL

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.

Table 8: Regulatory parameters

	Frequency Band	Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
a1	26990-27000 kHz	100 mW e.r.p.	No requirement	≤ 10 kHz		
a2	27040-27050 kHz	100 mW e.r.p.	No requirement	≤ 10 kHz		
a3	27090-27100 kHz	100 mW e.r.p.	No requirement	≤ 10 kHz		
a4	27140-27150 kHz	100 mW e.r.p.	No requirement	≤ 10 kHz		
a5	27190-27200 kHz	100 mW e.r.p.	No requirement	≤ 10 kHz		
b	34.995-35.225 MHz	100 mW e.r.p.	No requirement	≤ 10 kHz	ERC/DEC/(01)11	Only for flying models
c1	40.66-40.67 MHz	100 mW e.r.p.	No requirement	≤ 10 kHz	ERC/DEC/(01)12	
c2	40.67-40.68 MHz	100 mW e.r.p.	No requirement	≤ 10 kHz	ERC/DEC/(01)12	
c3	40.68-40.69 MHz	100 mW e.r.p.	No requirement	≤ 10 kHz	ERC/DEC/(01)12	
c4	40.69-40.7 MHz	100 mW e.r.p.	No requirement	≤ 10 kHz	ERC/DEC/(01)12	

Additional Information

Harmonised Standards
EN 300 220 all sub-bands

Technical parameters also referred to in the harmonised standard
No information

Frequency issues
No information

ANNEX 9: INDUCTIVE APPLICATIONS

Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for inductive loop systems, which use magnetic fields for near field communication and determination applications. This includes for example: • car immobilisers, • radio frequency identification (RFID) applications including for example automatic article identification, asset tracking, alarm systems, waste management, personal identification, access control, proximity sensors, antitheft systems, location systems, NFC applications e.g. used for data transfer to handheld devices, anti-theft systems including RF anti- theft induction systems (e.g. EAS), • metal and proximity sensors, • wireless control systems, • animal identification, • cable detection, • wireless voice links, • automatic road tolling.

It should be noted that other types of anti-theft systems can be operated in accordance with other relevant annexes.

Table 9: Regulatory parameters

	Frequency Band	Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
a0	100 Hz-9 kHz	82 dBµA/m at 10 m	No requirement	Not specified		Antenna size of < 1/20 λ (see note 1)
a1	9-90 kHz	72 dBµA/m at 10 m - The limit is reduced according to Table 9bis	No requirement	Not specified		In case of external antennas only loop coil antennas may be employed. Magnetic field strength level descending 3 dB/octave above 30 kHz
a2	90-119 kHz	42 dBµA/m at 10 m	No requirement	Not specified		In case of external antennas only loop coil antennas may be employed
a3	119-135 kHz	66 dBµA/m at 10 m - The limit is reduced according to Table 9bis	No requirement	See note 2		In case of external antennas only loop coil antennas may be employed. Magnetic field strength level descending 3 dB/octave above 119 kHz
b	135-140 kHz	42 dBµA/m at 10 m	No requirement	Not specified		In case of external antennas only loop coil antennas may be employed
c	140-148.5 kHz	37.7 dBµA/m at 10 m	No requirement	Not specified		In case of external antennas only loop coil antennas may be employed
d	400-600 kHz	-5 dBµA/m at 10 m in total -8 dBµA/m at 10 m per 10 kHz	No requirement	≥ 30kHz		For RFID only. In case of external antennas only loop coil antennas may be employed.
e	3155-3400 kHz	13.5 dBµA/m at 10 m	No requirement	Not specified		In case of external antennas only loop coil antennas may be employed
f	6765-6795 kHz	42 dBµA/m at 10 m	No requirement	Not specified		
g	7400-8800 kHz	9 dBµA/m at 10 m	No requirement	Not specified		

Frequency Band		Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
h	10200-11000 kHz	9 dBµA/m at 10 m	No requirement	Not specified		
i	13553-13567 kHz	42 dBµA/m at 10 m	No requirement	See note 3		
j	13553-13567 kHz	60 dBµA/m at 10 m	No requirement	See note 3	ECC Report 208	For RFID only
k1	148.5-5000 kHz	-5 dBµA/m at 10 m in total -15 dBµA/m at 10 m per 10 kHz (see also Table 9bis)	No requirement	Not specified		In case of external antennas only loop coil antennas may be employed.
k2	5000 kHz-30 MHz	-5 dBµA/m at 10 m in total -20 dBµA/m at 10 m per 10 kHz	No requirement	Not specified		In case of external antennas only loop coil antennas may be employed.

Table 9bis: Standard frequency and time signals to be protected within 9-90 kHz and 119-135 kHz

Stations	Frequency	Protection bandwidth	Maximum field strength at 10 m	Location
MSF	60 kHz	+/-250Hz	42 dBµA/m	United Kingdom
HBG	75 kHz	+/-250Hz	42 dBµA/m	Switzerland
DCF77	77.5 kHz	+/-250Hz	42 dBµA/m	Germany
DCF49	129.1 kHz	+/-500Hz	42 dBµA/m	Germany
ALS162	162 kHz	+/-250Hz	-15 dBµA/m	France

Additional Information

Harmonised Standards
EN 303 660 sub-band a0) (under development)
EN 303 447 sub-bands a0), a1) to a3), b) and c)
EN 303 454 sub-bands a0), a1) to a3), b) and c)
EN 300 330 all sub-bands except a0)
EN 302 536 sub-band k1)

Technical parameters also referred to in the harmonised standard
Note 1: Sub-band a0):
The antenna size is described by the distance between those two points on the antenna that have the largest distance between them (e.g. for a rectangle shaped antenna the largest diagonal; for a circular shaped antenna the diameter).
Sub-bands a1) and a3):
In case of loop antennas used within bands a1) and a3) integral or dedicated within an area between 0.05 m² and 0.16 m², the field strength is reduced by 10 x log (area/0.16 m²); for an antenna area less than 0.05 m² the field strength is reduced by 10 dB.

Note 2: Sub-band a3):
RFID operating in the frequency sub-band 119-135 kHz shall meet the spectrum mask given in EN 300 330. This will permit a simultaneous use of the various sub-bands within the range 90-148.5 kHz.

Note 3: Sub-bands i) and j):
Devices operating in the 13.56 MHz band shall meet the transmission mask and antenna requirements for all combined frequency segments, including the limits in the sub-bands k1) and k2), as described in harmonised standard EN 300 330. This will permit the simultaneous use of the sub-bands i) or j) together with the limits of the sub-bands k1) and k2).

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

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

Sub-band a0):
Some administrations do not regulate use below 9 kHz, but the provided limits allow usage on a non-interfering basis. See national implementation status (Appendix 1).

ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS

Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for radio microphone applications (also referred to as wireless microphones or cordless microphones), Assistive Listening Devices (ALD) (also referred to as aids for the hearing impaired) and wireless audio and multimedia streaming systems.

It covers professional and consumer radio microphones, both hand-held and body-worn, in-ear monitoring devices and Assistive Listening Devices (ALD).

Radio microphones are small, low power (typically 50 mW or less) transmitters designed to be worn on the body, or hand held, for the transmission of sound. The receivers are tailored to specific uses and may range from small and portable to rack mounted modules as part of a multichannel system. ALD are specific radio microphone applications which capture an acoustic signal that is transmitted by radio to the hearing aid receivers.

It also covers wireless audio and multimedia streaming systems used for audio/video transmissions and audio/video synchronisation signals including cordless loudspeakers; cordless headphones; Band II low power FM transmitters operating in the FM Broadcast band 87.5 MHz to 108 MHz are used for the provision of an RF link between a personal audio device, including mobile phone, and the in-car or home entertainment system etc.

Assistive Listening Systems (ALS) are for use by the hearing impaired in public spaces such as airports, railway stations, churches and theatres, where the transmitter is connected to the audio programme or public address system and the receiver is worn by hearing-impaired users, or integrated into users' hearing aids.

Frequency band limits for radio microphones 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 and licensing restrictions are likely to exist and the national administration should be contacted.

The sub-bands below are intended for the following applications:

- ALD: sub-bands b), c1), c2), d), g),
- Radio microphones: sub-bands a1), e), f1), f2), f3), f4), g),h1), h2), h3), j1), j2), j3),
- Wireless audio and multimedia streaming systems: sub-bands g), and j2),
- Band II low power FM transmitters: sub-band a2),
- ALS: sub-band i),
- Inductive loop systems intended to assist the hearing impaired: sub-bands a0).

Table 10: Regulatory parameters

Frequency Band		Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
a0	100 Hz-9 kHz	120 dBµA/m at 10 m	No requirement	Not specified		Inductive loop systems intended to assist the hearing impaired. Antenna size of < 1/20 λ (see note 3)
a1	29.7-47 MHz	10 mW e.r.p.	No requirement	≤ 50 kHz		Radio microphones. On a tuning range basis. Individual licence may be required
a2	87.5-108 MHz	50 nW e.r.p.	No requirement	200 kHz		Band II low power FM transmitters (see note 4)
b	169.4-174 MHz	10 mW e.r.p.	No requirement	≤ 50 kHz		Assistive Listening Device (ALD). On a tuning range basis
c1	169.4-169.475 MHz	500 mW e.r.p.	No requirement	≤ 50 kHz	ECC/DEC/(05)02	Assistive Listening Device (ALD)
c2	169.4875-169.5875 MHz	500 mW e.r.p.	No requirement	≤ 50 kHz	ECC/DEC/(05)02	Assistive Listening Device (ALD)
d	173.965-216 MHz	10 mW e.r.p.	See Notes 1 and 2	≤ 50 kHz	ECC Report 230	Assistive Listening Device (ALD). On a tuning range basis. Individual licence may be required
e	174-216 MHz	50 mW e.r.p.	No requirement	Not specified		Radio microphones. On a tuning range basis. Individual licence may be required
f1	470-786 MHz	50 mW e.r.p.	No requirement	Not specified		Radio microphones. On a tuning range basis. Individual licence may be required
f2	786-789 MHz	12 mW e.r.p.	No requirement	Not specified		Radio microphones. On a tuning range basis. Individual licence may be required. See technical conditions for PMSE (including radio microphones) in Annex 3 of Decision ECC/DEC/(09)03 section 3.1
f3	823-826 MHz	20 mW e.i.r.p. / 100 mW e.i.r.p.	No requirement	Not specified		Radio microphones. Individual licence may be required. 100 mW restricted to body worn equipment. See technical conditions for PMSE (including radio microphones) in Annex 3 of Decision ECC/DEC/(09)03 section 3.1
f4	826-832 MHz	100 mW e.i.r.p.	No requirement	Not specified		Radio microphones. Individual licence may be required. See technical conditions for PMSE (including radio microphones) in Annex 3 of Decision ECC/DEC/(09)03 section 3.1
g	863-865 MHz	10 mW e.r.p.	No requirement	Not specified		Radio microphones, wireless audio and multimedia streaming devices. The frequency band is also identified in Annex 1

Frequency Band		Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
h1	1350-1400 MHz	20 mW e.i.r.p. / 50 mW e.i.r.p.	No requirement/SSP (see notes column)	Not specified		Radio microphones. Individual licence may be required. 50 mW restricted to body worn equipment or equipment with Spectrum Scanning Procedure (SSP) implemented for the 1350-1400 MHz band
h2	1492-1518 MHz	50 mW e.i.r.p	No requirement	Not specified		Radio microphones. On a tuning range basis. Individual licence required. Restricted to indoor use
h3	1518-1525 MHz	50 mW e.i.r.p.	No requirement	Not specified		Radio microphones. On a tuning range basis. Individual licence required. Restricted to indoor use
i	1656.5-1660.5 MHz	2 mW/ 600 kHz e.i.r.p	No requirement	Not specified	ECC Report 270	Assistive Listening Systems. Individual licence may be required. See conditions in Annex 4 of ECC Report 270
j1	1785-1795 MHz	20 mW e.i.r.p. / 50 mW e.i.r.p.	No requirement	Not specified		Radio microphones. Individual licence may be required. 50 mW restricted to body worn equipment or equipment with Spectrum Scanning Procedure (SSP) implemented for the 1785-1804.8 MHz band
j2	1795-1800 MHz	20 mW e.i.r.p. / 50 mW e.i.r.p.	No requirement	Not specified		Radio microphones including wireless audio and multimedia streaming devices. Individual licence may be required. 50 mW restricted to body worn equipment or equipment with Spectrum Scanning Procedure (SSP) implemented for the 1785-1804.8 MHz band
j3	1800-1804.8 MHz	20 mW e.i.r.p. / 50 mW e.i.r.p.	No requirement	Not specified		Radio microphones. Individual licence may be required 50 mW restricted to body worn equipment or equipment with Spectrum Scanning Procedure (SSP) implemented for the 1785-1804.8 MHz band

Note 1: A threshold of 35 dBµV/m is required to ensure the protection of a DAB receiver located at 1.5m from the ALD device, subject to DAB signal strength measurements taken around the ALD operating site.
Note 2: The ALD device should operate under all circumstances at least 300 kHz away from the channel edge of an occupied DAB channel.

Additional Information

Harmonised Standards
EN 303 348 sub-band a0)
EN 300 422 all sub-bands except a2)
EN 301 357 sub-bands a2), g) and j2)

Systems using ETSI EN 301 357 should be designed so that when not in use there should be no transmission of an RF carrier, where indicated in the frequency issues.

Technical parameters also referred to in the harmonised standard
Note 3: Sub-band a0):
The antenna size is described by the distance between those two points on the antenna that have the largest distance between them (e.g. for a rectangle shaped antenna the largest diagonal; for a circular shaped antenna the diameter).
Note 4: Sub-band a2):
The user interface of SRD shall permit as a minimum the selection of any and all possible frequencies within the 88.1 MHz to 107.9 MHz and as a maximum 87.6 MHz to 107.9 MHz. When audio signals are not present, apparatus must employ a transmission time out facility. Pilot tones that ensure continuity of transmission are not permitted.

Frequency issues
Sub-band a0):
Some administrations do not regulate use below 9 kHz, but the provided limits allow usage on a non-interfering basis. See national implementation status (Appendix 1).

Sub-band d):
ECC Report 230 provides information on ALD frequency issues in the frequency band 174-216 MHz including an example for an on-site measurement procedure. It should be noted that ALD applications may need to move in frequency if changes in the use of the broadcast radio service take place.

Sub-bands f1) and f2): ECC/DEC/(15)01 identifies the band 703-733 MHz/758-788 MHz for the introduction of mobile/fixed communication networks (MFCN). Some national administrations which have not introduced mobile/fixed communication networks (MFCN) in accordance with Decision ECC/DEC/(15)01 may authorise larger parts or the whole of the band 694-790 MHz to be used by radio microphones.
Sub-bands f2), f3), f4): Some national administrations which have not introduced mobile/fixed communication networks (MFCN) in accordance with Decision ECC/DEC/(09)03 may authorise larger parts or the whole of the band 786-862 MHz to be used by radio microphones.
Sub-band h2): this frequency band is identified for the introduction of mobile/fixed communication networks supplemental downlink (MFCN SDL) in ECC Decision (17)06. National administrations may authorise radio microphones in the band as long as they will not have introduced mobile/fixed communication networks (MFCN).

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.

Table 11: Regulatory parameters

	Frequency Band	Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
a	865-868 MHz	2 W e.r.p. (note1)	(note 4)	≤ 200 kHz		Operation only when necessary to perform the intended operation, i.e. when RFID tags are expected to be present. The frequency band is also identified in Annexes 1, 2 and 3.
a1	865-865.6 MHz	100 mW e.r.p.	No requirement	≤ 200 kHz		(note 3)
a2	865.6-867.6 MHz	2 W e.r.p.	No requirement	≤ 200 kHz		(note 3)
a3	867.6-868 MHz	500 mW e.r.p.	No requirement	≤ 200 kHz		(note 3)
b	915-921 MHz	4 W e.r.p. (notes 2 and 6)	No requirement	≤ 400 kHz		(note 5) Operation only when necessary to perform the intended operation, i.e. when RFID tags are expected to be present. The frequency band is also identified in Annexes 1, 2 and 3.
c1	2446-2454 MHz	≤ 500 mW e.i.r.p.	No requirement	Not specified		
c2	2446-2454 MHz	> 500 mW to 4 W e.i.r.p	≤ 15% duty cycle FHSS techniques should be used	Not specified		Power levels above 500 mW are restricted to be used inside the boundaries of a building and the duty cycle of all transmissions shall in this case be ≤ 15 % in any 200 ms period (30 ms on /170 ms off)

Note 1: Interrogator transmissions in sub-band a) at 2 W e.r.p. are only permitted within the four channels centred at 865.7 MHz, 866.3 MHz, 866.9 MHz and 867.5 MHz; each with a maximum bandwidth of 200 kHz. RFID tags respond at a very low power level (-20 dBm e.r.p.) in a frequency range around the RFID interrogator channels.

Note 2: Interrogator transmissions in sub-band b) at 4 W e.r.p, are only permitted within the three channels centred at 916.3 MHz, 917.5 MHz and 918.7 MHz; each with a maximum bandwidth of 400 kHz. RFID tags respond at a very low power level (-10 dBm e.r.p.) in a frequency range around the RFID interrogator channels.

Note 3: RFID interrogator devices placed on the market before the repeal date of EC Decision 2006/804/EC are 'grandfathered', i.e. they are continuously permitted to be used in line with the provisions set out in EC Decision 2006/804/EC (see sub-bands a1), a2), and a3)) before the repeal date.

Note 4: The maximum period of continuous interrogator transmission on a channel shall not exceed 4s and the period between consecutive transmissions of an interrogator on the same channel shall be at least 100ms in order to ensure most efficient use of available channels for the general benefit of all users.

Note 5: In some countries, usage may be limited such that installation and operation are performed only by professional users and individual authorisation may be required, e.g. to administer geographical sharing and/or the application of mitigation techniques to ensure protection of radio services.

Note 6: Existing implementations in some countries include a fourth RFID interrogator channel at centre frequency 919.9 MHz. See explanations under frequency issues for sub-bands b).

Additional Information

Harmonised Standards
EN 300 440 Sub-bands c1) and c2)
EN 302 208 Sub-bands a) and b)

Technical parameters also referred to in the harmonised standard
Sub-band a):
In addition, antenna beamwidth limits shall be observed as described in the standard EN 302 208.

Sub-band c2):
In addition, antenna beamwidth limits shall be observed as described in the standard EN 300 440.

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.

Frequency issues
Sub-bands a1), a2) and a3):
Channel centre frequencies are 864.9 MHz + (0.2 MHz * channel number).

The available channel numbers for each sub-band are:
a1: channel numbers 1 to 3
a2: channel numbers 4 to 13
a3: channel numbers 14 to 15.
Note: The same equipment is allowed to operate in several sub-bands.

Frequency hopping or other spread spectrum techniques shall not be used.

Sub-band b):
Use of all or part of the sub-band b) may be limited or not authorised in some countries that use all or part of this sub-band for defence/governmental systems. Further, some countries use the sub-band 918-921 MHz as extended GSM-R frequency band; therefore geographical restrictions may apply. See Appendixes 1 and 3 for national implementation concerning extended GSM-R and defence/governmental services.
CEPT is considering a harmonised spectrum regulatory framework for the future railway mobile communications systems in 874.4-880 / 919.4-925 MHz and these frequency bands may require a review regarding their use in the future.

Some countries have existing implementations for an RFID interrogator channel centred at 919.9 MHz. Appendixes 1 and 3 provide the status of national implementations. CEPT administrations should provide information on any more restrictive or more relaxed national measures to ensure Appendixes 1 and 3 are up to date.

EC Decision 2018/1538/EU applies to EU Member States. CEPT administrations should refrain from introducing new RFID uses in 919.4-921 MHz. It is recognised that, in several CEPT countries, existing RFID implementations in this frequency range are not impacted by Article 3(4) of the EC Decision.

National rules, such as local coordination, may also be needed in order to avoid interference to radio services operating in the adjacent bands.
Sub-band c2):
To assist enforcement authorities any emissions from an RFID device when measured outside of the building at a distance of 10 metres shall not exceed the field strength from 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.

ANNEX 12: ACTIVE MEDICAL IMPLANTS AND THEIR ASSOCIATED PERIPHERALS

Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for Active Medical Implants and their associated peripherals.

Table 12: Regulatory parameters

	Frequency Band	Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
a	9-315 kHz	30 dBµA/m at 10 m	≤ 10% duty cycle	Not specified		For Ultra Low Power Active Medical Implants (ULP-AMI) using inductive loop techniques for telemetry purposes
b	30-37.5 MHz	1 mW e.r.p.	≤ 10% duty cycle	Not specified		For Ultra Low Power Medical Membrane Implants (ULP-MMI) for blood pressure measurements
c	2483.5-2500 MHz	10 dBm e.i.r.p.	LBT+AFA and ≤ 10% duty cycle. The equipment shall implement a spectrum access mechanism as described in the applicable harmonised standard or an equivalent spectrum access mechanism	≤ 1 MHz		For Low Power Active Medical Implants (LP-AMI), covered by the applicable harmonised standard. Individual transmitters may combine adjacent channels on a dynamic basis for increased bandwidth higher than 1 MHz. Peripheral units are for indoor use only. The frequency band is also identified in Annex 2.
d	401-406 MHz	*	*	*	ERC/DEC/(01)17	For Ultra Low Power Active Medical Implant (ULP-AMI) communication systems. * See detailed requirements in the related ERC Decision
e	315-600 kHz	-5 dBµA/m at 10 m	≤ 10% duty cycle	Not specified		For animal implants. The frequency band is also identified in Annex 9.
f	12500-20000 kHz	-7 dBµA/m at 10 m per 10 kHz	≤ 10% duty cycle	Not specified		For Ultra Low Power active Animal Implants Devices (ULP-AID), limited to indoor use only. The frequency band is also identified in Annex 9.

Additional Information

Harmonised Standards
EN 302 195 Sub-band a)
EN 302 536 Sub-band e)
EN 300 330 Sub-band f)
EN 302 510 Sub-band b)
EN 301 839 and EN 302 537 Sub-band d)
EN 301 559 Sub-band c)

Technical parameters also referred to in the harmonised standard
Sub-band f):
The transmission mask of ULP-AID is defined as follows: 3 dB bandwidth 300 kHz, 10 dB bandwidth 800 kHz, 20 dB bandwidth 2 MHz.

Frequency issues
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ANNEX 13: MEDICAL DATA ACQUISITION

Scope of Annex

This annex covers frequency bands and regulatory as well as informative parameters recommended for medical data acquisition applications. They cover transmission of non-voice data to and from non-implantable medical devices for the purpose of monitoring, diagnosing and treating patients in healthcare facilities or patient's home, as prescribed by duly authorised healthcare professionals, including:

- Ultra-Low Power Wireless Medical Capsule Endoscopy (ULP-WMCE) application designed for use in medical doctor-patient scenarios with the aim of acquiring images of human digestive tract;
- Medical Body Area Network System (MBANS) for low-power wireless networking of a plurality of body-worn sensors and/or actuators as well as of a hub device placed on/around the human body.

Active Medical Implants and their associated peripherals are included in Annex 12 of this Recommendation.

Table 13: Regulatory parameters

Frequency Band		Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
a	430-440 MHz	-50 dBm/100 kHz max e.r.p. density but not exceeding a total power of -40 dBm/10 MHz (both limits are intended for measurement outside of the patient's body)	No requirement	≤ 10 MHz		ULP-WMCE
b1	2483.5-2500 MHz	1 mW e.i.r.p.	Adequate spectrum sharing mechanisms (e.g. Listen-Before-Talk and Adaptive Frequency Agility) shall be implemented by the equipment and ≤ 10% duty cycle	≤ 3 MHz		MBANS, indoor only within healthcare facilities. The frequency band is also identified in Annex 12

Frequency Band		Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
b2	2483.5-2500 MHz	10 mW e.i.r.p.	Adequate spectrum sharing mechanisms (e.g. Listen-Before-Talk and Adaptive Frequency Agility) shall be implemented by the equipment and ≤ 2% duty cycle	≤ 3 MHz		MBANS, indoor only within the patient's home. The frequency band is also identified in Annex 12

Additional Information

Harmonised Standards
EN 303 520 sub-band a)
EN 303 203 sub-bands b1) and b2)

Technical parameters also referred to in the harmonised standard
No information

Frequency issues
Sub-bands b1) and b2):
MBANS equipment shall implement a spectrum access mechanism as described in the applicable harmonised European standard EN 303 203 or an equivalent spectrum access mechanism. Based on the assumptions used in ECC Report 201, the modulation bandwidth for MBANS shall not exceed 3 MHz.

ANNEX A: INFORMATIVE ANNEX COVERING THE APPLICATIONS OPERATING UNDER GENERAL AUTHORISATION REGIME WHICH ARE NOT COVERED BY THE ANNEXES 1 TO 13 OF THIS RECOMMENDATION

Scope of Annex

This annex covers information about terrestrial applications which are not included in Annexes 1 to 13 and for which frequency ranges are designated in ERC/ECC Decisions, and which are authorised by CEPT administrations under general authorisation (license-exempt regulation). The regulatory status of these radio applications, which may be different to the regulatory status of SRDs, are defined by the relevant ERC/ECC Decisions.

Related national implementation information and national restrictions are provided within the Appendices 1 and 3.

These applications are authorised under a general authorisation regime (exempted from individual licensing) and therefore protection of individual radio stations/radio equipment cannot be ensured. This is also the case for the applications covered by Annexes 1 to 13. With regard to potential new future applications, sharing and compatibility analysis for all of the concerned services and applications are to be studied and will look at the potential for interference in both directions in order to give a clear view on any future sharing environment. The regulatory status of both, the relevant radio application for which a spectrum designation already exists in a frequency band and the potential new radio application, needs to be taken into account. Such new equipment in a frequency band should implement an adequate spectrum sharing mechanism, since there is non-exclusive access to spectrum, in order to facilitate sharing between the various technologies and applications in the respective frequency band. Such new applications should only be allowed to operate when the mandatory features required in the respective ERC/ECC Decision are implemented, or any other mechanism providing a similar level of mitigation.

Table 14: Regulatory parameters

	Frequency Band	Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
a	26960-27410 kHz	*	*	*	ECC/DEC/(11)03	For Citizens' Band (CB) radio equipment. * See detailed requirements in the related ECC Decision
c	446-446.2 MHz	*	*	*	ECC/DEC/(15)05	For analogue and digital PMR 446 applications. * See detailed requirements in the related ECC Decision
d	1880-1900 MHz	*	*	*	ERC/DEC/(94)03, ERC/DEC/(98)22	For DECT (Digital European Cordless Telecommunications) systems. * See detailed requirements in the related ERC Decisions
e1	5150-5350 MHz	*	*	*	ECC/DEC/(04)08	For Wireless Access Systems including Radio Local Area Networks (WAS/RLANs). * See detailed requirements in the related ECC Decision

Frequency Band		Power / Magnetic Field	Spectrum access and mitigation requirements	Modulation / occupied bandwidth	ECC/ERC Deliverable	Notes
e2	5470-5725 MHz	*	*	*	ECC/DEC/(04)08	For Wireless Access Systems including Radio Local Area Networks (WAS/RLANs). * See detailed requirements in the related ECC Decision
f	5875-5935 MHz	*	*	*	ECC/DEC/(08)01	For Intelligent Transportation Systems (traffic safety applications). * See detailed requirements in the related ECC Decision
g	63.72-65.88 GHz	*	*	*	ECC/DEC/(09)01	For Intelligent Transportation Systems
h	77-81 GHz	*	*	*	ECC/DEC/(04)03	For Automotive Short Range Radars. * See detailed requirements in the related ECC Decision
i	5945-6425 MHz	*	*	*	ECC/DEC/(20)01	For Wireless Access Systems including Radio Local Area Networks (WAS/RLAN)

Additional Information

Harmonised Standards
EN 300 433 Sub-band a)
EN 303 405 Sub-band c)
EN 301 406 Sub-band d)
EN 301 893 Sub-bands e1) and e2)
EN 302 571 Sub-band f)
EN 302 686 Sub-band g)
EN 302 264 Sub-band h)
EN 303 687 Sub-band i) (under development)

Technical parameters also referred to in the harmonised standard
No information

Frequency issues
No Information

APPENDIX 1: NATIONAL IMPLEMENTATION

Administrations who do not prevent the use of SRD operating below 9 kHz with the regulatory parameters given in ERC Recommendation 70-03 Annex 9a0 and Annex 10a0, but do not have an authorisation regime for apparatus operating below 9 kHz, may select the implementation status “R” Not Regulated.

The CEPT country codes can be seen under https://www.cept.org/cept/cept-country-codes.

Annexes to ERC/REC 70-03	ALB	AND	AUT	AZE	BEL	BIH	BUL	CVA	CYP	CZE	D	DNK	E	EST	F	FIN	G	GEO	GRC	HNG	HOL	HRV	I	IRL	ISL	LIE	LTU	LUX	LVA	MCO	MDA	MKD	MLT	MNE	NOR	POL	POR	ROU	S	SMR	SRB	SUI	SVK	SVN	TUR	UKR
ANNEX 1: NON-SPECIFIC SHORT RANGE DEVICES																																															
Annex a: 13553-13567 kHz	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex b: 26957-27283 kHz	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex c1: 26990-27000 kHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N
Annex c2: 27040-27050 kHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N
Annex c3: 27090-27100 kHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N
Annex c4: 27140-27150 kHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N
Annex c5: 27190-27200 kHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N
Annex d: 40.66-40.7 MHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Annex e: 138.2-138.45 MHz	Y	N	Y		N	Y	Y	N	Y	Y	N	Y	N	Y	N	Y	Y	N	Y	N	N	Y	N	Y	Y	N	Y	Y	N	N	Y	Y	Y	Y	Y	N	Y	Y	N	N	Y	N	N	N	Y	N
Annex f1: 169.4-169.475 MHz **ECC/DEC/(05)02**	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	U
Annex f2: 169.4-169.4875 MHz **ECC/DEC/(05)02**	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Annex f3: 169.4875-169.5875 MHz **ECC/DEC/(05)02**	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Annex f4: 169.5875-169.8125 MHz **ECC/DEC/(05)02**	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Annex g1: 433.05-434.79 MHz	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex g2: 433.05-434.79 MHz	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex g3: 434.04-434.79 MHz	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	P	Y
Annex h0: 862-863 MHz	Y				Y	*	Y	Y			Y		Y		Y	Y	Y							Y	Y	Y	Y			Y	Y	Y					Y		Y			Y		Y	P	
Annex h1.0: 863-870 MHz	Y	Y	Y		Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L		Y	Y	Y	Y	Y	Y
Annex h1.2: 863-870 MHz	Y	Y	Y		Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L		Y	Y	Y	Y	Y	Y
Annex h1.3: 863-865 MHz					Y	*	Y				Y		Y		Y	Y	Y							*	Y	Y	Y				Y	Y	*					*		Y			Y		P	
Annex h1.4: 865-868 MHz		*			Y	N	Y				Y		Y		Y	Y	Y							*	Y	Y	Y				Y	Y						*		Y			Y		Y	*
Annex h1.5: 868-868.6 MHz	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y
Annex h1.6: 868.7-869.2 MHz	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	N
Annex h1.7: 869.4-869.65 MHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	N
Annex h1.8: 869.7-870 MHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	N
Annex h1.9: 869.7-870 MHz					Y	N	Y				*		Y		Y	Y	Y							Y	Y	Y	Y				*	Y					*		Y			Y		Y	
Annex h2: 870-874.4 MHz	Y	N	U	N	L	N	Y				N	Y	Y	Y	N	L	Y			Y	N	U		Y	Y	L	L	Y			*	Y			Y		N		Y	*	N	L	Y	Y	N	N
Annex h3: 915-919.4 MHz	Y	N	U	N	L	N	Y				N	Y	Y	Y	N	N	Y			Y	N	U		Y	Y	L	L	Y			Y	Y			Y		L		Y	*	N	L	Y	Y	N	N
Annex i: 2400-2483.5 MHz	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex j: 5725-5875 MHz	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Highlighted yellow = not implemented or no information	Y = implemented				L = limited implementation						P = planned				U = under study						N = not implemented												R = not regulated													

Annexes to ERC/REC 70-03	ALB	AND	AUT	AZE	BEL	BIH	BUL	CVA	CYP	CZE	D	DNK	E	EST	F	FIN	G	GEO	GRC	HNG	HOL	HRV	I	IRL	ISL	LIE	LTU	LUX	LVA	MCO	MDA	MKD	MLT	MNE	NOR	POL	POR	ROU	S	SMR	SRB	SUI	SVK	SVN	TUR	UKR
Annex k1: 3100-4800 MHz **ECC/DEC/(06)04**	Y	Y	Y	L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	U
Annex k2: 6000-9000 MHz **ECC/DEC/(06)04**	Y	Y	Y	L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	U
Annex l: 6000-8500 MHz **ECC/DEC/(12)03**	Y	N	Y	*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N
Annex m: 24-24.25 GHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L	Y	L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex n1: 57-64 GHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N
Annex n2: 61-61.5 GHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex o1: 122-122.25 GHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex o2: 122.25-123 GHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex p: 244-246 GHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ANNEX 2: TRACKING, TRACING AND DATA AQUISITION																																														
Annex a1: 442.2-450 kHz	Y				Y	N	Y		*		Y		Y		Y	Y	Y	*					*	Y	Y	Y	*		*		Y	Y				*	*		Y			Y		Y	P	
Annex a2: 456.9-457.1 kHz	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L
Annex b: 169.4-169.475 MHz **ECC/DEC/(05)02**	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	U
Annex c1: 865-868 MHz	Y		Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y			Y	Y	Y	P	
Annex c2: 870-874.4 MHz	Y	N	U	N	L	Y	Y		Y		N	Y	Y	Y	L	Y	Y	P		Y	N	U	U	Y	Y	L	L	Y	U		Y	Y			Y	P	L		Y		N	L	N	Y	P	N
Annex c3: 917.3-918.9 MHz					Y	N	Y		*		N		Y		Y	Y	Y	*					*	*	Y	L	Y		*		Y	Y				*	Y		Y			L		Y	N	
Annex c4: 915-919.4 MHz					L	N	Y		*		N		Y		L	Y	L	*					*	*	Y	L	L		*		Y	Y				*	L		Y			L		Y	N	
Annex d: 5725-5875 MHz	Y				Y	Y	Y		Y		N		Y	P	N	N	N	*			P		*	*	Y	U	N	Y	*		Y	Y			N	*	N		N			U	Y	Y	N	
ANNEX 3: WIDEBAND DATA TRANSMISSION SYSTEMS																																														
Annex a1: 863-868 MHz	Y		Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y			Y	Y	Y	Y	
Annex a2: 915.8-919.4 MHz					Y	N	L				N		N		L	L	L							Y	Y	U	L				Y	Y					L		Y			U		Y	N	
Annex b: 2400-2483.5 MHz	Y	Y	Y	L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L
Annex c1: 57-71 GHz	Y	Y	Y		Y	L	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	P	N
Annex c2: 57-71 GHz **ECC Report 288**					Y	N	Y				Y		Y		Y	Y	Y							Y	*	Y	Y				*	Y					*		Y			Y		Y	P	
Annex c3: 57-71 GHz **ECC Report 288**					Y	N	Y				Y		Y		Y	Y	Y							Y	*	Y	Y				*	Y					*		Y			Y		Y	P	
ANNEX 4: RAILWAY APPLICATIONS																																													
Annex a: 984-7484 kHz	Y	Y	Y		Y	N	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Annex b: 7300-23000 kHz	Y	Y	Y		Y	N	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Annex c: 27090-27100 kHz	Y	Y	Y		Y	N	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Annex d: 76-77 GHz	Y	Y	Y		Y	N	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
ANNEX 5: TRANSPORT AND TRAFFIC TELEMATICS (TTT)																																													
Annex a: 5795-5805 MHz	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	L	L	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	Y	N
Annex b: 5805-5815 MHz	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	L	L	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	Y	Y	Y	Y	L	Y	Y	Y	N
Annex c1: 21.65-26.65 GHz **ECC/DEC/(04)10**	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Annex c2: 24.25-26.65 GHz **ECC/DEC/(04)10**	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Annex d1: 24.05-24.075 GHz	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex d2: 24.075-24.15 GHz	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex d3: 24.075-24.15 GHz	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex d4: 24.075-24.15 GHz	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

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Annexes to ERC/REC 70-03	ALB	AND	AUT	AZE	BEL	BIH	BUL	CVA	CYP	CZE	D	DNK	E	EST	F	FIN	G	GEO	GRC	HNG	HOL	HRV	I	IRL	ISL	LIE	LTU	LUX	LVA	MCO	MDA	MKD	MLT	MNE	NOR	POL	POR	ROU	S	SMR	SRB	SUI	SVK	SVN	TUR	UKR
Annex d5: 24.15-24.25 GHz	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex e1: 76-77 GHz **ECC Report 262**	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex e2: 76-77 GHz **ECC/DEC/(16)01**	Y		Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y		U	Y	Y	Y	Y	U		Y	Y	Y	Y	
Annex f: 5855-5875 MHz **ECC/REC/(08)01**					Y	N							*		N		Y							Y			Y				*													Y		
ANNEX 6: RADIODETERMINATION APPLICATIONS																																														
Annex a: 30 MHz-12.4 GHz **ECC/DEC/(06)08**	Y	U	L		U	Y	Y	N	U	Y	L	Y	Y	Y	L	Y	Y	N	N	Y	Y	Y	N	Y	Y	Y	U	Y	Y		Y	N	Y	U	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N
Annex b: 2200-8000 MHz **ECC/DEC/(07)01**	Y	L	L		Y	Y	Y	*	L	Y	Y	Y	L	Y	Y	Y	L	N	L	Y	Y	Y	L	Y	Y	Y	L	L	Y	Y	Y	Y	L	Y	Y	Y	Y	Y	L	L	Y	Y	Y	N	N
Annex c: 2400-2483.5 MHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex d: 3100-4800 MHz **ECC/REC/(11)09**	Y	Y	U		Y	N	N			Y	N	Y	Y	P	N	N	Y			Y	N	Y		N	N	U	N	Y	U		*	Y			U		U		Y	*	*	U	Y	Y	N	
Annex e: 3100-4800 MHz **ECC/REC/(11)10**	Y	Y	U		U	N	N			Y	N	Y	Y	P	N	N	Y			Y	N	Y		N	N	U	N	Y	U		Y	Y			U		U		Y	*	*	U	Y	Y	N	
Annex f1: 4500-7000 MHz	Y	Y	Y		Y	Y	Y	*	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	U
Annex f2: 8500 MHz-10.6 GHz	Y	Y	Y	Y	Y	Y	Y	*	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	U
Annex f3: 24.05-27 GHz	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L
Annex f4: 57-64 GHz	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	U
Annex f5: 75-85 GHz	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L
Annex g1: 6000-8500 MHz **ECC/DEC/(11)02**	Y	Y	Y	N	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Annex g2: 24.05-26.5 GHz **ECC/DEC/(11)02**	Y	Y	Y	N	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Annex g3: 57-64 GHz **ECC/DEC/(11)02**	Y	Y	Y	N	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Annex g4: 75-85 GHz **ECC/DEC/(11)02**	Y	Y	Y	N	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Annex h: 9200-9500 MHz	Y	N	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	N	N	L	N	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	P	U
Annex i: 9500-9975 MHz	Y	N	Y		Y	Y	Y		Y	Y	N	Y	Y	Y	L	Y	L	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	Y	P	U
Annex j: 10.5-10.6 GHz	Y	Y	N		Y	Y	Y		Y	N	Y	Y	Y	N	L	L	L	N	Y	L	Y	Y	Y	L	Y	Y	Y	L	Y		Y	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	Y	N	Y	P	L
Annex k: 13.4-14 GHz	Y	N	Y		Y	Y	Y		Y	Y	Y	Y	N	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	P	U
Annex l: 17.1-17.3 GHz	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	Y	Y	N
Annex m: 24.05-24.25 GHz	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	L	Y	L	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y
Annex n1: 100 Hz-148 kHz					Y	N	N				P	Y	N		P	U	*				*			*			U	*				Y	Y						U			U		Y	N	
Annex n2: 148-5000 kHz					Y	N	N				P	Y	N		P	U	*				*			*			U	Y				Y	Y						U			U		Y	N	
Annex n3: 5000 kHz-30 MHz					Y	N	N				P	Y	N		P	U	*				*			*			U	*				Y	Y						U			U		Y	N	
Annex n4: 30-130 MHz					Y	N	N				P	Y	N		P	U	*				*			*			U	*				Y	Y						U			U		Y	N	
Annex o: 76-77 GHz **ECC/DEC/(21)02**					U	N							N		*	*								*				*				*												Y		
ANNEX 7: ALARMS																																														
Annex a: 868.6-868.7 MHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex b: 869.2-869.25 MHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex c: 869.25-869.3 MHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Annex d: 869.3-869.4 MHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Annex e: 869.65-869.7 MHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	U
ANNEX 8: MODEL CONTROL																																														
Annex a1: 26990-27000 kHz	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex a2: 27040-27050 kHz	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

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Annexes to ERC/REC 70-03	ALB	AND	AUT	AZE	BEL	BIH	BUL	CVA	CYP	CZE	D	DNK	E	EST	F	FIN	G	GEO	GRC	HNG	HOL	HRV	I	IRL	ISL	LIE	LTU	LUX	LVA	MCO	MDA	MKD	MLT	MNE	NOR	POL	POR	ROU	S	SMR	SRB	SUI	SVK	SVN	TUR	UKR
Annex a3: 27090-27100 kHz	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex a4: 27140-27150 kHz	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex a5: 27190-27200 kHz	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex b: 34.995-35.225 MHz **ERC/DEC/(01)11**	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	L	Y	L	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex c1: 40.66-40.67 MHz **ERC/DEC/(01)12**	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex c2: 40.67-40.68 MHz **ERC/DEC/(01)12**	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex c3: 40.68-40.69 MHz **ERC/DEC/(01)12**	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex c4: 40.69-40.7 MHz **ERC/DEC/(01)12**	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ANNEX 9: INDUCTIVE APPLICATIONS																																													
Annex a0: 100 Hz-9 kHz					Y	N	R		Y		R	Y	L	P	Y	Y	*						U	Y		U	Y				Y	Y				P	Y		R			U		Y	N	
Annex a1: 9-90 kHz	Y	Y	Y	L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L
Annex a2: 90-119 kHz	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex a3: 119-135 kHz	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex b: 135-140 kHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex c: 140-148.5 kHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex d: 400-600 kHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	U
Annex e: 3155-3400 kHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex f: 6765-6795 kHz	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Annex g: 7400-8800 kHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Annex h: 10200-11000 kHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex i: 13553-13567 kHz	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Annex j: 13553-13567 kHz **ECC Report 208**	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L
Annex k1: 148.5-5000 kHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	U
Annex k2: 5000 kHz-30 MHz	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS																																													
Annex a0: 100 Hz-9 kHz					Y	N	R		L		R	Y	N	P	Y	Y	*						U	*	Y	U	Y				Y	Y				P	Y		R			U		Y	N	
Annex a1: 29.7-47 MHz	Y	L	L	L	Y	Y	Y		Y	L	L	Y	L	L	L	L	N	L	L	L	Y	N	L	Y	Y	L	L	L	Y	Y	Y	Y	L	Y	L	Y	N	L	L	L	Y	L	L	Y	Y	L
Annex a2: 87.5-108 MHz	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L
Annex b: 169.4-174 MHz	Y	L	N		U	Y	N		N	L	Y	Y	L	Y	N	N	L	N	N	N	P	Y	L	Y	N	N	Y	Y	Y	N	Y	Y	N	Y	Y	N	N	Y	Y	L	N	N	U	Y	Y	N
Annex c1: 169.4-169.475 MHz **ECC/DEC/(05)02**	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	U
Annex c2: 169.4875-169.5875 MHz **ECC/DEC/(05)02**	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	U
Annex d: 173.965-216 MHz **ECC Report 230**	Y		Y		Y	*	Y		Y	Y	Y	Y	L	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y		Y	Y	Y	Y	Y		L	Y	Y	Y	*	
Annex e: 174-216 MHz	Y	L	Y	L	Y	Y	Y		Y	Y	Y	L	L	Y	Y	L	Y	L	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	L	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	L
Annex f1: 470-786 MHz	Y	Y	Y	L	Y	Y	L		Y	L	L	Y	L	L	L	L	Y	Y	L	Y	Y	Y	L	Y	Y	L	L	Y	Y	Y	Y	Y	L	Y	L	L	Y	Y	Y	L	Y	L	Y	Y	L	L
Annex f2: 786-789 MHz	Y	N	L	L	N	Y	Y		N	L	Y	Y	N	N	N	L	Y	Y	L	N	Y	N	N	Y	Y	N	L	Y	N	Y	Y	Y	N	N	N	L	Y	Y	N	N	N	N	Y	Y	N	N
Annex f3: 823-826 MHz	Y	Y	L	L	Y	Y	Y		Y	L	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	N	Y	Y	Y	N	Y	L	Y	Y	L	Y	N	Y	Y	Y	N	N
Annex f4: 826-832 MHz	Y	Y	L	L	Y	Y	Y		Y	L	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	N	Y	Y	Y	N	Y	L	Y	Y	L	Y	N	Y	Y	Y	N	N
Annex g: 863-865 MHz	Y	Y	Y	L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex h1: 1350-1400 MHz	Y		L	L	N	Y	Y		*		L		N	N	U	N	*	Y	N				*	Y	N	Y	L	N		N	Y	Y	N		N	*	N		*			Y	N	Y	N	
Highlighted yellow = not implemented or no information	Y = implemented							L = limited implementation							P = planned						U = under study							N = not implemented									R = not regulated								

Annexes to ERC/REC 70-03	ALB	AND	AUT	AZE	BEL	BIH	BUL	CVA	CYP	CZE	D	DNK	E	EST	F	FIN	G	GEO	GRC	HNG	HOL	HRV	I	IRL	ISL	LIE	LTU	LUX	LVA	MCO	MDA	MKD	MLT	MNE	NOR	POL	POR	ROU	S	SMR	SRB	SUI	SVK	SVN	TUR	UKR
Annex h2: 1492-1518 MHz	Y	N	P	*	N	Y	Y		N	N	Y	N	N	Y	N	N	L	N	N	N	N	N	N	Y	N	N	L	Y	N	N	Y	Y	N	N	Y	N	N	N	N	N	N	N	Y	N	N
Annex h3: 1518-1525 MHz	Y		L	Y	N	Y	Y		*	N	N	N	N	N	N	L	Y	Y	N	N	N		*	N	N	N	L		N	N	Y	Y	N		N	N	N	N	*			N	N	Y	N	
Annex i: 1656.5-1660.5 MHz **ECC Report 270**	Y				N	N	Y		*		N		N	*	N	N	*						*	Y	*	U	*				Y	Y				*	N		*			U		Y	N	
Annex j1: 1785-1795 MHz	Y	Y	Y	L	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	U
Annex j2: 1795-1800 MHz	Y	Y	Y	L	Y	Y	Y		Y	L	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	U
Annex j3: 1800-1804.8 MHz	Y	N	Y	L	Y	Y	Y		Y	N	Y	Y	N	Y	Y	Y	N	L	Y	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	N	Y	Y	Y	N	Y	N	Y	N	N	Y	N	Y	Y	Y	Y	U
ANNEX 11: RADIO FREQUENCY IDENTIFICATION APPLICATIONS																																														
Annex a: 865-868 MHz	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	U
Annex a1: 865-865.6 MHz	Y	Y	Y	*	Y	N	Y		Y	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	U
Annex a2: 865.6-867.6 MHz	Y	Y	Y	Y	Y	N	Y		Y	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	U
Annex a3: 867.6-868 MHz	Y	Y	Y	*	Y	Y	Y		Y	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	U
Annex b: 915-921 MHz	Y	N	U	N	L	N	Y		Y	N	N	Y	Y	Y	Y	Y	Y	N	N	Y	N	U	N	Y	Y	L	L	Y	N		Y	Y	N	N	Y	N	L	N	N	N	N	L	Y	Y	P	U
Annex c1: 2446-2454 MHz	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	U
Annex c2: 2446-2454 MHz	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	U
ANNEX 12: ACTIVE MEDICAL IMPLANTS AND THEIR ASSOCIATED PERIPHERALS																																													
Annex a: 9-315 kHz	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex b: 30-37.5 MHz	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex c: 2483.5-2500 MHz	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N
Annex d: 401-406 MHz **ERC/DEC/(01)17**					Y	Y							Y		Y									Y			Y				Y	Y												Y			
Annex e: 315-600 kHz					Y										P									*																				Y			
Annex f: 12500-20000 kHz					Y										P									Y																				Y			
ANNEX 13: MEDICAL DATA ACQUISITION																																														
Annex a: 430-440 MHz	Y				Y	Y	Y				Y				Y	Y	Y							*		Y	Y				Y	Y						Y			Y		Y	P	
Annex b1: 2483.5-2500 MHz	Y		Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	*	Y	Y	Y	Y	Y		N	Y	Y	Y	P	N
Annex b2: 2483.5-2500 MHz	Y		Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	*	Y	Y	Y	Y	Y		N	Y	Y	Y	P	N
ANNEX A: INFORMATIVE ANNEX COVERING THE APPLICATIONS OPERATING UNDER GENERAL AUTHORISATION REGIME WHICH ARE NOT COVERED BY THE ANNEXES 1 TO 13 OF THIS RECOMMENDATION																																													
Annex a: 26960-27410 kHz **ECC/DEC/(11)03**	Y	Y	Y	L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L	Y	L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	Y	L	Y	Y	Y	Y	Y	Y	L
Annex c: 446-446.2 MHz **ECC/DEC/(15)05**	Y	Y	Y		Y	L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	Y	L	L
Annex d: 1880-1900 MHz **ERC/DEC/(94)03, ERC/ DEC/ (98)22**	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex e1: 5150-5350 MHz **ECC/DEC/(04)08**	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex e2: 5470-5725 MHz **ECC/DEC/(04)08**	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex f: 5875-5935 MHz **ECC/DEC/(08)01**	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	P	N
Annex g: 63.72-65.88 GHz **ECC/DEC/(09)01**	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	P
Annex h: 77-81 GHz **ECC/DEC/(04)03**	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Annex i: 5945-6425 MHz **ECC/DEC/(20)01**					Y		Y		Y		Y		Y	Y	Y		Y				Y		Y	*	Y		Y				*	*							N	Y		Y			

Highlighted yellow = not implemented or no information	Y = implemented	L = limited implementation	P = planned	U = under study	N = not implemented	R = not regulated

APPENDIX 2: LIST OF RELEVANT ECC/ERC DECISIONS, REPORTS, EC DECISIONS AND ETSI HARMONISED EUROPEAN STANDARDS

Table 15: ECC/ERC Decisions

ECC/DEC/(04)03	The frequency band 77-81 GHz to be designated for the use of Automotive Short Range Radars
ECC/DEC/(04)08	The harmonised use of the 5 GHz frequency bands for the implementation of Wireless Access Systems including Radio Local Area Networks (WAS/RLANs)
ECC/DEC/(04)10	The frequency bands to be designated for the temporary introduction of Automotive Short Range Radars
ECC/DEC/(05)02	The use of the frequency band 169.4-169.8125 MHz
ECC/DEC/(06)04	The harmonised conditions for devices using Ultra-wideband (UWB) technology in bands below 10.6 GHz
ECC/DEC/(06)08	The conditions for use of the radio spectrum by Ground- and Wall- probing radar (GPR/WPR) imaging systems
ECC/DEC/(07)01	Building Material Analysis (BMA) devices using UWB technology
ECC/DEC/(08)01	The harmonised use of the 5875-5925 MHz frequency band for Intelligent Transport Systems (ITS)
ECC/DEC/(09)01	The harmonised use of the 63-64 GHz frequency band for Intelligent Transport Systems (ITS)
ECC/DEC/(09)03	Harmonised conditions for Mobile/Fixed Communications Networks (MFCN) operating in the band 790-862 MHz
ECC/DEC/(11)02	Industrial Level Probing Radars (LPR) operating in frequency bands 6-8.5 GHz, 24.05-26.5 GHz, 57-64 GHz and 75-85 GHz
ECC/DEC/(11)03	The harmonised use of frequencies for Citizens' Band (CB) radio equipment
ECC/DEC/(12)03	The harmonised conditions for UWB applications onboard aircraft
ECC/DEC/(15)05	The harmonised frequency range 446.0-446.2 MHz, technical characteristics, exemption from individual licensing and free carriage and use of analogue and digital PMR 446 applications
ECC/DEC/(16)01	76-77 GHz, obstacle detection radars for rotorcraft use
ECC/DEC/(20)01	The harmonised use of the frequency band 5945-6425 MHz for Wireless Access Systems including Radio Local Area Networks (WAS/RLAN)
ECC/DEC/(21)02	The harmonised frequency band 76-77 GHz, technical characteristics, exemption from individual licensing and free circulation and use of High Definition Ground Based Synthetic Aperture Radar (HD-GBSAR)
ECC/REC/(08)01	The use of the Band 5855-5875 MHz for Intelligent Transport Systems (ITS)
ECC/REC/(11)09	UWB Location Tracking Systems TYPE 2 (LT2)

ECC/REC/(11)10	Location tracking application for emergency and disaster situations (LAES)
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)17	Harmonised frequencies, technical characteristics and exemption from individual licensing of Ultra Low Power Active Medical Implant (ULP-AMI) communication systems operating in the frequency band 401 - 406 MHz on a secondary basis
ERC/DEC/(94)03	The frequency band to be designated for the coordinated introduction of the Digital European Cordless Telecommunications system
ERC/DEC/(98)22	Exemption from Individual Licensing of DECT equipment

Table 16: ECC/ERC Reports

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 002	SAP/SAB (Incl. ENG/OB) spectrum use and future requirements
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 Report 013	Adjacent band compatibility between Short Range Devices and TETRA TAPS mobile services at 870 MHz
ECC Report 023	Compatibility of automotive collision warning short range radar operating at 24 GHz with FS, EESS and Radio Astronomy
ECC Report 024	PLT, DSL, CABLE communications (Including CABLE TV), LANS and their effect on radio services
ECC Report 037	Compatibility of planned SRD applications in 863-870 MHz
ECC Report 040	Adjacent band compatibility between CDMA-PAMR mobile services and Short Range Devices below 870 MHz
ECC Report 055	Compatibility between existing and proposed SRDs and other radiocommunication applications in the 169.4-169.8 MHz frequency band. See supplementary excel spreadsheets in download
ECC Report 056	Compatibility of automotive collision warning short range radar operating at 79 GHz with radiocommunication services
ECC Report 064	The protection requirements of radiocommunication systems below 10.6 GHz from generic UWB applications
ECC Report 067	Compatibility study for generic limits for the emission levels of inductive SRDs below 30 MHz

ECC Report 068	Compatibility studies in the band 5725-5875 MHz between Fixed Wireless Access (FWA) systems and other systems
ECC Report 073	Compatibility of SRD in the FM radio broadcasting band
ECC Report 081	The coexistence between Ultra Low Power - Animal Implant Devices (ULP-AID) operating in the frequency band 12.5-20 MHz and existing radiocommunication systems
ECC Report 094	Technical requirements for UWB LDC devices to ensure the protection of FWA systems
ECC Report 098	Studying the compatibility issues of the UIC EUROLOOP system with other systems in the frequency band 9.5 to 17.5 MHz
ECC Report 100	Compatibility studies in the band 3400-3800 MHz between broadband wireless access (BWA) systems and other services
ECC Report 111	Compatibility studies between Ground Based Synthetic Aperture Radar (GBSAR) and existing services in the range 17.1 GHz to 17.3 GHz
ECC Report 113	Compatibility studies around 63 GHz between Intelligent Transport Systems (ITS) and other systems
ECC Report 114	Compatibility studies between multiple GIGABIT wireless systems in frequency range 57-66 GHz and other services and systems (except its in 63-64 GHz)
ECC Report 120	Technical requirements for UWB DAA (Detect And Avoid) devices to ensure the protection of radiolocation in the bands 3.1-3.4 GHz and 8.5-9 GHz and BWA terminals in the band 3.4-4.2 GHz
ECC Report 134	Analysis of potential impact of mobile Vehicle Radars (VR) on Radar Speed Meters (RSM) operating at 24 GHz
ECC Report 135	Inductive limits in the frequency range 9 kHz to 148.5 kHz
ECC Report 139	Impact of Level Probing Radars (LPR), using Ultra-Wideband Technology on radiocommunications services
ECC Report 149	Compatibility of LP-AMI applications within 2360-3400 MHz, in particular for the band 2483.5-2500 MHz, with incumbent services
ECC Report 164	Compatibility between Wide Band Low Activity Mode (WLAM) automotive radars in the frequency range 24.25 GHz to 24.5 GHz, and other radiocommunication systems/services
ECC Report 170	Specific UWB applications in the bands 3.4-4.8 GHz and 6-8.5 GHz Location Tracking Applications for Emergency Services (LAES), location tracking applications type 2 (LT2) and location tracking and sensor applications for automotive and transportation environments (LTA)
ECC Report 175	Co-existence study considering UWB applications inside aircraft and existing radio services in the frequency bands from 3.1 GHz to 4.8 GHz and from 6.0 GHz to 8.5 GHz
ECC Report 176	The impact of non-specific SRDs on radio services in the band 57-66 GHz
ECC Report 181	Improving spectrum efficiency in SRD bands
ECC Report 182	Survey about the use of the frequency band 863-870 MHz
ECC Report 189	Future Spectrum Demand for Short Range Devices in the UHF Frequency Bands

ECC Report 190	Compatibility between Short-Range Devices (SRD) and EESS (passive) in the 122 to 122.25 GHz band
ECC Report 200	Co-existence studies for proposed SRD and RFID applications in 870 to 876 MHz and 915 to 921 MHz
ECC Report 201	Compatibility study between MBANS operating in the 2400 - 2483.5 MHz and 2483.5 - 2500 MHz bands and other systems in the same bands or in adjacent bands
ECC Report 204	Spectrum use and future requirements for PMSE
ECC Report 206	Compatibility studies in the band 5725-5875 MHz between SRD equipment for wireless industrial applications and other systems
ECC Report 207	Adjacent band co-existence of SRDs in the band 863-870 MHz with LTE usage below 862 MHz
ECC Report 208	Impact of RFID devices on radio services in the band 13.56 MHz
ECC Report 222	The impact of Surveillance Radar equipment operating in the 76 to 79 GHz range for helicopter application on radio systems
ECC Report 228	Compatibility studies between ITS in the band 5855-5925 MHz and other systems in adjacent bands
ECC Report 230	Harmonisation Possibilities for Assistive Listening Devices in the Band 174-216 MHz
ECC Report 234	Analyses of LDC UWB mitigation techniques with respect to incumbent radiocommunication services within the band 3.1 to 3.4 GHz
ECC Report 246	Wideband and Higher DC Short Range Devices in 870-875.8 MHz and 915.2-920.8 MHz (companion to ECC Report 200)
ECC Report 250	Compatibility studies between TTT/DSRC in the band 5805-5815 MHz and other systems
ECC Report 251	The impact of UWB applications on board aircraft in the band 6-8.5 GHz on FS links used around airports and on EESS earth stations
ECC Report 253	Compatibility studies for audio PMSE at 1492-1518 MHz and 1518-1525 MHz
ECC Report 261	Short Range Devices in the frequency range 862-870 MHz
ECC Report 262	Studies related to surveillance radar equipment operating in the 76 to 77 GHz range for fixed transport infrastructure
ECC Report 267	Coexistence of Wideband Ultra-Low Power Wireless Medical Capsule Endoscopy Application operating in the frequency band 430-440 MHz
ECC Report 268	Technical and Regulatory Aspects and the Needs for Spectrum Regulation for Unmanned Aircraft Systems (UAS)
ECC Report 270	Sharing studies between Telecoil Replacement Systems (TRS) and Mobile Satellite Service (MSS) in the frequency range 1656.5-1660.5 MHz
ECC Report 277	Use of SRD applications in cars in the band 5725-5875 MHz
ECC Report 278	Specific UWB applications in the bands 3.4-4.8 GHz and 6.0-8.5 GHz: Location tracking and sensor applications (LTA) for vehicular access systems
ECC Report 284	Feasibility studies of Person detection and collision avoidance applications in the 446-457.1 kHz range
ECC Report 288	Conditions for the coexistence between Fixed Service and other envisaged outdoor uses/applications in the 57-66 GHz range

ECC Report 289	Wireless Power Transmission (WPT) systems for electrical vehicles (EV) operating within 79-90 kHz band
ECC Report 290	Studies to examine the applicability of ECC Reports 101 and 228 for various Intelligent Transport Systems (ITS) technologies under EC Mandate (RSCOM 17-26Rev.3)
ECC Report 291	Compatibility studies between smart tachograph, weight&dimension applications and systems operating in the band 5795-5815 MHz and in the adjacent bands
ECC Report 302	Sharing and compatibility studies related to Wireless Access Systems including Radio Local Area Networks (WAS/RLAN) in the frequency band 5925-6425 MHz
ECC Report 310	Evaluation of receiver parameters and the future role of receiver characteristics in spectrum management, including in sharing and compatibility studies
ECC Report 315	Feasibility of spectrum sharing between High-Definition Ground Based Synthetic Aperture Radar (HD-GBSAR) application using 1 GHz bandwidth within 74-81 GHz and existing services and applications
ECC Report 316	Sharing studies assessing short-term interference from Wireless Access Systems including Radio Local Area Networks (WAS/RLAN) into Fixed Service in the frequency band 5925-6425 MHz
ECC Report 323	Spectrum use and future spectrum requirements for PMSE
ECC Report 325	Compatibility and technical feasibility of coexistence studies for the potential introduction of new terrestrial applications operating in the 2483.5-2500 MHz frequency band with existing services / applications in the same band and adjacent bands
ECC Report 326	Implementation conditions of SRD up to 500 mW in the first RFID interrogator channel centred at 916.3 MHz of the frequency band 915-919.4 MHz
ECC Report 327	Technical studies for the update of the Ultra Wide Band (UWB) regulatory framework in the band 6.0 GHz to 8.5 GHz
ECC Report 330	To enable WAS/RLAN use on a national basis in the band 5725-5850 MHz but also ensure the protection of RTTT/Smart Tachograph and radars (including Fast Frequency Hopping) taking into account free circulation of WAS/RLAN
ECC Report 333	Non-beam Wireless Power Transmission (WPT) applications other than WPT-EV operating in various frequency bands below 30 MHz
ECC Report 334	UWB radiodetermination applications in the frequency range 116-260 GHz
ERC Report 001	Harmonisation of frequency bands to be designated for Radio Local Area Networks (RLANs)
ERC Report 003	Harmonisation of frequency bands to be designated for road transport information systems (RTTT)
ERC Report 005	ERC Report on frequency bands for Low Power Devices
ERC Report 008	General methodology for assessing compatibility between Radio Local Area Networks (RLANs) and the fixed Service
ERC Report 014	Co-existence of radio local area networks with the microwave landing system
ERC Report 015	Compatibility study between radar and RLANs operating at frequencies around 5.5 GHz
ERC Report 042	Handbook on radio equipment and systems radio microphones and simple wide band audio links

ERC Report 044	Sharing inductive systems and radiocommunication systems in the band 9-135 kHz
ERC Report 047	Compatibility fixed services and motion sensors at 10.5 GHz
ERC Report 062	Compatibility analysis regarding possible sharing between the UIC system and radio microphones in the frequency ranges 876-880 MHz and 921-925 MHz
ERC Report 063	Radio microphone applications in the frequency range 1785-1800 MHz
ERC Report 067	Study of the Frequency sharing between HIPERLANs and MSS feeder links in the 5 GHz band
ERC Report 069	Propagation model and interference range calculation for inductive systems in 10 kHz - 30 MHz
ERC Report 072	Compatibility studies related to the possible extension band for HIPERLANs at 5 GHz
ERC Report 074	RFID and the radio astronomy services at 13 MHz
ERC Report 088	Compatibility and sharing analysis between DVB-T and radio microphones in bands IV and V
ERC Report 092	Sharing inductive Short Range Devices and radio communication systems in 10.2-11 MHz
ERC Report 095	The use of 3155-3400 kHz for general inductive applications
ERC Report 096	The use of 290-300 kHz and 500-510 kHz for general inductive applications
ERC Report 098	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

Table 17: ETSI Harmonised European Standards: Generic Standards

Generic standards	
EN 300 220-2	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment to be used in the 25 MHz to 1000 MHz frequency range with power levels ranging up to 500 mW
EN 300 330	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz
EN 300 440	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short range devices; Radio equipment to be used in the 1 GHz to 40 GHz frequency range
EN 302 065-1	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD) using Ultra Wide Band technology (UWB); Requirements for Generic UWB applications
EN 303 660	Radio equipment to be used in the frequency range below 9kHz; Harmonized Standard covering the essential requirements of article 3.2 of the Directive for 2014/53/EU

Generic standards	
EN 305 550	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment to be used in the 40 GHz to 246 GHz frequency range

Table 18: ETSI Harmonised European Standards: Specific Standards

Specific standards	
EN 300 220-3-1	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices; Low duty cycle high reliability equipment, social alarms equipment operating on designated frequencies (869.2 MHz to 869.25 MHz)
EN 300 220-3-2	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices; Wireless alarms operating in designated LDC/HR frequency bands 868.60 MHz to 868.70 MHz, 869.25 MHz to 869.40 MHz, 869.65 MHz to 869.70 MHz
EN 300 220-4	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices; Metering devices operating in designated band 169.4 MHz to 169.475 MHz
EN 300 328	Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband Transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using spread spectrum modulation techniques
EN 300 422-1	Electromagnetic compatibility and Radio spectrum Matters (ERM); Audio PMSE up to 3 GHz; Class A Receivers
EN 300 422-2	Electromagnetic compatibility and Radio spectrum Matters (ERM); Audio PMSE up to 3 GHz; Class B Receivers
EN 300 422-3	Electromagnetic compatibility and Radio spectrum Matters (ERM); Audio PMSE up to 3 GHz; Class C Receivers
EN 300 422-4	Electromagnetic compatibility and Radio spectrum Matters (ERM); Audio PMSE up to 3 GHz; Assistive Listening Devices including personal sound amplifiers and inductive systems up to 3 GHz
EN 300 433	Electromagnetic compatibility and Radio spectrum Matters (ERM); Citizens' Band (CB) radio equipment
EN 300 674-2-1	Transport and Traffic Telematics (TTT); Dedicated Short Range Communication (DSRC) transmission equipment (500 kbit/s / 250 kbit/s) operating in the 5 795 MHz to 5 815 MHz frequency band; Road Side Units (RSU)
EN 300 674-2-2	Transport and Traffic Telematics (TTT); Dedicated Short Range Communication (DSRC) transmission equipment (500 kbit/s / 250 kbit/s) operating in the 5 795 MHz to 5 815 MHz frequency band; On-Board Units (OBU)
EN 300 718	Electromagnetic compatibility and Radio spectrum matters (ERM); Avalanche Beacons; Transmitter-receiver systems
EN 301 091-1	Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Short Range Devices; Transport and Traffic Telematics (TTT); Radar equipment operating in the 76 GHz to 77 GHz range; Ground based vehicular radar
EN 301 091-2	Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Short Range Devices; Transport and Traffic Telematics (TTT); Radar equipment operating in the 76 GHz to 77 GHz range; Fixed infrastructure radar equipment

Specific standards	
EN 301 091-3	Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Short Range Devices; Transport and Traffic Telematics (TTT); Radar equipment operating in the 76 GHz to 77 GHz range; Railway/Road Crossings obstacle detection system applications
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
EN 301 406	Digital Enhanced Cordless Telecommunications (DECT)
EN 301 559	Low Power Active Medical Implants (LP-AMI) operating in the frequency range 2 483,5 MHz to 2 500 MHz
EN 301 839	Ultra Low Power Active Medical Implants (ULP-AMI) and associated Peripherals (ULP-AMI-P) operating in the frequency range 402 MHz to 405 MHz
EN 301 893	Broadband Radio Access Networks (BRAN); 5 GHz high performance RLAN
EN 302 065-2	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD) using Ultra Wide Band technology (UWB); Requirements for UWB location tracking
EN 302 065-3	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD) using Ultra Wide Band technology (UWB); Requirements for UWB devices for ground based vehicular applications
EN 302 065-4	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD) using Ultra Wide Band technology (UWB); Material Sensing devices using UWB technology below 10.6 GHz
EN 302 065-5	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD) using Ultra Wide Band technology (UWB); Devices using UWB technology onboard aircraft
EN 302 066	Electromagnetic compatibility and Radio spectrum Matters (ERM);Ground- and Wall- Probing Radar applications (GPR/WPR) imaging systems
EN 302 195	Electromagnetic compatibility and Radio spectrum Matters (ERM); Radio equipment in the frequency range 9 kHz to 315 kHz for Ultra Low Power Active Medical Implants (ULP-AMI) and accessories
EN 302 208	Electromagnetic compatibility and Radio spectrum Matters (ERM); Radio Frequency Identification Equipment operating in the band 865 MHz to 868 MHz with power levels up to 2 W
EN 302 264	Electromagnetic compatibility and Radio spectrum Matters (ERM);Short Range Devices; Road Transport and Traffic Telematics (RTTT);Short Range Radar equipment operating in the 77 GHz to 81 GHz band
EN 302 288	Electromagnetic compatibility and Radio spectrum Matters (ERM);Short Range Devices; Road Transport and Traffic Telematics (RTTT);Short range radar equipment operating in the 24 GHz range
EN 302 372	Electromagnetic compatibility and Radio spectrum Matters (ERM);Short Range Devices (SRD); Equipment for Detection and Movement; Tanks Level Probing Radar (TLPR) operating in the frequency bands 5.8 GHz, 10 GHz, 25 GHz, 61 GHz and 77 GHz

Specific standards	
EN 302 510	Electromagnetic compatibility and Radio spectrum Matters (ERM);Radio equipment in the frequency range 30 MHz to 37,5 MHz for Ultra Low Power Active Medical Membrane Implants and Accessories
EN 302 536	Electromagnetic compatibility and Radio spectrum Matters (ERM);Short Range Devices (SRD);Radio equipment in the frequency range 315 kHz to 600 kHz
EN 302 537	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Ultra Low Power Medical Data Service Systems operating in the frequency range 401 MHz to 402 MHz and 405 MHz to 406 MHz
EN 302 567	Broadband Radio Access Networks (BRAN); 60 GHz Multiple-Gigabit WAS/RLAN Systems
EN 302 571	Intelligent Transport Systems (ITS); Radiocommunications equipment operating in the 5 855 MHz to 5 925 MHz frequency band
EN 302 608	Electromagnetic compatibility and Radio spectrum Matters (ERM);Short Range Devices (SRD);Radio equipment for Eurobalise railway systems
EN 302 609	Electromagnetic compatibility and Radio spectrum Matters (ERM);Short Range Devices (SRD);Radio equipment for Euroloop railway systems
EN 302 686	Intelligent Transport Systems (ITS); Radiocommunications equipment operating in the 63 GHz to 64 GHz frequency band
EN 302 729	Short Range Devices (SRD); Level Probing Radar (LPR) equipment operating in the frequency ranges 6 GHz to 8,5 GHz, 24,05 GHz to 26,5 GHz, 57 GHz to 64 GHz, 75 GHz to 85 GHz
EN 302 858	Electromagnetic compatibility and Radio spectrum Matters (ERM);Road Transport and Traffic Telematics (RTTT); Short range radar equipment operating in the 24.05 GHz to 24.25 GHz frequency range for automotive applications
EN 303 203	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Medical Body Area Network Systems (MBANSs) operating in the 2483,5 MHz to 2500 MHz range
EN 303 204	Electromagnetic compatibility and Radio spectrum Matters (ERM); Network Based Short Range Devices (SRD); Radio equipment to be used in the 870 MHz to 876 MHz frequency range with power levels ranging up to 500 mW
EN 303 258	Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless industrial automation; Radio equipment to be used in the 5,725 GHz to 5,875 GHz frequency range with power levels ranging up to 400 mW
EN 303 348	Audio frequency induction loop drivers up to 45 amperes in the frequency range 10 Hz to 9 kHz
EN 303 360	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices; Transport and Traffic Telematics (TTT); EN for Obstacle Detection Radar equipment operating in the 76 GHz to 77 GHz range
EN 303 405	Land Mobile Service; Analogue and Digital PMR446 Equipment
EN 303 447	Short Range Devices (SRD); Inductive loop systems for robotic mowers in the frequency range 0 Hz to 148,5 kHz; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU

Specific standards	
EN 303 454	Short Range Devices (SRD); Metal and object detection sensors in the frequency range 1 kHz to 148,5 kHz; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU
EN 303 520	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices; Ultra Low Power (ULP) wireless medical capsule endoscopy devices operating in the band 430 MHz to 440 MHz
EN 303 659	Short Range Devices (SRD) in Data Networks; Radio equipment to be used in the frequency ranges 865-868 MHz and 915-919.4MHz; Harmonised Standard for access to radio spectrum SRD in Data Networks in 865-868 MHz/915-919.4MHz
EN 303 661	Short Range Devices (SRD); Ground Based Synthetic Aperture Radar (GBSAR) and High Definition Ground Based Synthetic Aperture Radar (HD-GBSAR); Harmonised Standard for access to radio spectrum
EN 303 687	6 GHz WAS/RLAN Harmonised Standard for access to radio spectrum

Table 19: EC Decisions

EC Decision	
2004/545/EC	The harmonisation of radio spectrum in the 79 GHz range for the use of Automotive Short-Range Radar equipment in the community
2005/50/EC	The harmonisation of the 24 GHz range radio spectrum band for the time-limited use by Automotive Short-Range Radar equipment in the community
2005/513/EU	The harmonised use of radio spectrum in the 5 GHz frequency band for the implementation of wireless access systems including radio local area networks (WAS/RLANs)
2006/771/EC	Harmonisation of the radio spectrum for use by short-range devices
2006/804/EC	Harmonisation of the radio spectrum for radio frequency identification (RFID) devices operating in the ultra high frequency (UHF) band
2007/131/EC	Allowing the use of the radio spectrum for equipment using Ultra-wideband technology in a harmonised manner in the community
2007/346/EC	Granting a derogation requested by France pursuant to Decision 2006/804/EC on harmonisation of the radio spectrum for Radio Frequency Identification (RFID) devices operating in the Ultra High Frequency (UHF) band
2007/90/EC	Amending Decision 2005/513/EC on the harmonised use of radio spectrum in the 5 GHz frequency band for the implementation of Wireless Access Systems including Radio Local Area Networks (WAS/RLANs)
2008/432/EC	Amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by short-range devices
2009/343/EC	Amending the Decision 2007/131/EC on the harmonised use of the radio spectrum for equipment using UWB technology
2009/381/EC	Amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by SRD

EC Decision	
2010/368/EU	Amending the Decision 2006/771/EC on harmonisation of the radio spectrum for use by SRD
2011/485/EU	Harmonisation of the 24 GHz range radio spectrum band for the time-limited use by automotive SRR equipment in the Community
2011/829/EU	Amending Decision 2006/771/EC on the harmonisation of the radio spectrum for use by SRD
2013/752/EU	Amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by short-range devices and repealing Decision 2005/928/EC
2014/641/EU	Harmonised technical conditions of spectrum use by programme making and special events equipment in the Union
2014/702/EU	Amending 2007/131/EC on allowing the use of the radio spectrum for equipment using ultra-wideband technology in a harmonised manner in the Community
2017/1438/EU	Amending Decision 2007/131/EC on allowing the use of the radio spectrum for equipment using ultra-wideband technology in a harmonised manner in the Community
2017/1483/EU	Amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by SRD and repealing Decision 2006/804/EC
2018/1538/EU	Commission Implementing Decision 2018/1538/EU of 11 October 2018 on the harmonisation of radio spectrum for use by short-range devices within the 874-876 and 915-921 MHz frequency bands
2019/1345/EU	Commission Implementing Decision (EU) 2019/1345 of 2 August 2019 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices
2019/785/EU	Commission Implementing Decision (EU) 2019/785 of 14 May 2019 on the harmonisation of radio spectrum for equipment using ultra-wideband technology in the Union and repealing Decision 2007/131/EC
2020/1426/EU	The harmonised use of radio spectrum in the 5 875-5 935 MHz frequency band for safety-related applications of intelligent transport systems (ITS) and repealing Decision 2008/671/EC
2021/1067/EU	The harmonised use of radio spectrum in the 5945-6425 MHz frequency band for the implementation of wireless access systems including radio local area networks (WAS/RLANs)
2022/172/EU	The harmonisation of radio spectrum for use by short-range devices within the 874-876 and 915-921 MHz frequency bands
2022/179/EU	The harmonised use of radio spectrum in the 5 GHz frequency band for the implementation of wireless access systems including radio local area networks
2022/180/EU	The update of harmonised technical conditions in the area of radio spectrum use for short-range devices
91/287/EEC	Council Directive 91/287/EEC of 3 June 1991 on the frequency band to be designated for the coordinated introduction of digital European cordless telecommunications (DECT) into the Community

APPENDIX 3: NATIONAL RESTRICTIONS

“Appendix 3 lists national restrictions. The first section contains general comments from administrations and these apply to all annexes in this Recommendation. The second section contains comments from administrations and these are on specific frequency bands contained within this Recommendation. These indicate where administrations are not able to implement frequency allocations or where implementation is incomplete. For consistency, one of the following four standard positions should be used:
a. Implemented: If the Appendix entry is blank then Recommendation 70-03 has been fully implemented.
b. Limited implementation: A short explanation can be provided. If under study or planned, then a date should be given.
c. Not implemented: A short explanation can be provided. If under study or planned, then a date should be given.
d. No information: No information has yet been provided by the administration.”

Frequency Band	Country	Implementation	Reason/remarks
All annexes	Albania		Frequencies covered by ERC/REC 70-03 are implemented through the notes of the National Frequency Table, for each band mentioned in 70-03
	Germany		Clarification of the terms contained in the table reference to the German Telecommunications Act of 22 June 2004: 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 license required" within the meaning of ERC/REC 70-03; general frequency assignments are granted ex officio by administrative act, published in the Federal Network Agency's Official Gazette and correspond to "individual license not required" within the meaning of ERC/REC 70-03
	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 devices and to countries which have already adopted these markings. The marking CEPT SRD Aa Y proposed by ERC/REC 70-03 will not be recognised in France. In any case in France marking issues are in line with the RE Directive.
	Lithuania		The radio frequencies may be used without an individual authorisation in case the relevant radio frequency or radio frequencies band is included in the List of Radio Frequencies, which may be used without an Individual Authorisation, approved by Order No. 1V-893 of 9 September 2010 of the Director of the Communications Regulatory Authority. Radio equipment must conform to the requirements of the List

Frequency Band	Country	Implementation	Reason/remarks
	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. Decision Nr. 126 dated 02.06.2009 of the Administrative Council of the National Regulatory Agency for electronic Communications and Information Technology of the Republic of Moldova, owners of short range radiocommunication devices have the right to use several categories of frequencies in compliance with the ERC/REC 70-03 without obtaining a license for the use of radio frequencies/channels or a technical permit
	Norway		The Regulations do not apply to frequencies in the range of 2 GH–32 GHz in the geographic area within a 20 km radius of the centre of Ny-Ålesund at Svalbard. All licence exempt use prohibited in this area within this frequency band
	Turkey		Pursuant to the By-law on Radio Devices and Systems Exempt from Frequency Assignment published in the Official Gazette no. 30608 and dated 27/11/2018 the “Technical Criteria regarding Radio Devices and Systems Exempt from Frequency Assignment” is published on ICTA’s website and is being updated periodically. (https://www.btk.gov.tr/uploads/regulations/frekans-tahsisinden-muaf-telsiz-cihaz-sistemleri-olcutler.pdf).
ANNEX 1: NON-SPECIFIC SHORT RANGE DEVICES Band D 40.66-40.7 MHz	Ireland	Implemented	This frequency band is also identified in Table 8.
ANNEX 1: NON-SPECIFIC SHORT RANGE DEVICES Band E 138.2-138.45 MHz	France	Not implemented	Military use
	Germany	Not implemented	Defence systems
	Hungary	Not implemented	Aeronautical mobile applications operate in the band
	Italy	Not implemented	Military application
	Latvia	Not implemented	Exclusive defence systems
	Netherlands	Not implemented	Exclusive defence systems
	Poland	Not implemented	Military application

Frequency Band	Country	Implementation	Reason/remarks
	Slovakia	Not implemented	Not available
	Spain	Not implemented	Military applications. See national note UN-19 in the NTAF
	Switzerland	Not implemented	Exclusive defence systems
ANNEX 1: NON-SPECIFIC SHORT RANGE DEVICES Band F1 169.4-169.475 MHz	Ireland	Implemented	For metering devices, the duty cycle limit is 10,0%
ANNEX 1: NON-SPECIFIC SHORT RANGE DEVICES Band G1 433.05-434.79 MHz	Portugal	Implemented	Analogue audio applications other than voice are excluded. Analogue video applications are excluded
ANNEX 1: NON-SPECIFIC SHORT RANGE DEVICES Band G2 433.05-434.79 MHz	Ireland	Implemented	Voice applications are allowed with a maximum bandwidth of 25 kHz, with a spectrum access technique such as LBT or equivalent and a maximum transmit period of 1 minute for each transmission. Other audio/video applications are excluded.
ANNEX 1: NON-SPECIFIC SHORT RANGE DEVICES Band H1.2 863-870 MHz (note 2)	Ireland	Implemented	Frequency bands for alarms are excluded.
ANNEX 1: NON-SPECIFIC SHORT RANGE DEVICES Band H1.5 868-868.6 MHz	Ireland	Implemented	Requirements on techniques to access spectrum and mitigate interference apply.
ANNEX 1: NON-SPECIFIC SHORT RANGE DEVICES Band H1.6 868.7-869.2 MHz	Ireland	Implemented	Requirements on techniques to access spectrum and mitigate interference apply.
ANNEX 1: NON-SPECIFIC SHORT RANGE DEVICES Band H1.7 869.4-869.65 MHz	Ireland	Implemented	Requirements on techniques to access spectrum and mitigate interference apply.

Frequency Band	Country	Implementation	Reason/remarks
ANNEX 1: NON-SPECIFIC SHORT RANGE DEVICES Band H1.8 869.7-870 MHz	Ireland	Implemented	Voice applications are allowed with a maximum bandwidth of 25 kHz, with a spectrum access technique such as LBT or equivalent and a maximum transmit period of 1 minute for each transmission. Other audio/voice applications are excluded.
ANNEX 1: NON-SPECIFIC SHORT RANGE DEVICES Band H1.9 869.7-870 MHz	Ireland	Implemented	Requirements on techniques to access spectrum and mitigate interference apply.
ANNEX 1: NON-SPECIFIC SHORT RANGE DEVICES Band H2 870-874.4 MHz (note 6)	Belgium	Limited implementation	870-873 MHz
	Finland	Limited implementation	Limited to 870-873 MHz
	Germany	Not implemented	not available
	Hungary	Implemented	With ER-GSM protection
	Liechtenstein	Limited implementation	limited to 870-873 MHz: ER-GSM protection
	Spain	Implemented	See national note UN-40 in the NTAF
	Sweden	Implemented	Usage are based on licenses, and all usages which follow the conditions according to the EU 2018/1538 are guaranteed to get licenses.
	Switzerland	Limited implementation	Limited to 870 - 873 MHz: ER-GSM protection
	United Kingdom	Implemented	The Additional restrictions to protect ER-GSM apply in the UK
ANNEX 1: NON-SPECIFIC SHORT RANGE DEVICES Band H3 915-919.4 MHz (note 7)	Belgium	Limited implementation	915-918MHz
	Germany	Not implemented	not available
	Hungary	Implemented	With ER-GSM protection
	Liechtenstein	Limited implementation	"25 mW limited to 915.2 - 918 MHz: ER-GSM protection. (100 mW 400 kHz BW limted to center freq. 916.3 and 917.5 MHz.)"
	Portugal	Limited implementation	Available from 917.4 to 919.4 MHz as defined in EU Decision 2018/1538
	Spain	Implemented	See national note UN-40 in the NTAF
	Sweden	Implemented	Usage are based on licenses, and all usages which follow the conditions according to the EU 2018/1538 are guaranteed to get licenses.

Frequency Band	Country	Implementation	Reason/remarks
	Switzerland	Limited implementation	25 mW limited to 915.2 - 918 MHz: ER-GSM protection. (100 mW 400 kHz BW limted to center freq. 916.3 and 917.5 MHz.)
	United Kingdom	Implemented	The Additional restrictions to protect ER-GSM apply in the UK
ANNEX 1: NON-SPECIFIC SHORT RANGE DEVICES Band K2 6000-9000 MHz	Ukraine	Under study	Under study for 3.1-4.8 GHz
ANNEX 1: NON-SPECIFIC SHORT RANGE DEVICES Band M 24-24.25 GHz	France	Limited implementation	Limited to 0.1 mW e.i.r.p. in 24.10-24.15 GHz
	United Kingdom	Limited implementation	Only 24.150-24.250 GHz to protect police speed meters
ANNEX 2: TRACKING, TRACING AND DATA AQUISITION Band A1 442.2-450 kHz	Belgium	Implemented	Non specific short rage device as in 2019/1345
ANNEX 2: TRACKING, TRACING AND DATA AQUISITION Band A2 456.9-457.1 kHz	Ukraine	Limited implementation	The maximal strength of magnetic field is 7 dBμA/m on distance of 10 m from a construction where the radiator is placed
ANNEX 2: TRACKING, TRACING AND DATA AQUISITION Band C2 870-874.4 MHz (note 5)	Belgium	Limited implementation	(870-873 MHz)
	France	Limited implementation	Limited to 874-874.4 MHz
	Germany	Not implemented	not available
	Hungary	Implemented	With ER-GSM protection
	Italy	Under study	870-874 MHz: NOT IMPLEMENTED 874-874.4 MHz: UNDER STUDY (according to footnote 6 of decision (EU)2018/1538)
	Liechtenstein	Limited implementation	Limited to 870-873 MHz. (ER-GSM Protection)
	Portugal	Limited implementation	Available from 874 to 874.4 MHz as defined in EU Decision 2018/1538
	Spain	Implemented	See national note UN-40 in the NTAF
	Sweden	Implemented	Usage are based on licenses, and all usages which follow the conditions according to the EU 2018/1538 are guaranteed to get licenses.

Frequency Band	Country	Implementation	Reason/remarks
	Switzerland	Limited implementation	Limited to 870-873 MHz. (ER-GSM Protection)
ANNEX 2: TRACKING, TRACING AND DATA AQUISITION Band C3 917.3-918.9 MHz (Note 6)	Belgium	Implemented	Non specific short range device as in 2018/1538
	Finland	Implemented	Non-specific SRD for data networks as in the Commission decision (EU) 2018/1538
	Liechtenstein	Limited implementation	Limited to 917.3 - 917.7 MHz. (ER-GSM protection)
	Spain	Implemented	See national note UN-40 in the NTAF
	Sweden	Implemented	Usage are based on licenses, and all usages which follow the conditions according to the EU 2018/1538 are guaranteed to get licenses.
	Switzerland	Limited implementation	Limited to 917.3 - 917.7 MHz. (ER-GSM protection)
ANNEX 2: TRACKING, TRACING AND DATA AQUISITION Band C4 915-919.4 MHz	Belgium	Limited implementation	(915-918 MHz)
	France	Limited implementation	Limited to 917.4-919.4 MHz
	Liechtenstein	Limited implementation	Limited to 915 - 918 MHz. (ER-GSM protection)
	Portugal	Limited implementation	Available from 917.4 to 919.4 MHz as defined in EU Decision 2018/1538
	Spain	Implemented	See national note UN-40 in the NTAF
	Sweden	Implemented	Usage are based on licenses, and all usages which follow the conditions according to the EU 2018/1538 are guaranteed to get licenses.
	Switzerland	Limited implementation	Limited to 915 - 918 MHz. (ER-GSM protection)
ANNEX 3: WIDEBAND DATA TRANSMISSION SYSTEMS Band A1 863-868 MHz	Ireland	Implemented	Requirements on techniques to access spectrum and mitigate interference apply.
	Spain	Implemented	NTAF UN-111
ANNEX 3: WIDEBAND DATA TRANSMISSION SYSTEMS Band A2 915.8-919.4 MHz	Bulgaria	Limited implementation	Limited to 917.4-919.4 MHz.
	Finland	Limited implementation	Limited to 917,4-919,4 MHz
	France	Limited implementation	Limited to 917.4-919.4 MHz
	Portugal	Limited implementation	Available from 917.4 to 919.4 MHz as defined in EU Decision 2018/1538
	Spain	Not implemented	See national note UN-40 in the NTAF

Frequency Band	Country	Implementation	Reason/remarks
	Sweden	Implemented	Usage are based on licenses, and all usages which follow the conditions according to the EU 2018/1538 are guaranteed to get licenses.
ANNEX 3: WIDEBAND DATA TRANSMISSION SYSTEMS Band B 2400-2483.5 MHz	Azerbaijan	Limited implementation	No license needed if used indoor and power not exceeding 30 mW
	Italy	Implemented	The public use is subject to general authorisation by the respective service provider
	San Marino	Implemented	The public use is subject to general authorisation by the respective service provider
	Spain	Implemented	NTAF UN-85
	Ukraine	Limited implementation	e.i.r.p. =100 mW with built-in antenna with amplification factor up to 6 dBi
ANNEX 3: WIDEBAND DATA TRANSMISSION SYSTEMS Band C1 57-71 GHz	Bosnia and Herzegovina	Limited implementation	57-66>GHz
	Spain	Implemented	See national note UN-164 in the NTAF
ANNEX 3: WIDEBAND DATA TRANSMISSION SYSTEMS Band C2 57-71 GHz	Spain	Implemented	See national note UN-164 in the NTAF
ANNEX 3: WIDEBAND DATA TRANSMISSION SYSTEMS Band C3 57-71 GHz	Spain	Implemented	See national note UN-164 in the NTAF
ANNEX 4: RAILWAY APPLICATIONS Band A 984-7484 kHz	Spain	Implemented	See national note UN-120 in the NTAF
ANNEX 4: RAILWAY APPLICATIONS Band B 7300-23000 kHz	Spain	Implemented	See national note UN-120 in the NTAF
ANNEX 4: RAILWAY APPLICATIONS Band C 27090-27100 kHz	Spain	Implemented	See national note UN-120 in the NTAF

Frequency Band	Country	Implementation	Reason/remarks
ANNEX 4: RAILWAY APPLICATIONS Band D 76-77 GHz	Spain	Implemented	See national note UN-120 in the NTAF
ANNEX 5: TRANSPORT AND TRAFFIC TELEMATICS (TTT) Band A 5795-5805 MHz	Ireland	Implemented	8W system not implemented
	Liechtenstein	Limited implementation	Annex has two power levels. Lower level with 2 W e.i.r.p. is implemented.
	Malta	Implemented	Power limited to 2 W e.i.r.p. as per the lower limit of the Annex
	Norway	Implemented	Limited to 2 W e.i.r.p. for License exempt
	Spain	Implemented	NTAF UN-87
	Switzerland	Limited implementation	Annex has two power levels. Lower level with 2 W e.i.r.p. is implemented to protect defence systems
	United Kingdom	Limited implementation	2 Watts only permitted
ANNEX 5: TRANSPORT AND TRAFFIC TELEMATICS (TTT) Band B 5805-5815 MHz	Liechtenstein	Limited implementation	Annex has two power levels. Lower level with 2 W e.i.r.p. is implemented. For road toll systems only.
	Malta	Implemented	Power limited to 2 W e.i.r.p. as per the lower limit of the Annex
	Norway	Limited implementation	Limited to 2 W e.i.r.p. for License exempt
	Spain	Implemented	NTAF UN-87
	Switzerland	Limited implementation	Annex has two power levels. Lower level with 2 W e.i.r.p. is implemented. For road toll systems only
	United Kingdom	Limited implementation	2 Watts only permitted
ANNEX 5: TRANSPORT AND TRAFFIC TELEMATICS (TTT) Band C1 21.65-26.65 GHz	Spain	Implemented	NTAF UN-133
ANNEX 5: TRANSPORT AND TRAFFIC TELEMATICS (TTT) Band C2 24.25-26.65 GHz	Spain	Implemented	NTAF UN-133

Frequency Band	Country	Implementation	Reason/remarks
ANNEX 5: TRANSPORT AND TRAFFIC TELEMATICS (TTT) Band D1 24.05-24.075 GHz	Spain	Implemented	NTAF UN-87
ANNEX 5: TRANSPORT AND TRAFFIC TELEMATICS (TTT) Band D2 24.075-24.15 GHz	Liechtenstein	Implemented	100 mW and no dwell time restrictions
	Spain	Implemented	NTAF UN-87
	Switzerland	Implemented	100 mW and no dwell time restrictions
ANNEX 5: TRANSPORT AND TRAFFIC TELEMATICS (TTT) Band D3 24.075-24.15 GHz	Liechtenstein	Implemented	100 mW and no dwell time restrictions
	Spain	Implemented	NTAF UN-87
	Switzerland	Implemented	100 mW and no dwell time restrictions
ANNEX 5: TRANSPORT AND TRAFFIC TELEMATICS (TTT) Band D4 24.075-24.15 GHz	Liechtenstein	Implemented	100 mW and no dwell time restrictions
	Spain	Implemented	NTAF UN-87
	Switzerland	Implemented	100 mW and no dwell time restrictions
ANNEX 5: TRANSPORT AND TRAFFIC TELEMATICS (TTT) Band D5 24.15-24.25 GHz	Spain	Implemented	NTAF UN-87
ANNEX 5: TRANSPORT AND TRAFFIC TELEMATICS (TTT) Band E1 76-77 GHz	Bosnia and Herzegovina	Implemented	Also 77-81 GHz as per ECC/DEC(04)03 and 2004/545/EC
	Ireland	Implemented	Fixed transportation infrastructure radars have to be of a scanning nature in order to limit the illumination time and ensure a minimum silent time to achieve coexistence with automotive radar systems.
	Spain	Implemented	NTAF UN-87
ANNEX 5: TRANSPORT AND TRAFFIC TELEMATICS (TTT) Band E2 76-77 GHz	France	Implemented	Exclusion zone around Nançay observatory
	Spain	Implemented	NTAF UN-87

Frequency Band	Country	Implementation	Reason/remarks
ANNEX 5: TRANSPORT AND TRAFFIC TELEMATICS (TTT) Band F 5855-5875 MHz	Ireland	Implemented	This set of usage conditions is only available to vehicle-vehicle, vehicle-to-infrastructure and infrastructure-to-vehicle systems.
ANNEX 6: RADIODETERMINATION APPLICATIONS Band A 30 MHz-12.4 GHz	France	Limited implementation	Individual licence required in zones defined in Arcep Decision n°2011-1487
	Germany	Limited implementation	Upon a licence application, the conditions stipulated in the Decision (06)08 will be applied
	Sweden	Implemented	Upon a licence application, the conditions stipulated in the Decision (06)08 will be applied
	United Kingdom	Implemented	Devices are limited to GPR only. Full implementation planned
ANNEX 6: RADIODETERMINATION APPLICATIONS Band B 2200-8000 MHz	Austria	Limited implementation	Implementation according to Sub-class 57c
	Lithuania	Limited implementation	only parameters set in 2009/343/EC are allowed
	San Marino	Limited implementation	According to Commission Decision 2009/343/EC
ANNEX 6: RADIODETERMINATION APPLICATIONS Band C 2400-2483.5 MHz	Ukraine	Implemented	e.i.r.p. =100 mW
ANNEX 6: RADIODETERMINATION APPLICATIONS Band F3 24.05-27 GHz	Ukraine	Limited implementation	Limited to 24.05-24.25 GHz
ANNEX 6: RADIODETERMINATION APPLICATIONS Band F5 75-85 GHz	Ukraine	Limited implementation	76-77 GHz with average e.i.r.p. 23.5 dBm
ANNEX 6: RADIODETERMINATION APPLICATIONS Band G1 6000-8500 MHz	United Kingdom	Implemented	Exclusion Zones to protect RAS sites apply. See ECC/DEC/(11)02

Frequency Band	Country	Implementation	Reason/remarks
ANNEX 6: RADIODETERMINATION APPLICATIONS Band G2 24.05-26.5 GHz	France	Implemented	Exclusion zone around Nançay observatory
	United Kingdom	Implemented	Exclusion Zones to protect RAS sites apply. See ECC/DEC/(11)02
ANNEX 6: RADIODETERMINATION APPLICATIONS Band G4 75-85 GHz	France	Implemented	Exclusion zone around Nançay observatory
ANNEX 6: RADIODETERMINATION APPLICATIONS Band H 9200-9500 MHz	United Kingdom	Limited implementation	May be used for Radar Level Gauges only
ANNEX 6: RADIODETERMINATION APPLICATIONS Band I 9500-9975 MHz	France	Limited implementation	Limited to 9880-9920 MHz. Arcep's decision to be published.
	Germany	Not implemented	Defence systems
	Slovakia	Not implemented	Defence systems
	United Kingdom	Limited implementation	May be used for Radar Level Gauges only
ANNEX 6: RADIODETERMINATION APPLICATIONS Band J 10.5-10.6 GHz	Austria	Not implemented	Fixed Service
	Estonia	Not implemented	FWA
	Finland	Limited implementation	For new equipment - power limited to 25 mW e.i.r.p. Duty Cycle 10%, limited to indoor use only. See Finnish Transport and Communications Agency Regulation 15.
	France	Limited implementation	Limited to 10.57-10.61 GHz and 20 mW e.i.r.p. Individual autorisation
	Hungary	Limited implementation	e.i.r.p. 25 mW. ENG/OB systems are protected
	Ireland	Limited implementation	Max power limitation of 25 mW to protect Fixed Wireless Access Local Area Service operating in the 10.5 GHz band
	Luxembourg	Limited implementation	Limited to 25 mW, to avoid interference with other services
	Slovakia	Not implemented	Fixed Service
	Sweden	Limited implementation	Limited to 10.51-10.58 GHz

Frequency Band	Country	Implementation	Reason/remarks
	Turkey	Planned	Fixed Service and radiolocation
	Ukraine	Limited implementation	Limited to 10.51-10.54 GHz
	United Kingdom	Limited implementation	Limited to 10.575-10.600 GHz. Band may also be used for Radar Level Gauges
ANNEX 6: RADIODETERMINATION APPLICATIONS Band K 13.4-14 GHz	Spain	Not implemented	Due to lack of demand
ANNEX 6: RADIODETERMINATION APPLICATIONS Band L 17.1-17.3 GHz	Georgia	Not implemented	Lack of demand
	Serbia	Limited implementation	According to the Frequency Plan this part of the spectrum is aimed for WLL and RLANs
ANNEX 6: RADIODETERMINATION APPLICATIONS Band M 24.05-24.25 GHz	France	Limited implementation	No restriction for fixed installations. Otherwise limited to 0.1 mW e.i.r.p. in 24.10-24.15 GHz. FMCW modulation: limited to 20 mW mean e.i.r.p. and 50 mW peak e.i.r.p. with a minimum frequency sweep speed of 5 MHz/ms.
	United Kingdom	Limited implementation	To protect police speed meters devices operating in 24.05-24.15 GHz must employ a minimum sweep rate of 2 MHz/mS
ANNEX 7: ALARMS Band A 868.6-868.7 MHz	Spain	Implemented	NTAF UN-39
ANNEX 7: ALARMS Band B 869.2-869.25 MHz	Spain	Implemented	NTAF UN-39
ANNEX 7: ALARMS Band C 869.25-869.3 MHz	Spain	Implemented	NTAF UN-39
ANNEX 7: ALARMS Band D 869.3-869.4 MHz	Spain	Implemented	NTAF UN-39
ANNEX 7: ALARMS Band E 869.65-869.7 MHz	Spain	Implemented	NTAF UN-39

Frequency Band	Country	Implementation	Reason/remarks
ANNEX 8: MODEL CONTROL Band A1 26990-27000 kHz	Spain	Implemented	NTAF UN-4
ANNEX 8: MODEL CONTROL Band A2 27040-27050 kHz	Spain	Implemented	NTAF UN-4
ANNEX 8: MODEL CONTROL Band A3 27090-27100 kHz	Spain	Implemented	NTAF UN-4
ANNEX 8: MODEL CONTROL Band A4 27140-27150 kHz	Spain	Implemented	NTAF UN-4
ANNEX 8: MODEL CONTROL Band A5 27190-27200 kHz	Spain	Implemented	NTAF UN-4
ANNEX 8: MODEL CONTROL Band B 34.995-35.225 MHz	France	Limited implementation	Limited to 34.995-35.055 MHz and to flying models
	Germany	Implemented	Limited to 35.005-35.205 MHz. Emergency services
	Spain	Limited implementation	35.025-35.205 MHz NTAF UN-10
ANNEX 8: MODEL CONTROL Band C1 40.66-40.67 MHz	Spain	Implemented	NTAF UN-11
ANNEX 8: MODEL CONTROL Band C2 40.67-40.68 MHz	Spain	Implemented	NTAF UN-11
ANNEX 8: MODEL CONTROL Band C3 40.68-40.69 MHz	Spain	Implemented	NTAF UN-11
ANNEX 8: MODEL CONTROL Band C4 40.69-40.7 MHz	Spain	Implemented	NTAF UN-11

Frequency Band	Country	Implementation	Reason/remarks
ANNEX 9: INDUCTIVE APPLICATIONS Band A0 100 Hz-9 kHz	Germany	Not Regulated	In the German Telecommunications Act "radio spectrum" is defined between 9 kHz and 3000 GHz. This means that in Germany spectrum below 9 kHz may be used without any requirement for a frequency authorisation (neither an individual nor a general authorisation).
	Spain	Limited implementation	Application in the band 8.3-9 kHz according NTAF note UN-114
	Sweden	Not Regulated	The Swedish Telecommunication Act (lagen (2003:389) om elektronisk kommunikation) defines radio waves as electromagnetic waves of frequencies from 9 kHz to 3 000 GHz, propagated in space without artificial guide. Therefore, frequencies below 9 kHz are not regulated by the Telecommunication Act and, thus, are not subject to any regulations/restrictions (licence/authorisation or technical parameters).
ANNEX 9: INDUCTIVE APPLICATIONS Band A1 9-90 kHz	Spain	Implemented	NTAF note UN-114
	Ukraine	Limited implementation	The maximal strength of magnetic field on the distance of 10 m from a construction where the radiator is placed in the band 9-59.75 kHz is 72 dBμA/m, in the band 59.75-60.25 kHz is 42 dBμA/m, in the band 60.250-70 kHz is 69 dBμA/m, in the band 70-119 kHz is 42 dBμA/m
ANNEX 9: INDUCTIVE APPLICATIONS Band A2 90-119 kHz	Spain	Implemented	NTAF note UN-114
ANNEX 9: INDUCTIVE APPLICATIONS Band A3 119-135 kHz	Spain	Implemented	NTAF note UN-114
ANNEX 9: INDUCTIVE APPLICATIONS Band B 135-140 kHz	Spain	Implemented	NTAF note UN-114
ANNEX 9: INDUCTIVE APPLICATIONS Band C 140-148.5 kHz	Spain	Implemented	NTAF note UN-114

Frequency Band	Country	Implementation	Reason/remarks
ANNEX 9: INDUCTIVE APPLICATIONS Band D 400-600 kHz	Ireland	Implemented	The maximum field strength is specified in a bandwidth of 10 kHz The maximum allowed is -5 dBµA/m at bandwidths larger than 10 kHz measured at the centre frequency, whilst keeping the density limit (-8 dBµA/m in a bandwidth of 10 kHz.) These systems should operate with a minimum operating bandwidth of 30 kHz.
	Spain	Implemented	NTAF note UN-114
ANNEX 9: INDUCTIVE APPLICATIONS Band E 3155-3400 kHz	Spain	Implemented	NTAF note UN-114
ANNEX 9: INDUCTIVE APPLICATIONS Band F 6765-6795 kHz	Spain	Implemented	NTAF note UN-114
ANNEX 9: INDUCTIVE APPLICATIONS Band G 7400-8800 kHz	Spain	Implemented	Frequency band 7350-8800 kHz NTAF note UN-114
ANNEX 9: INDUCTIVE APPLICATIONS Band H 10200-11000 kHz	Spain	Implemented	NTAF note UN-114
ANNEX 9: INDUCTIVE APPLICATIONS Band I 13553-13567 kHz	Bosnia and Herzegovina	Implemented	also 26957-27283 kHz, restricted at 42 dBµA/m at 10m
	Spain	Implemented	NTAF note UN-114
ANNEX 9: INDUCTIVE APPLICATIONS Band J 13553-13567 kHz	Spain	Implemented	NTAF note UN-114
	Ukraine	Limited implementation	The maximal strength of magnetic field on the distance of 10 m from a construction where the radiator is placed is 42 dBµA/m
ANNEX 9: INDUCTIVE APPLICATIONS Band K1 148.5-5000 kHz	Ireland	Implemented	The maximum field strength is specified in a bandwidth of 10 kHz. The maximum allowed field strength is-5dBµA/m at 10 m for systems operating at bandwidths larger than 10 kHz whilst keeping the density limit limit (-15 dBµA/m at 10m) Frequency band also identified in Table 6
	Spain	Implemented	NTAF note UN-114

Frequency Band	Country	Implementation	Reason/remarks
ANNEX 9: INDUCTIVE APPLICATIONS Band K2 5000 kHz-30 MHz	Spain	Implemented	NTAF note UN-114
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS Band A0 100 Hz-9 kHz	Germany	Not Regulated	In the German Telecommunications Act "radio spectrum" is defined between 9 kHz and 3000 GHz. This means that in Germany spectrum below 9 kHz may be used without any requirement for a frequency authorisation (neither an individual nor a general authorisation).
	Sweden	Not Regulated	The Swedish Telecommunication Act (lagen (2003:389) om elektronisk kommunikation) defines radio waves as electromagnetic waves of frequencies from 9 kHz to 3 000 GHz, propagated in space without artificial guide. Therefore, frequencies below 9 kHz are not regulated by the Telecommunication Act and, thus, are not subject to any regulations/restrictions (licence/authorisation or technical parameters).
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS Band A1 29.7-47 MHz	Austria	Limited implementation	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
	Azerbaijan	Limited implementation	Whole band available, individual licence required
	Croatia	Not implemented	Defence systems
	Czech Republic	Limited implementation	Only four sub-bands allowed: 27.415-27.915 MHz 10 mW e.r.p. channel max 50 kHz. 36.4-36.65 MHz 10 mW e.r.p. channel max 50 kHz. 36.65-38.0 MHz 2 mW e.r.p. channel max 50 kHz. 38.0-38.5 MHz 10 mW e.r.p. channel max 200 kHz
	Estonia	Limited implementation	Only 37.6-38.6 MHz, max. 10 mW e.i.r.p., ch. BW 50 kHz. See Regulation of Ministry of Communication and Economical Affairs 07.10.2011 No 96. Usage of other parts of this band for PMR, control and governmental use.
	Finland	Limited implementation	only 31.1, 32.1, 32.9, 33.5, 36.7, 37.1 and 42.4-43.6 MHz with max 200 kHz channels
	France	Limited implementation	For microphones: three channels of 200 kHz available centred at 32.8 MHz, 36.4 MHz and 39.2 MHz
	Georgia	Limited implementation	Limited parts of the band available, individual licence required
	Germany	Limited implementation	to 32.4-38.2 MHz. Permitted channel spacing 10 kHz below 36 MHz and 40 kHz above 36 MHz

Frequency Band	Country	Implementation	Reason/remarks
	Greece	Limited implementation	Limited to 30.00 MHz, 30.50 MHz, 31.00 MHz, 35.00 MHz, 36.50 MHz, 36.70 MHz, 37.00 MHz, 37.10 MHz, 37.50 MHz
	Hungary	Limited implementation	Limited to 34.9-38.5 MHz band is allocated
	Ireland	Implemented	The frequency bands 30.3 - 30.5 MHz, 32.15 - 32.45 MHz and 41.015 - 47.00 MHz are harmonised military bands in Europe.
	Italy	Limited implementation	Military application
	Liechtenstein	Limited implementation	Limited to 10 channels in the band 31.4-39.6 MHz.
	Lithuania	Limited implementation	only 30.01-30.3 MHz, 30.5-32.15 MHz, and 32.45-37.5 MHz are allowed
	Luxembourg	Limited implementation	Excluding the use of the band 34.995-35.225 MHz
	Malta	Limited implementation	Limited to 29.7-34.9 and 37.5-40.98 MHz
	Norway	Limited implementation	Limited to 41.0-43.6 MHz max channel spacing 10 kHz. Max 100 mW e.r.p. AM not allowed
	Portugal	Not implemented	Defence systems
	Romania	Limited implementation	Only sub-bands: 29.7-30.3 MHz; 30.5-32.15 MHz; 32.45- 33.1 MHz; 33.6-34.975 MHz; 37.5- 40.02 MHz; 40.66- 41.015 MHz; 44.5- 45.2 MHz are allowed
	Slovakia	Limited implementation	Limited to 27.75-27.9 and 36.4-38.5 MHz. Defence systems in the rest of the band
	Spain	Limited implementation	Limited to 31.500, 31.750, 37.850, 38.300 and 38.550 MHz
	Sweden	Limited implementation	Limited to 41.0-43.6 MHz - Land Mobile
	Switzerland	Limited implementation	Limited to 10 channels in the band 31.4-39.6 MHz. Main use by defence systems.
	Ukraine	Limited implementation	In the band 30.01-47 MHz maximal transmitter power is 10 mW

Frequency Band	Country	Implementation	Reason/remarks
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS Band A2 87.5-108 MHz	Spain	Implemented	NTAF UN-17
	Ukraine	Limited implementation	Limited to 87.5-92 MHz; 100-108 MHz; (e.i.r.p. =50*10-9W); 89.9-90.2 MHz (the maximal transmitter power is 10 mW)
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS Band B 169.4-174 MHz	Austria	Not implemented	Implementation depends on market demand
	Bulgaria	Not implemented	The band is used for national security needs
	Czech Republic	Limited implementation	Only two parts of the band allowed above 169.5875 MHz 173.3 MHz: 50 mW e.r.p. max 75 kHz. 173.965-174.015 MHz: 2 mW e.r.p. channel spacing max 50 kHz. Other services in the rest of the band
	Hungary	Not implemented	Not planned. Governmental use in the band
	Ireland	Implemented	On a tuning range basis. Thus frequency band is also identified in Table 1.
	Italy	Limited implementation	Limited to 169.815 MHz
	Liechtenstein	Not implemented	Occupied with mobile services
	Portugal	Not implemented	Land Mobile
	San Marino	Limited implementation	Limited to 169.815 MHz
	Serbia	Not implemented	In the Frequency Plan in this part of the spectrum there are not available frequency slots for the radio microphones
	Spain	Limited implementation	Channel plan for 169.4-169.8 MHz according ECC/DEC/(05)02
	Switzerland	Not implemented	Occupied with mobile services
	United Kingdom	Limited implementation	Implemented in 173.325-174.000 MHz and at 2 mW only

Frequency Band	Country	Implementation	Reason/remarks
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS Band C1 169.4-169.475 MHz	Spain	Implemented	NTAF UN-138
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS Band C2 169.4875-169.5875 MHz	Ireland	Implemented	Aids for the hearing impaired (Personal Hearing Aid System) - exclusive use. The frequency band is identified in Table 1.
	Spain	Implemented	NTAF UN-138
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS Band D 173.965-216 MHz	Serbia	Limited implementation	173.965-174.015 MHz
	Spain	Limited implementation	Limited 174.050-174.500 MHz
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS Band E 174-216 MHz	Azerbaijan	Limited implementation	Whole band available, individual licence required
	Denmark	Limited implementation	Tuning range
	France	Implemented	For professional users. 174-223 MHz available.
	Georgia	Limited implementation	Limited parts of the band available, individual licence required
	Malta	Limited implementation	Only parts available, individual licence required
	Portugal	Implemented	The upper limit is up to 223 MHz
	Spain	Limited implementation	Limited to 174.100, 174.300, 175.500, 176.300, 179.300, 188.100, 188.500, 189.100, 191.900 and 194.500 MHz NTAF UN-95, UN-127

Frequency Band	Country	Implementation	Reason/remarks
	Ukraine	Limited implementation	Under condition of not causing interference to other stations working in this band. In bands of 174.4-174.6 MHz and 174.9-175.1 MHz the maximal transmitter power is 10 mW
	United Kingdom	Implemented	The tuning range in the UK is 173.7 to 175.1 MHz
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS Band F1 470-786 MHz	Azerbaijan	Limited implementation	Whole band available, individual licence required
	Bulgaria	Limited implementation	Limited to 470-694 MHz; 723-753 MHz; 778-786 MHz
	Estonia	Limited implementation	Only 470-694 MHz, Max. 50 mW e.r.p. See Regulation of Ministry of Communication and Economical Affairs 07.10.2011 No 96. Usage of other parts of this band for new Technologies.
	Finland	Limited implementation	Regional restrictions. Radiomicrophones in the frequency band 694-786 MHz allowed until the end of year 2020
	France	Limited implementation	For professional users. Limited to 470-694 MHz.
	Greece	Limited implementation	10 mW e.r.p. max
	Liechtenstein	Limited implementation	Limited to 470 - 694 MHz.
	Lithuania	Limited implementation	Band is due to refarming for the implementation of IMT700. Individual registrations required
	Norway	Limited implementation	Limited to 510 MHz - 790 MHz Licence exempt limited to frequencies not individually licensed.
	Poland	Limited implementation	Radio Microphones and Assistive Listening Devices are allowed in the whole band 470-862 MHz until introduction of MFCN networks in Poland. After that frequency band will be limited to the band 470-786 MHz. Individual licensing under study
	Spain	Limited implementation	Limited 470-694 MHz NTAF UN-36
	Switzerland	Limited implementation	Limited to 470 - 694 MHz.

Frequency Band	Country	Implementation	Reason/remarks
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS Band F2 786-789 MHz	Austria	Limited implementation	Currently old regulation (470-862 MHz; 50 mW e.r.p.; 200 kHz channel spacing) is in force
	Azerbaijan	Limited implementation	Whole band available, individual licence required
	Finland	Limited implementation	Regional restrictions. Radio microphones in the frequency band 694-786 MHz allowed until the end of year 2020
	Greece	Limited implementation	10 mW e.r.p. max
	Lithuania	Limited implementation	Band is due to refarming for the implementation of IMT700. Individual registrations required
	Poland	Limited implementation	With technical parameters for the “old” band E. Full implementation and individual licensing under study
	Spain	Not implemented	Only broadcasting TV in this band
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS Band F3 823-826 MHz	Austria	Limited implementation	Currently old regulation (470-862 MHz; 50 mW e.r.p.; 200 kHz channel spacing) is in force
	Azerbaijan	Limited implementation	Whole band available, individual licence required
	France	Implemented	For professional users
	Georgia	Limited implementation	Limited parts of the band available
	Latvia	Implemented	Individual licence required
	Lithuania	Limited implementation	In all 470-862 MHz band 50 mW e.r.p. Only for radio microphones. Individual registrations required
	Poland	Limited implementation	With technical parameters for the “old” band E. Full implementation and individual licensing under study
	Spain	Implemented	NTAF UN-151
	Sweden	Limited implementation	Licence exemption10 mW e.r.p. handheld equipment Licence exemption 50 mW e.r.p.bodyworn equipment

Frequency Band	Country	Implementation	Reason/remarks
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS Band F4 826-832 MHz	Austria	Limited implementation	Currently old regulation (470-862 MHz; 50 mW e.r.p.; 200 kHz channel spacing) is in force
	Azerbaijan	Limited implementation	Whole band available, individual licence required
	France	Implemented	For professional users
	Georgia	Limited implementation	Limited parts of the band available
	Latvia	Implemented	Individual licence required
	Lithuania	Limited implementation	In all 470-862 MHz band 50 mW e.r.p. Only for radio microphones. Individual registrations required
	Poland	Limited implementation	With technical parameters for the “old” band E. Full implementation and individual licensing under study
	Spain	Implemented	NTAF UN-151
	Sweden	Limited implementation	Licence exemption 50 mW e.r.p.
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS Band G 863-865 MHz	Azerbaijan	Limited implementation	Whole band available, individual licence required
	Georgia	Limited implementation	Limited parts of the band available
	Spain	Implemented	NTAF UN-118
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS Band H1 1350-1400 MHz	Austria	Limited implementation	Individual licence required, a licence is only granted for events, max. 100 mW e.i.r. p. body worn otherwise 20 mW eirp.; 200 kHz channels
	Azerbaijan	Limited implementation	Whole band available, individual licence required
	Germany	Limited implementation	via Individual licence; indoor only
	Lithuania	Limited implementation	Individual registrations required
	Luxembourg	Not implemented	Used by fixed service and defense systems)

Frequency Band	Country	Implementation	Reason/remarks
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS Band H2 1492-1518 MHz	Lithuania	Limited implementation	Individual registrations required
	Norway	Implemented	Licence exempt
	United Kingdom	Limited implementation	Limited PMSE operation allowed in 1517-1518 MHz subject to individual authorisation
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS Band H3 1518-1525 MHz	Austria	Limited implementation	Max. 50 mW e.i.r.p.; 200 kHz channels; a licence is only granted for events
	Finland	Limited implementation	1519.2 - 1524.8 MHz, Sound program transmission, Fixed radio links and mobile transmitters for one-way sound program transmission
	Lithuania	Limited implementation	Individual registrations required
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS Band J1 1785-1795 MHz	Azerbaijan	Limited implementation	Whole band available, individual licence required
	France	Implemented	For professional users
	Georgia	Limited implementation	Limited parts of the band available
	Ireland	Implemented	All-island WAPECS in Operation
	Latvia	Implemented	Individual licence required
	Lithuania	Limited implementation	Individual registrations required
	Netherlands	Implemented	max 50 mW e.r.p. Channel spacing 600 kHz
	Norway	Implemented	Licence exempt
	Slovakia	Implemented	Fixed Service
	Spain	Implemented	NTAF UN-119
	United Kingdom	Implemented	Individual licence required

Frequency Band	Country	Implementation	Reason/remarks
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS Band J2 1795-1800 MHz	Azerbaijan	Limited implementation	Whole band available, individual licence required
	Croatia	Implemented	Individual licence required
	Finland	Implemented	Individual license required
	France	Implemented	For professional users
	Georgia	Limited implementation	Limited parts of the band available
	Ireland	Implemented	All-island WAPECS in Operation
	Latvia	Implemented	Individual licence required
	Lithuania	Limited implementation	Individual registrations required
	Netherlands	Implemented	max 50 mW e.r.p. Channel spacing 600 kHz
	Slovakia	Implemented	Fixed Service
	Spain	Implemented	NTAF UN-119
	United Kingdom	Implemented	Individual licence required
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS Band J3 1800-1804.8 MHz	Azerbaijan	Limited implementation	Whole band available, individual licence required
	France	Implemented	For professional users
	Georgia	Limited implementation	Limited parts of the band available
	Latvia	Implemented	Individual licence required
	Lithuania	Limited implementation	Individual registrations required
	Norway	Implemented	Licence exempt
ANNEX 11: RADIO FREQUENCY IDENTIFICATION APPLICATIONS Band A 865-868 MHz	Spain	Implemented	NTAF UN-135
ANNEX 11: RADIO FREQUENCY IDENTIFICATION APPLICATIONS Band A1 865-865.6 MHz	Liechtenstein	Not implemented	Continued operation of equipment installed prior to 31.12.2017 may be allowed. (grandfathering)
	Spain	Implemented	NTAF UN-135

Frequency Band	Country	Implementation	Reason/remarks
ANNEX 11: RADIO FREQUENCY IDENTIFICATION APPLICATIONS Band A2 865.6-867.6 MHz	Liechtenstein	Not implemented	Continued operation of equipment installed prior to 31.12.2017 may be allowed. (grandfathering)
	Spain	Implemented	NTAF UN-135
ANNEX 11: RADIO FREQUENCY IDENTIFICATION APPLICATIONS Band A3 867.6-868 MHz	Liechtenstein	Not implemented	Continued operation of equipment installed prior to 31.12.2017 may be allowed. (grandfathering)
	Spain	Implemented	NTAF UN-135
ANNEX 11: RADIO FREQUENCY IDENTIFICATION APPLICATIONS Band B 915-921 MHz	Belgium	Limited implementation	915-918 MHz
	France	Implemented	Individual registration required
	Hungary	Implemented	With ER-GSM protection
	Liechtenstein	Limited implementation	Limited to the 2 channels below 918 MHz: ER-GSM protection
	Portugal	Limited implementation	Available from 916.1 to 918.9 MHz as defined in EU Decision 2018/1538
	Spain	Implemented	NTAF UN-40
	Sweden	Not implemented	Usage are based on licenses, and all usages which follow the conditions according to the EU 2018/1538 are guaranteed to get licenses.
	Switzerland	Limited implementation	Limited to the 2 channels below 918 MHz: ER-GSM protection.
	United Kingdom	Implemented	The Additional restrictions to protect ER-GSM apply in the UK
ANNEX 11: RADIO FREQUENCY IDENTIFICATION APPLICATIONS Band C1 2446-2454 MHz	Spain	Implemented	NTAF UN-129
ANNEX 11: RADIO FREQUENCY IDENTIFICATION APPLICATIONS Band C2 2446-2454 MHz	Spain	Implemented	NTAF UN-129
ANNEX 12: ACTIVE MEDICAL IMPLANTS AND THEIR ASSOCIATED PERIPHERALS Band A 9-315 kHz	Spain	Implemented	NTAF UN-117

Frequency Band	Country	Implementation	Reason/remarks
ANNEX 12: ACTIVE MEDICAL IMPLANTS AND THEIR ASSOCIATED PERIPHERALS Band B 30-37.5 MHz	Spain	Implemented	NTAF UN-117
ANNEX 12: ACTIVE MEDICAL IMPLANTS AND THEIR ASSOCIATED PERIPHERALS Band C 2483.5-2500 MHz	Spain	Implemented	NTAF UN-117
ANNEX 12: ACTIVE MEDICAL IMPLANTS AND THEIR ASSOCIATED PERIPHERALS Band D 401-406 MHz	Spain	Implemented	NTAF UN-117
ANNEX 12: ACTIVE MEDICAL IMPLANTS AND THEIR ASSOCIATED PERIPHERALS Band F 12500-20000 kHz	Ireland	Implemented	The transmission mask of ULP-AID is defined as follows: 3 dB Bandwidth 300 kHz 10 dB Bandwidth 800 kHz 20 dB Bandwidth 2 MHz
ANNEX A: INFORMATIVE ANNEX COVERING THE APPLICATIONS OPERATING UNDER GENERAL AUTHORISATION REGIME WHICH ARE NOT COVERED BY THE ANNEXES 1 TO 13 OF THIS RECOMMENDATION Band A 26960-27410 kHz	Estonia	Implemented	Implemented through reference in "The Estonian radio frequency allocation plan" and "Conditions for use of radio frequencies and technical requirements for radio equipment exempted from frequency authorisation"
	France	Limited implementation	Arrêté du 31 mars 1992 Limited to 4 W
	Lithuania	Implemented	Implemented by the Order No. 1V-661 of the Director of the Communications Regulatory Authority of 25 May 2012 on the amendment of Order No. 1V-893 of the Director of the Communications Regulatory Authority of 9 September 2010 on Approval of the List of Frequencies (channels), which may be used without an individual authorization
	Netherlands	Implemented	In The Netherlands CB Radio is currently allowed on the basis of "non-interference, non protection". SRDs operate in the same band. So, both have the same rights
	Poland	Implemented	5 kHz channel centre frequency offset
	Romania	Limited implementation	See RO-IR 14-01

Frequency Band	Country	Implementation	Reason/remarks
	United Kingdom	Limited implementation	Only angle modulation with up to 4W
ANNEX A: INFORMATIVE ANNEX COVERING THE APPLICATIONS OPERATING UNDER GENERAL AUTHORISATION REGIME WHICH ARE NOT COVERED BY THE ANNEXES 1 TO 13 OF THIS RECOMMENDATION **Band C** **446-446.2 MHz**	Bosnia and Herzegovina	Limited implementation	Analogue: 446.0-446.1 MHz. Digital: 446.1-446.2 MHz
	Montenegro	Implemented	Analogue: 446.0-446.1 MHz. Digital: 446.1-446.2 MHz
	Serbia	Limited implementation	Analogue: 446.0-446.1 MHz. Digital: 446.1-446.2 MHz
	Turkey	Limited implementation	Analogue: 446.0-446.1 MHz. Digital: 446.1-446.2 MHz
	Ukraine	Limited implementation	Analogue: only 446.0-446.1 MHz
ANNEX A: INFORMATIVE ANNEX COVERING THE APPLICATIONS OPERATING UNDER GENERAL AUTHORISATION REGIME WHICH ARE NOT COVERED BY THE ANNEXES 1 TO 13 OF THIS RECOMMENDATION **Band D** **1880-1900 MHz**	Belgium	Implemented	DECT equipment with a radiated output power of up to 250 mW e.i.r.p. has been exempted from individual licensing
	Cyprus	Implemented	DECT equipment with a radiated output power of up to 250 mW e.i.r.p. has been exempted from individual licensing
	Czech Republic	Implemented	DECT equipment with a radiated output power of up to 250 mW e.i.r.p. has been exempted from individual licensing
	Germany	Implemented	DECT equipment with a radiated output power of up to 250 mW e.i.r.p. has been exempted from individual licensing
	Liechtenstein	Implemented	DECT equipment with a radiated output power of up to 250 mW e.i.r.p. has been exempted from individual licensing
	Malta	Implemented	DECT equipment with a radiated output power of up to 250 mW e.i.r.p. has been exempted from individual licensing
	Netherlands	Implemented	DECT equipment with a radiated output power of up to 250 mW e.i.r.p. has been exempted from individual licensing
	Norway	Implemented	DECT equipment with a radiated output power of up to 250 mW e.i.r.p. has been exempted from individual licensing
	Romania	Implemented	DECT equipment with a radiated output power of up to 250 mW e.i.r.p. has been exempted from individual licensing
	Slovakia	Implemented	DECT equipment with a radiated output power of up to 250 mW e.i.r.p. has been exempted from individual licensing

Frequency Band	Country	Implementation	Reason/remarks
	Spain	Implemented	DECT equipment with a radiated output power of up to 250 mW e.i.r.p. has been exempted from individual licensing
	Switzerland	Implemented	DECT equipment with a radiated output power of up to 250 mW e.i.r.p. has been exempted from individual licensing
	United Kingdom	Implemented	DECT equipment with a radiated output power of up to 250 mW e.i.r.p. has been exempted from individual licensing
ANNEX A: INFORMATIVE ANNEX COVERING THE APPLICATIONS OPERATING UNDER GENERAL AUTHORISATION REGIME WHICH ARE NOT COVERED BY THE ANNEXES 1 TO 13 OF THIS RECOMMENDATION Band E1 5150-5350 MHz	Azerbaijan	Implemented	No licence needed if used indoor and power not exceeding 30 mW
	Cyprus	Implemented	The EC Decisions 2005/513/EC and 2007/90/EC were adopted
	Estonia	Implemented	Implemented through reference in "The Estonian radio frequency allocation plan"
	France	Planned	Pending Arcep decision
	Netherlands	Implemented	Exemption from individual licensing is implemented in the relevant executive order
	Serbia	Implemented	Implementation per 3 July 2020 through reference in the national table of frequency allocations
ANNEX A: INFORMATIVE ANNEX COVERING THE APPLICATIONS OPERATING UNDER GENERAL AUTHORISATION REGIME WHICH ARE NOT COVERED BY THE ANNEXES 1 TO 13 OF THIS RECOMMENDATION Band E2 5470-5725 MHz	Azerbaijan	Implemented	No licence needed if used indoor and power not exceeding 30 mW
	Cyprus	Implemented	The EC Decisions 2005/513/EC and 2007/90/EC were adopted
	Estonia	Implemented	Implemented through reference in "The Estonian radio frequency allocation plan"
	France	Planned	Pending Arcep decision
	Netherlands	Implemented	Exemption from individual licensing is implemented in the relevant executive order
	Serbia	Implemented	Implementation per 3 July 2020 through reference in the national table of frequency allocations
ANNEX A: INFORMATIVE ANNEX COVERING THE APPLICATIONS OPERATING UNDER GENERAL AUTHORISATION REGIME WHICH ARE NOT COVERED BY THE ANNEXES 1 TO 13 OF THIS RECOMMENDATION Band F 5875-5935 MHz	Cyprus	Implemented	The EC Decisions 2005/513/EC and 2007/90/EC were adopted
	Estonia	Implemented	Implemented through reference in "The Estonian radio frequency allocation plan"
	France	Limited implementation	CBTC: individual authorisation Road ITS: pending Arcep decision
	Netherlands	Implemented	Exemption from individual licensing is implemented in the relevant executive order
	Poland	Implemented	ITS installations need individual licences

Frequency Band	Country	Implementation	Reason/remarks
	Serbia	Implemented	Implementation per 3 July 2020 through reference in the national table of frequency allocations
ANNEX A: INFORMATIVE ANNEX COVERING THE APPLICATIONS OPERATING UNDER GENERAL AUTHORISATION REGIME WHICH ARE NOT COVERED BY THE ANNEXES 1 TO 13 OF THIS RECOMMENDATION Band G 63.72-65.88 GHz	Estonia	Implemented	Implemented through reference in "The Estonian radio frequency allocation plan"0
	Italy	Implemented	Implemented by the decree of Ministry of the Economic Development of 27 May 2015 and published in the Italian Official Gazette No. 143 dated 23 June 2015
	Serbia	Implemented	Implementation per 3 July 2020 through reference in the national table of frequency allocations
ANNEX A: INFORMATIVE ANNEX COVERING THE APPLICATIONS OPERATING UNDER GENERAL AUTHORISATION REGIME WHICH ARE NOT COVERED BY THE ANNEXES 1 TO 13 OF THIS RECOMMENDATION Band I 5945-6425 MHz	Cyprus	Implemented	The EC Decision 2021/1067/EU was adopted
	Estonia	Implemented	Implemented through reference in "The Estonian radio frequency allocation plan"
	Italy	Implemented	Implemented through the decree of Ministry of the Economic Development of 31 August 2022 and published in the Italian Official Gazette No. 214 dated 13 September 2022
	Netherlands	Implemented	Implemented on bases of EC Implementing decision 2021/1067
	Slovenia	Implemented	Implemented on bases of EC Implementing decision (EU) 2021/1067

APPENDIX 4: LIST OF ABBREVIATIONS

Table 20: List of abbreviations as used in this document

AFA	Adaptive Frequency Agility
ALD	Assistive Listening Devices
ALS	Assistive Listening Systems
APC	Adaptive Power Control
AVI	Automatic Vehicle Identification for Railways
BFWA	Broadband Fixed Wireless Access
BMA	Building Material Analysis
CB	Citizens' Band
CEPT	European Conference of Postal and Telecommunications Administrations
CW	Continuous Wave
DAA	Detect and Avoid
DAB	Digital Audio Broadcasting
DECT	Digital European Cordless Telecommunications
DFS	Dynamic Frequency Selection
EAS	Electronic Article Surveillance
ECC	Electronic Communications Committee
ECO	European Communications Office
EFIS	ECO Frequency Information System
ENG/OB	Electronic News Gathering / Outside Broadcasting
ER-GSM	Extended spectrum for GSM for Railways

ERC	European Radiocommunications Committee
ERM	Electromagnetic Compatibility and Radio Spectrum Matters
ETSI	European Telecommunications Standard Institute
FHSS	Frequency Hopping Spread Spectrum
FHSS	Frequency Hopping Spread Spectrum
FMCW	Frequency Modulated Continuous Wave
GBSAR	Ground Based Synthetic Aperture Radar
GPR/WPR	Ground- and Wall Probing Radars
HD-GBSAR	High Definition Ground Based Synthetic Aperture Radar
ISM	Industrial, Scientific and Medical applications
ITS	Intelligent Transportation Systems
LAES	Location Application for Emergency Services
LBT	Listen Before Talk
LP-AMI	Low Power Active Medical Implant
LPR	Level Probing Radar
LT2	Location Tracking Type 2
MBANS	Medical Body Area Network Systems
MFCN	Mobile/Fixed Communication Networks
MFCN SDL	Mobile/Fixed Communication Networks Supplemental Downlink
NAP	Network Access Point
NFC	Near Field Communications
NMR	Nuclear Magnetic Resonance
PMR	Professional Mobile Radio / Private Mobile Radio
PMSE	Programme Making Special Events

R&TTE	Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity
RAS	Radio Astronomy Service
RFID	Radio Frequency Identification
RLAN	Radio Local Area Networks
SRD	Short Range Devices
SRR	Short Range Radar
SSP	Spectrum Scanning Procedure
TLPR	Tank Level Probing Radar
TRS	Telecoil Replacement Systems
TTT	Transport & Traffic Telematics
UAS	Unmanned Aircraft Systems
ULP-AID	Ultra Low Power Animal Implant Devices
ULP-AIP	Ultra Low Power Animal Implantable
ULP-AMI	Ultra Low Power Active Medical Implants
ULP-WMCE	Ultra-Low Power Wireless Medical Capsule Endoscopy
UWB	Ultra WideBand
WAS	Wireless Access Systems
WIA	Wireless Industrial Applications
WLL	Wireless Local Loop
WMCE	Wireless Medical Capsule Endoscopy

APPENDIX 5: DUTY CYCLE CATEGORIES

For the purposes of this Recommendation the duty cycle is defined as the ratio, expressed as a percentage, of Σ(Ton)/(Tobs) where Ton is the 'on' time of a single transmitter device and Tobs is the observation period. Ton is measured in an observation frequency band (Fobs). Unless otherwise specified in the relevant Annex, Tobs is a continuous one hour period and Fobs is the applicable frequency band in the Annex of this Recommendation.

For pre-programmed devices the maximum transmitter 'on' time limits are given in Table 21. These limits are advisory with a view to facilitating sharing between systems in the same frequency band.

Table 21: Duty Cycle Categories (when specified over one hour)

Name	Transmitting time / Full cycle	Maximum transmitter "on" time (seconds)	Explanation
Very Low	≤0.1%	0.72	For example, 5 transmissions of 0.72 seconds within one hour
Low	≤1.0%	3.6	For example, 100 transmissions of 360 milliseconds within one hour
High	≤10%	36	For example, 100 transmissions of 3.6 seconds within one hour
Very High	Up to 100%	-	Typically continuous transmission but also those with a duty cycle greater than 10%

DOCUMENT HISTORY

Table 22: Document History

Text	Page	Edition
ERC Recommendation 70-03	1	October 2022
ANNEX 1: NON-SPECIFIC SHORT RANGE DEVICES	7	June 2022
ANNEX 2: TRACKING, TRACING AND DATA AQUISITION	12	June 2019
ANNEX 3: WIDEBAND DATA TRANSMISSION SYSTEMS	15	October 2021
ANNEX 4: RAILWAY APPLICATIONS	17	September 2015
ANNEX 5: TRANSPORT AND TRAFFIC TELEMATICS (TTT)	19	October 2021
ANNEX 6: RADIODETERMINATION APPLICATIONS	22	November 2021
ANNEX 7: ALARMS	26	June 2022
ANNEX 8: MODEL CONTROL	27	June 2022
ANNEX 9: INDUCTIVE APPLICATIONS	28	June 2022
ANNEX 10: RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS	31	October 2021
ANNEX 11: RADIO FREQUENCY IDENTIFICATION APPLICATIONS	35	June 2019
ANNEX 12: ACTIVE MEDICAL IMPLANTS AND THEIR ASSOCIATED PERIPHERALS	38	June 2022
ANNEX 13: MEDICAL DATA ACQUISITION	40	October 2018
ANNEX A: INFORMATIVE ANNEX COVERING THE APPLICATIONS OPERATING UNDER GENERAL AUTHORISATION REGIME WHICH ARE NOT COVERED BY THE ANNEXES 1 TO 13 OF THIS RECOMMENDATION	42	October 2022
APPENDIX 1: NATIONAL IMPLEMENTATION	44	October 2022
APPENDIX 2: LIST OF RELEVANT ECC/ERC DECISIONS, REPORTS, EC DECISIONS AND ETSI HARMONISED EUROPEAN STANDARDS	49	June 2022
APPENDIX 3: NATIONAL RESTRICTIONS	60	October 2022
APPENDIX 4: LIST OF ABBREVIATIONS	89	June 2022
APPENDIX 5: DUTY CYCLE CATEGORIES	92	October 2017