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RO-IR 05

TECHNICAL REGULATION

for the radio interface

concerning Transport and Traffic Telematics devices (TTT)

1. Basic Considerations

Directive 2014/53/EU (RED Directive) of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC was implemented in national legislation by Government Decision No. 740/2016, with subsequent amendments and completions.

This technical regulation contains the requirements for the license exempted radio spectrum usage by the Transport and Traffic Telematics devices (TTT), including radar system installations to be used in vehicles, in the specified frequency bands and considers compliance, especially with the provisions of Article 3 Paragraph 2, and Articles 6-8 of Directive 2014/53/EU.

This technical regulation does not exclude the obligation for radio equipment placed on the market or made available on the market in Romania to comply with Directive 2014/53/EU.

The obligations arising from Directive (EU) 2015/1535 of the European Parliament and of the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services are met in this regulation (OJ L 241, 17.9.2015, pages 1-15).

All Romanian technical regulations for the radio interfaces notified under Directive (EU) 2015/1535 shall be published and made available on National Authority for Management and Regulation in Communications (ANCOM) web-site at: http://www.ancom.ro/reglementari-interfete_2723.

2. Radio Interface Specifications

Transport and Traffic Telematics Devices (TTT)

Frequency band	**Annex**
984 – 7 484 kHz	RO-IR 05–01
7 300 – 23 000 kHz	RO-IR 05–02
5 795 – 5 815 MHz	RO-IR 05–03a
5 795 – 5 805 MHz	RO-IR 05–03b
5 855 – 5 865 MHz	RO-IR 05–04
5 865 – 5 875 MHz	RO-IR 05–05
24.05 – 24.075 GHz	RO-IR 05–06
24.075 – 24.15 GHz	RO-IR 05–07a; RO-IR 05–07b
24.15 – 24.25 GHz	RO-IR 05–08
63.72 – 65.88 GHz	RO-IR 05–09
76 – 77 GHz	RO-IR 05–10a; RO-IR 05-10b

For the purpose of this technical regulation, *Short-Range Device (SRD)* means a radio device which provides unidirectional or bidirectional communication and which receives and/or transmits signals over a short distance at low power. Transport and Traffic Telematics Devices are also part of short-range devices category.

For the purpose of this technical regulation, the *transport and traffic telematics* device category covers radio devices that are used in the field of transports (road, rail, water or air, depending on the relevant technical restrictions), traffic management, navigation, mobility management and in intelligent transport systems (ITS). Typical applications include interfaces between different modes

of transport, communications between vehicles (e.g. car to car), between vehicles and fixed locations (e.g. car-infrastructure) as well as communication from and to users.

For the purpose of this technical regulation, *mean equivalent isotropic radiated power (e.i.r.p.)* means mediated e.i.r.p. during a transmission burst for positioning the transmitter power control that corresponds to the highest power, if power control was implemented in the transmitter.

For the purpose of this technical regulation, the *operating cycle* is defined as the ratio, expressed as a percentage, between Σ(*Ton*)/(*Tobs*), where *Ton* is the operating time («on») of a single radio transmitter device and *Tobs* is the observation period. *Ton* is measured in a frequency observation band (*Fobs*). Unless otherwise specified in this technical regulation, *Tobs* represents an one hour uninterrupted period and *Fobs* is the frequency band specified in this technical regulation.

For the purpose of this technical regulation, *Eurobalise/ Euroloop* means the transmission unit mounted on the railroad track that uses the magnetic transponder technology. The main function of Eurobalise/Euroloop is to transmit and/or receive signals through the air gap. The Eurobalise/ Euroloop is a device mounted on the railroad track, which communicates with a device mounted on a train passing over it.

For the purpose of this technical regulation, the magnetic transponder technology means the method that uses magnetic coupling in the air gap between a transmitter and a receiver for conveying data and energy.

For the purpose of this technical regulation, smart tachographs are defined in Appendix 14 to Commission Implementing Regulation (EU) 2016/799 (OJ L 139, 26.5.2016, page 1) as the application of the tachograph remote communication functionality, and applications of the weights and dimensions are defined as the systems used to apply the weights and dimensions provisioned in Article 10d of Directive (EU) 2015/719 of the European Parliament and of the Council (OJ L 115, 6.5.2015, page 1).

For the purpose of this technical regulation, *dwell time* means in general, a time interval for which a certain frequency range is occupied.

For the purpose of this technical regulation, *non-interference and non-protected* means that it is not allowed to cause any harmful interference to radio communications service and that it shall not be claimed the protection of these devices against harmful interference originating from radio communications services.

The use of radio spectrum by short-range devices is allowed on a non-interference and non-protected basis provided that such devices meet the conditions set out in the Annexes below.

3. Document history:

Edition	Changes
Edition 1/2014	Notification number according to Directive 98/34/EC: 2014/601/RO.

Edition 2/2018 (06.08.2018)	Update according to Commission Implementing Decision (EU) 2017/1483 amending Decision 2006/771/EC on harmonizing the radio spectrum for the use of short-range devices and repealing Decision 2006/804/EC: • All technical specifications have been updated, except RO-IR 05-03b; • At RO-IR 05-03a, frequency band 5795 – 5805 MHz was changed in 5795 – 5815 MHz for road tolling infrastructure applications; • RO-IR 05-12b was introduced for frequency band 76 – 77 GHz, on the conditions for the use of obstacle detection systems on gyroplanes (generic name given to aircraft with wings having a roundabout). Update of the legal framework according to Point 1 – „Basic considerations" and reference documents (row 13); Formal changes according to TCAM-RSC pattern of November 2017.
Edition 3/2020 (23.12.2020)	Update according to Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC on harmonizing the radio spectrum for the use of short-range devices: • Two new frequency bands: 5855 – 5865 MHz (RO-IR 05-04) and 5865 – 5875 MHz (RO-IR 05-05) were added; • Radio interfaces corresponding to the following frequency bands: 24.25 – 24.495 GHz, 24.25 – 24.5 GHz and 24.495 – 24.5 GHz were removed; • Change of frequency band 63 – 64 GHz corresponding to the former radio interface RO-IR 05-11 with the frequency band 63.72 – 65.88 GHz (current RO-IR 05-09); • Extending the scope of the radio interface RO-IR 05–03a; • Renumbering of annexes; • Introduction/updating of definitions and terms. Update according to the list of Class 1 radio equipment subclasses (January 2020 version) published according to Article 1 Paragraph 3 of Commission Decision 2000/299/EC (https://ec.europa.eu/docsroom/documents/40361); Update of the legal framework according to Point 1 – „Basic considerations" and reference documents (row 13);

	Nr	Parameter	Description	Comments
Normative Part	**1**	**Radiocommunication Service**	Mobile	
	2	**Application**	Short Range Devices / Transport and Traffic Telematics devices (TTT)	*This set of usage conditions is only applicable for transmissions (Eurobalise) in the presence of trains and using the 27 MHz band for telepowering.*
	3	**Frequency band**	984 – 7 484 kHz	*Harmonised radio spectrum for use by short-range devices (Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices)*
	4	**Channeling (channel distribution)**	-	
	5	**Modulation/Occupied bandwidth**	-	
	6	**Direction/Separation**	-	
	7	**Transmit power / Power density**	9 dBµA/m at 10 meters	
	8	**Channel occupation and access rules**	Operating cycle limit: 1%	
	9	**Authorization regime**	License exemption	
	10	**Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)**	-	
	11	**Assumptions on spectrum planning**	-	
Informative Part	**12**	**Planned changes**	-	
	13	**Reference**	EN 302 608; Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices; ERC/REC 70-03	
	14	**Notification number**	-	
	15	**Remarks**	-	

	Nr	Parameter	Description	Comments
Normative Part	1	**Radiocommunication Service**	Mobile	
	2	**Application**	Short Range Devices / Transport and Traffic Telematics devices (TTT)	*This set of usage conditions is only applicable for Euroloop transmissions in the presence of trains and using the 27 MHz band for tele powering*
	3	**Frequency band**	7 300 – 23 000 kHz	*Harmonised radio spectrum for use by short-range devices (Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices)*
	4	**Channeling (channel distribution)**	-	
	5	**Modulation/Occupied bandwidth**	-	
	6	**Direction/Separation**	-	
	7	**Transmit power / Power density**	– 7 dBµA/m at 10 meters	
	8	**Channel occupation and access rules**	Antenna requirements apply	*Applicable antenna requirements shall ensure an appropriate performance level to meet the essential requirements provided in Directive 2014/53/EU. If the relevant restrictions are described in the harmonized standards (or parts thereof) the references of which have been published in the Official Journal of the European Union under Directive 2014/53/EU, performances at least equivalent to these restrictions shall be ensured.*
	9	**Authorization regime**	License exemption	
	10	**Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)**	-	
	11	**Assumptions on spectrum planning**	-	
Informative Part	12	**Planned changes**	-	
	13	**Reference**	EN 302 609; Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices; ERC/REC 70-03	
	14	**Notification number**	-	
	15	**Remarks**	-	

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	Nr	Parameter	Description	Comments
Normative Part	1	**Radiocommunication Service**	Mobile	
	2	**Application**	Short Range Devices / Transport and Traffic Telematics devices (TTT)	*This set of usage conditions is only available to road tolling infrastructure usage, smart tachographs and applications of the weights and dimensions measurement*
	3	**Frequency band**	5 795 – 5 815 MHz	*Harmonised radio spectrum for use by short-range devices (Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices)*
	4	**Channeling (channel distribution)**	-	
	5	**Modulation/Occupied bandwidth**	-	
	6	**Direction/Separation**	-	
	7	**Transmit power / Power density**	2 W equivalent isotropic radiated power (e.i.r.p.)	
	8	**Channel occupation and access rules**	Requirements on techniques to access spectrum and mitigate interference shall apply	*Techniques to access spectrum and mitigate interference that provide an appropriate performance level to comply with the essential requirements provisioned in Directive 2014/53/EU shall apply. If the relevant techniques are described in the harmonized standards (or parts thereof) the references of which have been published in the Official Journal of the European Union under Directive 2014/53/EU, a performance at least equivalent to the performance of these techniques shall be ensured.*
	9	**Authorization regime**	License exemption	
	10	**Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)**	-	
	11	**Assumptions on spectrum planning**	-	
Informative Part	12	**Planned changes**	-	
	13	**Reference**	EN 300 674-2-1; Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices; ERC/REC 70-03	
	14	**Notification number**	-	
	15	**Remarks**	-	

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	Nr	Parameter	Description	Comments
Normative Part	1	**Radiocommunication Service**	Mobile	
	2	**Application**	Short Range Devices / Transport and Traffic Telematics devices (TTT)	
	3	**Frequency band**	5 795 – 5 805 MHz	
	4	**Channeling (channel distribution)**	-	
	5	**Modulation/Occupied bandwidth**	-	
	6	**Direction/Separation**	-	
	7	**Transmit power / Power density**	8 W e.i.r.p.	
	8	**Channel occupation and access rules**	-	
	9	**Authorization regime**	License exemption	
	10	**Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)**	-	
	11	**Assumptions on spectrum planning**	-	
Informative Part	12	**Planned changes**	-	
	13	**Reference**	EN 300 674; ERC/REC 70-03	
	14	**Notification number**	2014/601/RO	
	15	**Remarks**	-	

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	Nr	Parameter	Description	Comments
Normative Part	1	**Radiocommunication Service**	Mobile	
	2	**Application**	Short Range Devices / Transport and Traffic Telematics devices (TTT)	*This set of usage conditions applies only to vehicle-vehicle, vehicle-infrastructure and infrastructure-vehicle systems*
	3	**Frequency band**	5 855 – 5 865 MHz	*Harmonised radio spectrum for use by short-range devices (Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices)*
	4	**Channeling (channel distribution)**	-	
	5	**Modulation/Occupied bandwidth**	-	
	6	**Direction/Separation**	-	
	7	**Transmit power / Power density**	33 dBm e.i.r.p. and 23 dBm/MHz e.i.r.p. density Transmit Power Control (TPC) range is 30 dB.	
	8	**Channel occupation and access rules**		*Requirements on techniques to access spectrum and mitigate interference shall apply (Techniques to access spectrum and mitigate interference that provide an appropriate performance level to comply with the essential requirements provisioned in Directive 2014/53/EU shall be used. If the relevant techniques are described in the harmonized standards (or parts thereof) the references of which have been published in the Official Journal of the European Union under Directive 2014/53/EU, a performance at least equivalent to the performance of these techniques shall be ensured)*
	9	**Authorization regime**	License exemption	
	10	**Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)**	-	
	11	**Assumptions on spectrum planning**	-	
Informative Part	12	**Planned changes**	-	
	13	**Reference**	EN 302 571; Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices; ECC/REC/(08)01	
	14	**Notification number**	-	
	15	**Remarks**	-	

	Nr	Parameter	Description	Comments
Normative Part	1	**Radiocommunication Service**	Mobile	
	2	**Application**	Short Range Devices / Transport and Traffic Telematics devices (TTT)	*This set of usage conditions applies only to vehicle-vehicle, vehicle-infrastructure and infrastructure-vehicle systems*
	3	**Frequency band**	5 865 – 5 875 MHz	*Harmonised radio spectrum for use by short-range devices (Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices)*
	4	**Channeling (channel distribution)**	-	
	5	**Modulation/Occupied bandwidth**	-	
	6	**Direction/Separation**	-	
	7	**Transmit power / Power density**	33 dBm e.i.r.p. and 23 dBm/MHz e.i.r.p. density Transmit Power Control (TPC) range is 30 dB.	
	8	**Channel occupation and access rules**		*Requirements on techniques to access spectrum and mitigate interference shall apply (Techniques to access spectrum and mitigate interference that provide an appropriate performance level to comply with the essential requirements provisioned in Directive 2014/53/EU shall be used. If the relevant techniques are described in the harmonized standards (or parts thereof) the references of which have been published in the Official Journal of the European Union under Directive 2014/53/EU, a performance at least equivalent to the performance of these techniques shall be ensured)*
	9	**Authorization regime**	License exemption	
	10	**Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)**	-	
	11	**Assumptions on spectrum planning**	-	
Informative Part	12	**Planned changes**	-	
	13	**Reference**	EN 302 571; Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices; ECC/REC/(08)01	
	14	**Notification number**	-	
	15	**Remarks**	-	

	Nr	Parameter	Description	Comments
Normative Part	1	**Radiocommunication Service**	Mobile	
	2	**Application**	Short Range Devices / Transport and Traffic Telematics devices (TTT)	
	3	**Frequency band**	24.05 – 24.075 GHz	*Harmonised radio spectrum for use by short-range devices (Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices)*
	4	**Channeling (channel distribution)**	-	
	5	**Modulation/Occupied bandwidth**	-	
	6	**Direction/Separation**	-	
	7	**Transmit power / Power density**	100 mW e.i.r.p.	
	8	**Channel occupation and access rules**	-	
	9	**Authorization regime**	License exemption	
	10	**Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)**	-	
	11	**Assumptions on spectrum planning**	-	
Informative Part	12	**Planned changes**	-	
	13	**Reference**	EN 302 858; Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices; ERC/REC 70-03	
	14	**Notification number**	-	
	15	**Remarks**	-	

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	Nr	Parameter	Description	Comments
Normative Part	1	**Radiocommunication Service**	Mobile	
	2	**Application**	Short Range Devices / Transport and Traffic Telematics devices (TTT)	*This set of usage conditions applies only to ground-based vehicle radars*
	3	**Frequency band**	24.075 – 24.15 GHz	*Harmonised radio spectrum for use by short-range devices (Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices)*
	4	**Channeling (channel distribution)**	-	
	5	**Modulation/Occupied bandwidth**	The range of frequency modulations provided in harmonized standards shall apply	
	6	**Direction/Separation**	-	
	7	**Transmit power / Power density**	100 mW e.i.r.p.	
	8	**Channel occupation and access rules**	Requirements on access spectrum techniques and mitigate interference shall apply. *Dwell time* limits provisioned in the harmonised standards shall apply.	*Techniques to access spectrum and mitigate interference that provide an appropriate performance level to comply with the essential requirements provisioned in Directive 2014/53/EU shall be used. If the relevant techniques are described in the harmonized standards (or parts thereof) the references of which have been published in the Official Journal of the European Union under Directive 2014/53/EU, a performance at least equivalent to the performance of these techniques shall be ensured.*
	9	**Authorization regime**	License exemption	
	10	**Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)**	-	
	11	**Assumptions on spectrum planning**	-	
Informative Part	12	**Planned changes**	-	
	13	**Reference**	EN 302 858; Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices; ERC/REC 70-03	
	14	**Notification number**	-	
	15	**Remarks**	-	

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	Nr	Parameter	Description	Comments
Normative Part	1	**Radiocommunication Service**	Mobile	
	2	**Application**	Short Range Devices / Transport and Traffic Telematics devices (TTT)	
	3	**Frequency band**	24.075 – 24.15 GHz	*Harmonised radio spectrum for use by short-range devices (Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices)*
	4	**Channeling (channel distribution)**	-	
	5	**Modulation/Occupied bandwidth**	-	
	6	**Direction/Separation**	-	
	7	**Transmit power / Power density**	0.1 mW e.i.r.p.	
	8	**Channel occupation and access rules**	-	
	9	**Authorization regime**	License exemption	
	10	**Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)**	-	
	11	**Assumptions on spectrum planning**	-	
Informative Part	12	**Planned changes**	-	
	13	**Reference**	EN 302 858; Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices; ERC/REC 70-03	
	14	**Notification number**	-	
	15	**Remarks**	-	

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	Nr	Parameter	Description	Comments

Normative Part	**1**	**Radiocommunication Service**	Mobile	
	2	**Application**	Short Range Devices / Transport and Traffic Telematics devices (TTT)	
	3	**Frequency band**	24.15 – 24.25 GHz	*Harmonised radio spectrum for use by short-range devices (Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices)*
	4	**Channeling (channel distribution)**	-	
	5	**Modulation/Occupied bandwidth**	-	
	6	**Direction/Separation**	-	
	7	**Transmit power / Power density**	100 mW e.i.r.p.	
	8	**Channel occupation and access rules**	-	
	9	**Authorization regime**	License exemption	
	10	**Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)**	-	
	11	**Assumptions on spectrum planning**	-	
Informative Part	**12**	**Planned changes**	-	
	13	**Reference**	EN 302 858; Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices; ERC/REC 70-03	
	14	**Notification number**	-	
	15	**Remarks**	-	

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	Nr	**Parameter**	**Description**	**Comments**

Normative Part	**1**	**Radiocommunication Service**	Mobile	
	2	**Application**	Short Range Devices / Transport and Traffic Telematics devices (TTT)	*This set of of usage conditions applies exclusively to vehicle-vehicle, vehicle-infrastructure and infrastructure-vehicle systems*
	3	**Frequency band**	63.72 – 65.88 GHz	*Harmonised radio spectrum for use by short-range devices (Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices)*
	4	**Channeling (channel distribution)**	-	
	5	**Modulation/Occupied bandwidth**	-	
	6	**Direction/Separation**	-	
	7	**Transmit power / Power density**	40 dBm e.i.r.p.	
	8	**Channel occupation and access rules**	TTT devices placed on the market before 1 January 2020 shall have a precedence clause, i.e. they may use the previous frequency range of 63-64 GHz; otherwise, the same conditions shall apply.	
	9	**Authorization regime**	License exemption	
	10	**Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)**	-	
	11	**Assumptions on spectrum planning**	-	
Informative Part	**12**	**Planned changes**	-	
	13	**Reference**	EN 302 686; Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices; ECC/DEC/(09)01; ERC/REC 70-03	
	14	**Notification number**	-	
	15	**Remarks**	-	

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	Nr	**Parameter**	**Description**	**Comments**

Normative Part	**1**	**Radiocommunication Service**	Mobile	
	2	**Application**	Short Range Devices / Transport and Traffic Telematics devices (TTT)	*This set of usage conditions applies exclusively to vehicle and terrestrial infrastructure systems*
	3	**Frequency band**	76 – 77 GHz	*Harmonised radio spectrum for use by short-range devices (Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices)*
	4	**Channeling (channel distribution)**	-	
	5	**Modulation/Occupied bandwidth**	-	
	6	**Direction/Separation**	-	
	7	**Transmit power / Power density**	55 dBm peak e.i.r.p. and 50 dBm mean e.i.r.p. for systems others than pulse radars 55 dBm peak e.i.r.p. and 23.5 dBm mean e.i.r.p. for pulse radars	
	8	**Channel occupation and access rules**	Requirements on techniques to access spectrum and mitigate interference shall apply. Fixed radars for transport infrastructure shall be based on scanning to limit lighting time and ensure a minimum downtime, so that coexistence with vehicle radar systems shall be possible.	*Techniques to access spectrum and mitigate interference that provide an appropriate performance level to comply with the essential requirements provisioned in Directive 2014/53/EU shall apply. If the relevant techniques are described in the harmonized standards (or parts thereof) the references of which have been published in the Official Journal of the European Union under Directive 2014/53/EU, a performance at least equivalent to the performance of these techniques shall be ensured.*
	9	**Authorization regime**	License exemption	
	10	**Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)**	-	
	11	**Assumptions on spectrum planning**	-	
Informative Part	**12**	**Planned changes**	-	
	13	**Reference**	EN 301 091-1/-2/-3; Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices; ERC/REC 70-03	
	14	**Notification number**	-	
	15	**Remarks**	-	

	Nr	**Parameter**	**Description**	**Comments**
N o t	**1**	**Radiocommunication Service**	Mobile	

	2	**Application**	Short Range Devices / Transport and Traffic Telematics devices (TTT)	*This set of usage conditions applies exclusively to obstacle detection systems for use in gyroplanes*[1]
	3	**Frequency band**	76 – 77 GHz	*Harmonised radio spectrum for use by short-range devices (Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices)*
	4	**Channeling (channel distribution)**	-	
	5	**Modulation/Occupied bandwidth**	-	
	6	**Direction/Separation**	-	
	7	**Transmit power / Power density**	30 dBm peak e.i.r.p. and 3 dBm/MHz average power spectral density	
	8	**Channel occupation and access rules**	Operating cycle limit: ≤ 56%/s	
	9	**Authorization regime**	License exemption	
	10	**Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)**	-	
	11	**Assumptions on spectrum planning**	-	
Informative Part	**12**	**Planned changes**	-	
	13	**Reference**	EN 303 360; Commission Implementing Decision (EU) 2019/1345 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices; ECC/DEC/(16)01; ERC/REC 70-03	
	14	**Notification number**	-	
	15	**Remarks**	-	

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[1] Member States may specify exclusion areas or equivalent measures in which the obstacles detection application for gyroplanes shall not be used for the protection of radio astronomy services or for other use at national level. Gyroplanes are defined as EASA CS-27 and CS-29 (respectively JAR-27 and JAR-29 for previous certifications);