

## **RO-IR 03**

### **TECHNICAL REGULATION**

**for the radio interface**

**concerning Wideband Data Transmission Systems**

## 1. Basic Considerations

Directive 2014/53/EU 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 on making available on the market of radio equipment with subsequent amendments and completions.

This technical regulation contains the requirements for the license exempted radio spectrum usage by the short-range devices intended for Wideband Data Transmission Systems 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](http://www.ancom.ro/reglementari-interfete_2723).

## 2. Radio Interface Specifications

### Wideband Data Transmission Systems

Frequency band	Annex
2 400 – 2 483.5 MHz	RO-IR 03–01
5 150 – 5 350 MHz	RO-IR 03–02
5 470 – 5 725 MHz	RO-IR 03–03
57 – 71 GHz	RO-IR 03–04a, RO-IR 03-04b, RO-IR 03-04c
863 – 868 MHz	RO-IR 03–05
917.4 – 919.4 MHz	RO-IR 03–06

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 and at low power.

The category of *broadband data transmission systems* includes radio devices that use broadband modulation techniques to access radio spectrum. Among typical uses are radio application access systems such as local area radio networks (*WAS / RLANs*) or broadband SRDs in data networks.

For the purpose of this technical regulation, *a network access point on a data network* is a fixed terrestrial short-range device that acts as point of connection for the other short-range devices in the data network at service platforms outside the data network. The term *data network* refers to several short-range devices of which the network is made, including the network access point and the radio application connections between them.

For the purpose of this Technical Regulation, *indoor use* means to use inside buildings, including places assimilated thereto such as aircrafts, in which the shielding shall generally, provide the necessary mitigation to facilitate sharing with other services.

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  $\Sigma(Ton)$  and  $(Tobs)$ , where  $Ton$  is the operating time («on») of a single radio transmitter 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 applicable frequency band specified in this technical regulation.

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: 2014/599/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: RO-IR 03-01, RO-IR 03-04, as well as the addition of RO-IR 03-05 (frequency band 863 – 868 MHz);  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.

<p>Edition 3/2020 (23.12.2020)</p>	<p>Update of the legal framework according to Point 1 – „Basic considerations” and definitions at Point 2 - “Radio Interface Specifications”;</p> <p>Update according to 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:</p> <ul style="list-style-type: none"> <li>• RO-IR 03-01 ÷ RO-IR 03-03 and RO-IR 03-05;</li> <li>• RO-IR 03-04 was repealed (frequency band 57-66 GHz);</li> <li>• New technical specifications were added: RO-IR 03-04a, RO-IR 03-04b and RO-IR 03-04c (frequency band 57-71 GHz);</li> </ul> <p>Update according to Commission Implementing Decision (EU)2018/1538 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:</p> <ul style="list-style-type: none"> <li>• A new technical specification was added: RO-IR 03-06;</li> </ul> <p>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 (<a href="https://ec.europa.eu/docsroom/documents/40361">https://ec.europa.eu/docsroom/documents/40361</a>).</p>
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ROMANIA	Radio Interface Specification	SRD / Wideband Data Transmission Systems	RO-IR 03-01	Edition 3/2020
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	Nr	Parameter	Description	Comments
Normative Part	1	<b>Radiocommunication Service</b>	Mobile	
	2	<b>Application</b>	Short Range Devices / Wideband Data Transmission Systems	<i>Radio Access Systems including Radio Local Area Networks (WAS/RLAN)</i>
	3	<b>Frequency band</b>	2 400 – 2 483.5 MHz	<i>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))</i>
	4	<b>Channeling (channel distribution)</b>	-	
	5	<b>Modulation/Occupied bandwidth</b>	-	
	6	<b>Direction/Separation</b>	-	
	7	<b>Transmit power / Power density</b>	100 mW equivalent isotropic radiated power (e.i.r.p.) 100 mW/100 kHz e.i.r.p. density when frequency-hopping modulation is used 10 mW/MHz e.i.r.p. density when other types of modulation are used	
	8	<b>Channel occupation and access rules</b>	Techniques to access spectrum and mitigate interference that provide an appropriate performance level to comply with the essential requirements provisioned in of 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	<b>Authorization regime</b>	License exemption	
	10	<b>Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)</b>	-	
	11	<b>Assumptions on spectrum planning</b>	-	
Informative Part	12	<b>Planned changes</b>	-	
	13	<b>Reference</b>	EN 300 328; 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	<b>Notification number</b>	-	
	15	<b>Remarks</b>	-	

F1- RTIR Edition:1; Revision:1

ROMANIA	Radio Interface Specification	SRD / Wideband Data Transmission Systems	RO-IR 03-02	Edition 3/2020
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	Nr	Parameter	Description	Comments
Normative Part	1	<b>Radiocommunication Service</b>	Mobile	
	2	<b>Application</b>	Short Range Devices / Wideband Data Transmission Systems Usage is allowed only inside buildings.	<i>Radio Access Systems including Radio Local Area Networks (WAS/RLAN)</i>
	3	<b>Frequency band</b>	5 150 – 5 350 MHz	<i>Harmonised radio spectrum in the 5 GHz frequency band (Decision 2005/513/EC amended by Decision 2007/90/EC)</i>
	4	<b>Channeling (channel distribution)</b>	-	
	5	<b>Modulation/Occupied bandwidth</b>	-	
	6	<b>Direction/Separation</b>	-	
	7	<b>Transmit power / Power density</b>	200 mW mean e.i.r.p.	<i>The maximum mean e.i.r.p. density shall be limited to 10 mW/MHz in any 1 MHz band. WAS/RLANs operating in the frequency band 5 250 – 5 350 MHz shall use transmitter power control, which provides, on average, a mitigation factor of at least 3 dB on the maximum permitted output power of the systems. If transmitter power control is not in use, the maximum permitted mean e.i.r.p. and the corresponding mean e.i.r.p. density limits for the frequency band 5 250-5 350 MHz shall be reduced by 3 dB.</i>
	8	<b>Channel occupation and access rules</b>	WAS/RLANs operating in the frequency band 5 250 – 5 350 MHz shall use mitigation techniques that provide at least an equal level of protection with the detection, operational and response requirements described in EN 301 893 standard to ensure compatible operation with radiodetermination systems. These mitigation techniques shall equalise the probability of selecting a specific channel for all available channels so as to ensure, on average, a near-uniform spread of spectrum loading.	
	9	<b>Authorization regime</b>	License exemption	
	10	<b>Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)</b>	-	
	11	<b>Assumptions on spectrum planning</b>	-	
Informative Part	12	<b>Planned changes</b>	-	
	13	<b>Reference</b>	EN 301 893; Decision 2005/513/EC amended by Decision 2007/90/EC; ECC/DEC/(04)08	
	14	<b>Notification number</b>	2014/599/RO	
	15	<b>Remarks</b>	-	

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ROMANIA	Radio Interface Specification	SRD / Wideband Data Transmission Systems	RO-IR 03-03	Edition 3/2020
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	Nr	Parameter	Description	Comments
<b>Normative Part</b>	1	<b>Radiocommunication Service</b>	Mobile	
	2	<b>Application</b>	Short Range Devices / Wideband Data Transmission Systems Usage is allowed both inside and outside buildings.	<i>Radio Access Systems including Radio Local Area Networks (WAS/RLAN)</i>
	3	<b>Frequency band</b>	5 470 – 5 725 MHz	<i>Harmonised radio spectrum for use in the 5 GHz frequency band (Decision 2005/513/EC amended by Decision 2007/90/EC)</i>
	4	<b>Channeling (channel distribution)</b>	-	
	5	<b>Modulation/Occupied bandwidth</b>	-	
	6	<b>Direction/Separation</b>	-	
	7	<b>Transmit power / Power density</b>	1 W mean e.i.r.p.	<i>The maximum mean e.i.r.p. density shall be limited to 50 mW/MHz in any 1 MHz band. WAS/RLANs operating in the frequency band 5 470-5 725 MHz shall employ transmitter power control, which provides, on average, a mitigation factor of at least 3 dB on the maximum permitted output power of the systems. If transmitter power control is not in use, the maximum permitted mean e.i.r.p. and the corresponding mean e.i.r.p. density limits for the frequency band 5 470-5 725 MHz band shall be reduced by 3 dB.</i>
	8	<b>Channel occupation and access rules</b>	WAS/RLANs operating in the frequency band 5 470-5 725 MHz shall use mitigation techniques that provide at least an equal level of protection with the detection, operational and response requirements described in EN 301 893 standard to ensure compatible operation with radiodetermination systems. These mitigation techniques shall equalise the probability of selecting a specific channel for all available channels so as to ensure, on average, a near-uniform spread of spectrum loading.	
	9	<b>Authorization regime</b>	License exemption	
	10	<b>Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)</b>	-	
	11	<b>Assumptions on spectrum planning</b>	-	
<b>Informative Part</b>	12	<b>Planned changes</b>	-	
	13	<b>Reference</b>	EN 301 893; Decision 2005/513/EC amended by Decision 2007/90/EC; ECC/DEC/(04)08	
	14	<b>Notification number</b>	2014/599/RO	
	15	<b>Remarks</b>	-	

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	Nr	Parameter	Description	Comments
<b>Normative Part</b>	1	<b>Radiocommunication Service</b>	Mobile	
	2	<b>Application</b>	Short Range Devices / Wideband Data Transmission Systems Fixed outdoor installations are excluded.	<i>Radio Access Systems including Radio Local Area Networks (WAS/RLAN)</i>
	3	<b>Frequency band</b>	57 – 71 GHz	<i>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)</i>
	4	<b>Channeling (channel distribution)</b>	-	
	5	<b>Modulation/Occupied bandwidth</b>	-	
	6	<b>Direction/Separation</b>	-	
	7	<b>Transmit power / Power density</b>	40 dBm equivalent isotropic radiated power (e.i.r.p.) and 23 dBm/ MHz e.i.r.p. density	
	8	<b>Channel occupation and access rules</b>	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	<b>Authorization regime</b>	License exemption	
	10	<b>Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)</b>	-	
	11	<b>Assumptions on spectrum planning</b>	-	
<b>Informative Part</b>	12	<b>Planned changes</b>	-	
	13	<b>Reference</b>	EN 302 567 (frequency band 57-66 MHz); 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	<b>Notification number</b>	-	
	15	<b>Remarks</b>	-	

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ROMANIA	Radio Interface Specification	SRD / Wideband Data Transmission Systems	RO-IR 03-04b	Edition 3/2020
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	Nr	Parameter	Description	Comments
Normative Part	1	<b>Radiocommunication Service</b>	Mobile	
	2	<b>Application</b>	Short Range Devices / Wideband Data Transmission Systems	<i>Radio Access Systems including Radio Local Area Networks (WAS/RLAN)</i>
	3	<b>Frequency band</b>	57 – 71 GHz	<i>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)</i>
	4	<b>Channeling (channel distribution)</b>	-	
	5	<b>Modulation/Occupied bandwidth</b>	-	
	6	<b>Direction/Separation</b>	-	
	7	<b>Transmit power / Power density</b>	40 dBm e.i.r.p., 23 dBm/ MHz e.i.r.p. density and a maximum transmitting power at the antenna port or ports of 27 dBm	
	8	<b>Channel occupation and access rules</b>	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	<b>Authorization regime</b>	License exemption	
	10	<b>Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)</b>	-	
	11	<b>Assumptions on spectrum planning</b>	-	
Informative Part	12	<b>Planned changes</b>	-	
	13	<b>Reference</b>	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	<b>Notification number</b>	-	
	15	<b>Remarks</b>	-	

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ROMANIA	Radio Interface Specification	SRD / Wideband Data Transmission Systems	RO-IR 03-04c	Edition 3/2020
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	Nr	Parameter	Description	Comments
<b>Normative Part</b>	1	<b>Radiocommunication Service</b>	Mobile	
	2	<b>Application</b>	Short Range Devices / Wideband Data Transmission Systems Restricted only to fixed outdoor installations.	<i>Radio Access Systems including Radio Local Area Networks (WAS/RLAN)</i>
	3	<b>Frequency band</b>	57 – 71 GHz	<i>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)</i>
	4	<b>Channeling (channel distribution)</b>	-	
	5	<b>Modulation/Occupied bandwidth</b>	-	
	6	<b>Direction/Separation</b>	-	
	7	<b>Transmit power / Power density</b>	55 dBm e.i.r.p., 38 dBm/ MHz e.i.r.p. density and a broadcast antenna gain of $\geq 30$ dBi	
	8	<b>Channel occupation and access rules</b>	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	<b>Authorization regime</b>	License exemption	
	10	<b>Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)</b>	-	
	11	<b>Assumptions on spectrum planning</b>	-	
<b>Informative Part</b>	12	<b>Planned changes</b>	-	
	13	<b>Reference</b>	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	<b>Notification number</b>	-	
	15	<b>Remarks</b>	-	

F1- RTIR Edition:1; Revision:1

ROMANIA	Radio Interface Specification	SRD / Wideband Data Transmission Systems	RO-IR 03-05	Edition 3/2020
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	Nr	Parameter	Description	Comments
<b>Normative Part</b>	1	<b>Radiocommunication Service</b>	Mobie	
	2	<b>Application</b>	Short Range Devices / Wideband Data Transmission Systems	<i>This set of usage conditions applies only to broadband SRD devices in data networks.</i>
	3	<b>Frequency band</b>	863 – 868 MHz	<i>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)</i>
	4	<b>Channeling (channel distribution)</b>	-	
	5	<b>Modulation/Occupied bandwidth</b>	Bandwidth: > 600 kHz and ≤ 1 MHz	
	6	<b>Direction/Separation</b>	-	
	7	<b>Transmit power / Power density</b>	25 mW effective radiated power (e.r.p.)	
	8	<b>Channel occupation and access rules</b>	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.  Operating cycle limit: ≤ 10% for network access points; Operating cycle limit: ≤ 2.8% in the other cases.	
	9	<b>Authorization regime</b>	License exemption	
	10	<b>Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)</b>	-	
	11	<b>Assumptions on spectrum planning</b>	-	
<b>Informative Part</b>	12	<b>Planned changes</b>	-	
	13	<b>Reference</b>	EN 304 220; 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	<b>Notification number</b>	-	
	15	<b>Remarks</b>	-	

F1- RTIR Edition:1; Revision:1

ROMANIA	Radio Interface Specification	SRD / Wideband Data Transmission Systems	RO-IR 03-06	Edition 3/2020
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	Nr	Parameter	Description	Comments
Normative Part	1	<b>Radiocommunication Service</b>	Mobile	
	2	<b>Application</b>	Short Range Devices / Wideband Data Transmission Systems	<i>This set of usage conditions applies only to broadband SRD devices in data networks. All devices in the data network are under the control of network access points.</i>
	3	<b>Frequency band</b>	917.4 – 919.4 MHz (harmonized minimum center band)	<i>Harmonised radio spectrum for use by short-range devices (Commission Implementing Decision (EU) 2018/1538 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).</i>
	4	<b>Channeling (channel distribution)</b>	-	
	5	<b>Modulation/Occupied bandwidth</b>	Bandwidth: ≤ 1 MHz	
	6	<b>Direction/Separation</b>	-	
	7	<b>Transmit power / Power density</b>	25 mW effective radiated power (e.r.p.)	
	8	<b>Channel occupation and access rules</b>	Techniques to access spectrum and mitigate interference that provide an appropriate performance level to meet 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.  Operating cycle limit: ≤ 10 % for network access points. Operating cycle limit: ≤ 2.8 % in the other cases.	
	9	<b>Authorization regime</b>	License exemption	
	10	<b>Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)</b>	-	
	11	<b>Assumptions on spectrum planning</b>	-	
Informative Part	12	<b>Planned changes</b>	-	
	13	<b>Reference</b>	EN 303 659; Commission Implementing Decision (EU) 2018/1538 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 ; ERC/REC 70-03	
	14	<b>Notification number</b>	-	
	15	<b>Remarks</b>	-	

F1- RTIR Edition:1; Revision:1