

## **RO-IR 11**

### **TECHNICAL REGULATION**

**for the radio interface**

**concerning radio frequency identification devices (RFID)**

## 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 radio frequency identification devices 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 that the radio equipment placed on the market or made available on the market in Romania to comply with the 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

### Radio frequency identification devices (RFID)

Frequency band	Annex
400 – 600 kHz	RO-IR 11-01
13 553 – 13 567 kHz	RO-IR 11-02
2 446 – 2 454 MHz	RO-IR 11-03a; RO-IR 11-03b
865 – 868 MHz	RO-IR 11-04
916.1 – 918.9 MHz	RO-IR 11-05

For the purpose of this technical regulation, *Short-Range Device* 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. Radio frequency identification devices also belong to the category of short-range devices.

The *radio frequency identification device (RFID)* category covers tag/readers (interrogators) based radio communications systems, consisting of: (i) radio devices (tags) attached to animate or inanimate items and (ii) transmitter/receiver units (readers (interrogators)) which activate the tags and receive as answer the data back. Typical uses include the tracking and identification of items, such as for example, electronic article surveillance (EAS), collecting and transmitting data relating to the items to which tags are attached, as well; the last may operate battery-less, battery assisted or battery powered. The responses received from a tag are validated by its reader (interrogator) and passed to its host system.

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: 2014/606/RO.
Edition 2/2018 (06.08.2018)	<p>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:</p> <ul style="list-style-type: none"> <li>• RO-IR 11-01, RO-IR 11-02, RO-IR 11-03a were updated;</li> <li>• The new specification RO-IR 11-07 was implemented replacing RO-IR 11-04, RO-IR 11-05 and RO-IR 11-06.</li> </ul> <p>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>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> <p>Update of the legal framework according to Point 1 – „Basic considerations“ and reference documents, as well;</p> <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>• Frequency band: 916.1-918.9 MHz (RO-IR 11-05) was implemented;</li> </ul> <p>Renumbering of annexes;</p> <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>

<b>ROMANIA</b>	<b>Radio Interface Specification</b>	<b>SRD / RFID</b>	<b>RO-IR 11-01</b>	<b>Edition 3/2020</b>
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	<b>Nr</b>	<b>Parameter</b>	<b>Description</b>	<b>Comments</b>
<b>Normative Part</b>	<b>1</b>	<b>Radiocommunication Service</b>	Mobile	
	<b>2</b>	<b>Application</b>	Short Range Devices / Radio frequency identification devices (RFID)	
	<b>3</b>	<b>Frequency band</b>	400 – 600 kHz	<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>
	<b>4</b>	<b>Channeling (channel distribution)</b>	-	
	<b>5</b>	<b>Modulation/Occupied bandwidth</b>	-	
	<b>6</b>	<b>Direction/Separation</b>	-	
	<b>7</b>	<b>Transmit power / Power density</b>	– 8 dBμA/m at 10 meters	
	<b>8</b>	<b>Channel occupation and access rules</b>	-	
	<b>9</b>	<b>Authorisation regime</b>	License exemption	
	<b>10</b>	<b>Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)</b>	-	
	<b>11</b>	<b>Assumptions on spectrum planning</b>	-	
<b>Informative Part</b>	<b>12</b>	<b>Planned changes</b>	-	
	<b>13</b>	<b>Reference</b>	EN 300 330; Commission Implementing Decision (EU) 2019/1345 updating harmonised technical conditions in the area of radio spectrum use for short-range devices; ERC/REC 70-03	
	<b>14</b>	<b>Notification number</b>	-	
	<b>15</b>	<b>Remarks</b>	-	

F1- RTIR Edition:1; Revision:1

<b>ROMANIA</b>	<b>Radio Interface Specification</b>	<b>SRD / RFID</b>	<b>RO-IR 11-02</b>	<b>Edition 3/2020</b>
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	<b>Nr</b>	<b>Parameter</b>	<b>Description</b>	<b>Comments</b>
<b>Normative Part</b>	<b>1</b>	<b>Radiocommunication Service</b>	Mobile	
	<b>2</b>	<b>Application</b>	Short Range Devices / Radio frequency identification devices (RFID)	
	<b>3</b>	<b>Frequency band</b>	13 553 – 13 567 kHz	<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>
	<b>4</b>	<b>Channeling (channel distribution)</b>	-	
	<b>5</b>	<b>Modulation/Occupied bandwidth</b>	-	
	<b>6</b>	<b>Direction/Separation</b>	-	
	<b>7</b>	<b>Transmit power / Power density</b>	60 dBμA/m at 10 meters	
	<b>8</b>	<b>Channel occupation and access rules</b>	The transmission mask and antenna requirements for all combined frequency segments shall apply.	<p>Antenna requirements ensuring an appropriate performance level to meet the essential requirements provided in Directive 2014/53/EU shall apply. 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, a performance at least equivalent to these restrictions shall be ensured.</p> <p>A transmission mask ensuring an appropriate performance level to meet the essential requirements provided in Directive 2014/53/EU shall apply. 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, a performance at least equivalent to these restrictions shall be ensured.</p>
	<b>9</b>	<b>Authorisation regime</b>	License exemption	
	<b>10</b>	<b>Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)</b>	-	
	<b>11</b>	<b>Assumptions on spectrum planning</b>	-	

<b>Informative Part</b>	<b>12</b>	<b>Planned changes</b>	-	
	<b>13</b>	<b>Reference</b>	EN 300 330; 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	
	<b>14</b>	<b>Notification number</b>	-	
	<b>15</b>	<b>Remarks</b>	-	

F1- RTIR Edition:1; Revision:1

ROMANIA	Radio Interface Specification	SRD / RFID	RO-IR 11-03a	Edition 3/2020
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	Nr	Parameter	Description	Comments
Normative Part	1	Radiocommunication Service	Mobile	
	2	Application	Short Range Devices / Radio frequency identification devices (RFID)	
	3	Frequency band	2 446 – 2 454 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	Channeling (channel distribution)	-	
	5	Modulation/Occupied bandwidth	-	
	6	Direction/Separation	-	
	7	Transmit power / Power density	500 mW 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	<i>Techniques to access spectrum and mitigate interference that provide an appropriate performance level to meet the essential requirements provided 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 performance of these techniques shall be ensured.</i>
	9	Authorisation 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 300 440; 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	-	

F1- RTIR Edition:1; Revision:1

ROMANIA	Radio Interface Specification	SRD / RFID	RO-IR 11-03b	Edition 3/2020
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	Nr	Parameter	Description	Comments
Normative Part	1	Radiocommunication Service	Mobile	
	2	Application	Short Range Devices / Radio frequency identification devices (RFID)	
	3	Frequency band	2 446 – 2 454 MHz	
	4	Channeling (channel distribution)	-	
	5	Modulation/Occupied bandwidth	-	
	6	Direction/Separation	-	
	7	Transmit power / Power density	> 500 mW to 4 W e.i.r.p.	<i>Power levels above 500 mW are restricted to use only inside the premises of a building and in this case, the duty cycle of all transmissions shall be ≤ 15 % in any 200 ms period (30 ms on / 170 ms off).</i>
	8	Channel occupation and access rules	Duty cycle: ≤ 15% FHSS (Frequency Hopping Spread Spectrum) techniques to be used only	
	9	Authorisation regime	Licence 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 300 440; ERC/REC 70-03	
	14	Notification number	2014/606/RO	
	15	Remarks	-	

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ROMANIA	Radio Interface Specification	SRD / RFID	RO-IR 11-04	Edition 3/2020
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	Nr	Parameter	Description	Comments
Normative Part	1	Radiocommunication Service	Mobile	
	2	Application	Short Range Devices / Radio frequency identification devices (RFID)	
	3	Frequency band	865 – 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	Channeling (channel distribution)	-	
	5	Modulation/Occupied bandwidth	≤ 200 kHz	
	6	Direction/Separation	-	
	7	Transmit power / Power density	2 W effective radiated power (e.r.p.)	<i>The transmissions of the reader at 2 W e.r.p. are only allowed in four channels where the channel center frequencies are 865.7 MHz, 866.3 MHz, 866.9 MHz and 867.5 MHz . RFID reader devices (RFID interrogators) placed on the market prior to the date of repeal of Decision 2006/804/EC are under a precedence clause, respectively their future usage is allowed in accordance with the provisions of Decision 2006/804/EC before its date of repeal. RFID tags respond to a very low power level (e.r.p. of -20 dBm), in a frequency range around the RFID interrogator channel and shall comply with the essential requirements of Directive 2014/53/EU.</i>
	8	Channel occupation and access rules	<i>Requirements on techniques to access spectrum and mitigate interference shall apply</i>	<i>Techniques to access spectrum and mitigate interference that provide an appropriate performance level to meet the essential requirements provided 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 performance of these techniques shall be ensured.</i>
	9	Authorisation regime	License exemption	
	10	Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)	-	
	11	Assumptions on spectrum planning		
I	12	Planned changes	-	

13	<b>Reference</b>	EN 302 208; 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 / Non-specific Short Range Devices	RO-IR 11-05	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 / Radio frequency identification devices (RFID)	
	3	<b>Frequency band</b>	916.1 – 918.9 MHz	<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: ≤ 400 kHz	
	6	<b>Direction/Separation</b>	-	
	7	<b>Transmit power / Power density</b>	The 4 W effective radiated power (e.r.p.) of the readers (interrogators) is only allowed at center frequencies of 916.3 MHz, 917.5 MHz and 918.7 MHz.	<i>RFID tags respond to a very low power level (-10 dBm e.r.p.), in a frequency band around the RFID readers (interrogators) channels and shall comply with the essential requirements provided in Directive 2014/53/EU.</i>
	8	<b>Channel occupation and access rules</b>		<i>Techniques to access spectrum and mitigate interference that provide an appropriate performance level to meet the essential requirements provided 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 performance of these techniques shall be ensured.</i>
	9	<b>Authorisation regime</b>	Licence 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 302 208; 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	
	14	<b>Notification number</b>	-	
	15	<b>Remarks</b>	-	

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