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RO-IR UWB-02-2

TECHNICAL REGULATION

for the radio interface

concerning equipment using ultra-wideband (UWB) technology

(Building material analysis devices – (BMA))

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.

This technical regulation contains the requirements for the use of licence exempt of equipment using ultra-wideband (UWB) technology (Building material analysis devices – (BMA)) in the specified frequency bands and considers especially compliance with the provisions of Article 3 Paragraph 2, and Articles 6, 7 and 8 of Directive 2014/53/EU.

Nothing in this technical regulation shall preclude the need for equipment placed 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 have been met (OJ L 241, 17.9.2015, p. 1-15).

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

2. Radio Interface Specifications

UWB (Building material analysis devices – (BMA))

Frequency range
Below 1.73 GHz
1.73 – 2.2 GHz
2.2 – 2.5 GHz
2.5 – 2.69 GHz
2.69 – 2.7 GHz
2.7 – 3.4 GHz
3.4 – 4.8 GHz
4.8 – 5 GHz
5 – 8.5 GHz
Above 8.5 GHz

For the purpose of this technical regulation, *equipment using ultra-wideband (UWB) technology* means equipment incorporating, as an integral part or as an accessory, a technology for short-range radio communication, involving the intentional generation and transmission of radio-frequency energy that spreads over a frequency band wider than 50 MHz, which may overlap several frequency bands allocated to radio communication services.

For the purpose of this technical regulation, *building material analysis (BMA) equipment* is defined as electromagnetic field perturbation sensor that is designed to detect the location of objects within a building structure or to determine the physical properties of a building material.

Maximum mean power spectral density, specified as e.i.r.p. of the radio device under test at a particular frequency, is the average power per unit bandwidth (centred on that frequency) radiated in the direction of the maximum level under the specified conditions of measurement.

Peak power, specified as e.i.r.p., is the power contained within a 50 MHz bandwidth at the frequency at which the highest mean radiated power occurs, radiated in the direction of the maximum level under the specified conditions of measurement.

Total radiated power spectral density means the average of the mean power spectral density values measured over a sphere around the measurement scenario with a resolution of at least 15 degree. The detailed measuring setup is detailed within ETSI standard EN 302 065-4.

BMA devices authorised under this technical regulation shall fulfil the following requirements:

- transmitter-On only if manually operated with a non-locking switch if, as well, being in contact or close proximity to the investigated material and the emissions being directed into the direction of the object;
- the BMA transmitter has to switch-off after maximum 10s without movement;
- the total radiated power spectral density has to be 5 dB below the maximum mean power spectral density limits in the table below.

For the purpose of this technical regulation, *non-interference and non-protected basis* means the interdiction that no harmful interference may be caused to any radio communications service and that no claim may be made for protection of these devices against harmful interference originating from radio communications services;

The use of radio spectrum by equipment using ultra-wideband technology (UWB) is allowed on a non-interference and non-protected basis provided that such equipment meets the conditions set out in the Annex and it is used indoors, or if it is used outdoors, it is not attached to a fixed installation, a fixed infrastructure or a fixed outdoor antenna.

3. Document history:

Edition	Changes
Edition 1/2015	Notification number according to Directive 98/34/EC: 2015/140/RO.
Edition 2/2018 (10.08.2018)	Update according to implementing Decision (EU) 2017/1438 amending Decision 2007/131/EC authorizing the use of radio spectrum for equipment using ultra-wideband technology in the Community under harmonized conditions; Update of the legal framework according to Point 1 – „Basic considerations" and reference documents (row 13); Formal changes according to TCAM-RSC model of November 2017.

<table>
<tr><th></th><th>Nr</th><th>Parameter</th><th>Description</th><th>Comments</th></tr>
<tr><td rowspan="11">Normative part</td><td>1</td><td>Radiocommunication Service</td><td>Mobile</td><td></td></tr>
<tr><td>2</td><td>Application</td><td>Short Range Devices / UWB applications</td><td>Building Material Analysis (BMA)</td></tr>
<tr><td>3</td><td>Frequency band</td><td>See row (7) below for applicable frequency bands</td><td>Harmonised radio spectrum for ultra-wideband technology (Implementing Decision (EU) 2017/1438 amending Decision 2007/131/EC authorizing the use of radio spectrum for equipment using ultra-wideband technology in the Community under harmonized conditions)</td></tr>
<tr><td>4</td><td>Channeling (channel distribution)</td><td>-</td><td></td></tr>
<tr><td>5</td><td>Modulation/Occupied bandwidth</td><td>-</td><td></td></tr>
<tr><td>6</td><td>Direction/Separation</td><td>-</td><td></td></tr>
<tr><td>7</td><td>Transmit power / Power density</td><td>
<table>
<tr><th>Frequency range</th><th>Maximum mean power spectral density (e.i.r.p.)</th><th>Maximum peak power (e.i.r.p.) (defined in 50 MHz)</th></tr>
<tr><td>Below 1.73 GHz</td><td>– 85 dBm/MHz (1)</td><td>– 45 dBm</td></tr>
<tr><td>1.73 to 2.2 GHz</td><td>– 65 dBm/MHz</td><td>– 25 dBm</td></tr>
<tr><td>2.2 to 2.5 GHz</td><td>– 50 dBm/MHz</td><td>– 10 dBm</td></tr>
<tr><td>2.5 to 2.69 GHz</td><td>– 65 dBm/MHz (1)</td><td>– 25 dBm</td></tr>
<tr><td>2.69 to 2.7 GHz</td><td>– 55 dBm/MHz (2)</td><td>– 15 dBm</td></tr>
<tr><td>2.7 to 3.4 GHz</td><td>– 70 dBm/MHz (1)</td><td>– 30 dBm</td></tr>
<tr><td>3.4 to 4.8 GHz</td><td>– 50 dBm/MHz</td><td>– 10 dBm</td></tr>
<tr><td>4.8 to 5 GHz</td><td>– 55 dBm/MHz (2)</td><td>– 15 dBm</td></tr>
<tr><td>5 to 8.5 GHz</td><td>– 50 dBm/MHz</td><td>– 10 dBm</td></tr>
<tr><td>Above 8.5 GHz</td><td>– 85 dBm/MHz</td><td>– 45 dBm</td></tr>
</table>
</td><td>Emissions radiating from BMA devices shall be kept to a minimum and in any case not exceed the maximum power limits within the table with the BMA device on a representative wall as defined within ETSI harmonized standard EN 302 065–4.
(1) Devices using a Listen Before Talk (LBT) mechanism described in the harmonised standard ETSI EN 302 065–4, are authorised to operate in frequency range 1.215 – 1.73 GHz, with a maximum mean power spectral density of –70 dBm/MHz and in the frequency ranges 2.5–2.69 GHz and 2.7–3.4 GHz, with a maximum mean power spectral density of –50 dBm/MHz.
(2) To protect the Radio Astronomy Service (RAS) bands 2.69–2.7 GHz and 4.8–5 GHz, the total radiated power spectral density has to be below –65 dBm/MHz.</td></tr>
<tr><td>8</td><td>Channel occupation and access rules</td><td>-</td><td></td></tr>
<tr><td>9</td><td>Authorisation regime</td><td>Licence exemption</td><td></td></tr>
<tr><td>10</td><td>Additional essential requirements (According to Article 3 Paragraph 3 of 2014/53/EU Directive)</td><td>-</td><td></td></tr>
<tr><td>11</td><td>Assumptions on spectrum planning</td><td>-</td><td></td></tr>
<tr><td rowspan="4">Informative part</td><td>12</td><td>Planned changes</td><td>-</td><td></td></tr>
<tr><td>13</td><td>Reference</td><td>EN 302 065-4; Implementing Decision (EU) 2017/1438 amending Decision 2007/131/EC authorizing the use of radio spectrum for equipment using ultra-wideband technology in the Community under harmonized conditions</td><td></td></tr>
<tr><td>14</td><td>Notification number</td><td>-</td><td></td></tr>
<tr><td>15</td><td>Remarks</td><td>-</td><td></td></tr>
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